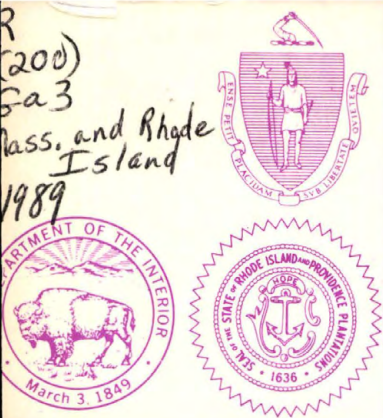
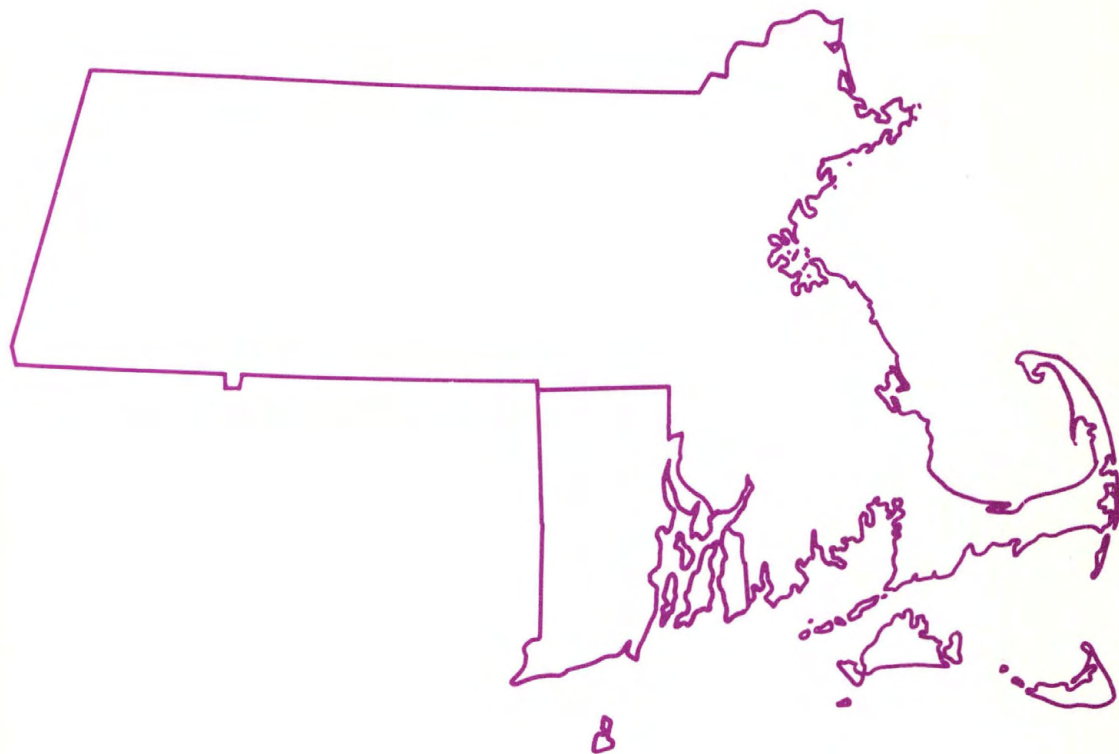




Water Resources Data Massachusetts and Rhode Island Water Year 1989



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MA-RI-89-1
Prepared in cooperation with the States of Massachusetts
and Rhode Island and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

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Water Resources Data Massachusetts and Rhode Island Water Year 1989

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MA-RI-89-1
Prepared in cooperation with the States of Massachusetts and
Rhode Island and with other agencies

DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., *Secretary*

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, *Director*

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

1990

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: J. C. Cerbone, L. Y. Comeau, S. P. Coppola, G. G. Girouard, L. J. Ostiguy, P. L. Provencher, J. P. Russell, D. J. Searles, C. Shivers, Jr., and J. L. Zanca.

Diane Barrett and Marianne Orlando were 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.

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16. Abstract (Limit: 200 words) Water resources data for the 1991 water year for Maryland and Delaware consist of records of water levels and water quality of ground-water wells. This report (Volume 2. Ground-Water Data) contains water levels at 366 observation wells, discharge records for 4 springs and water quality at 276 wells. Locations of ground-water level wells are shown on figures 3 and 4. The data in this report represents that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Maryland and Delaware.			
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Water Resources Data for Massachusetts and Rhode Island, 1989

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 91 gaging stations; monthend contents at 20 lakes and reservoirs; water quality at nine gaging stations; and water levels at 118 observation wells. Also included are data for one crest-stage and 33 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 Mas-

sachusetts 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.

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-

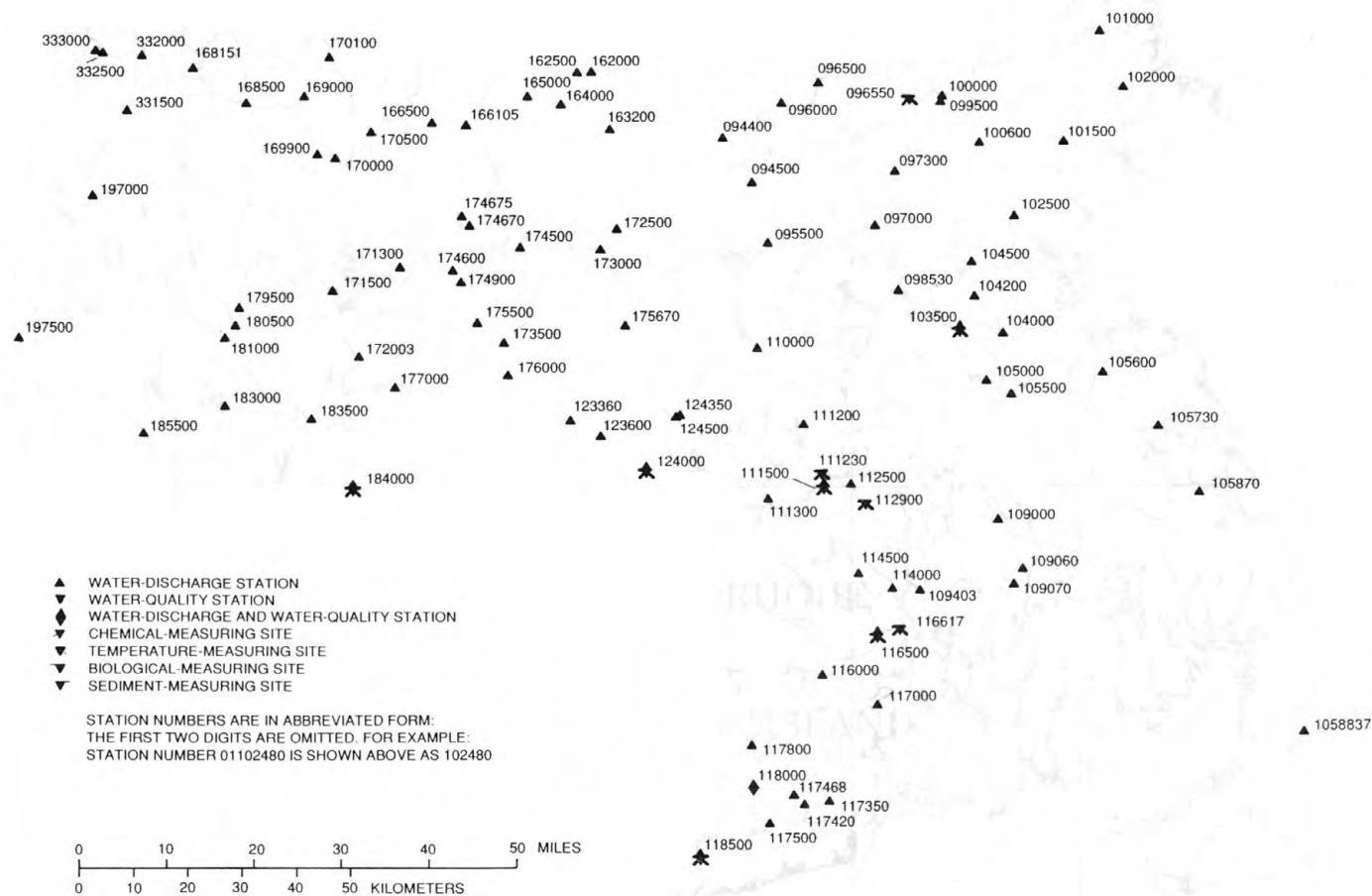
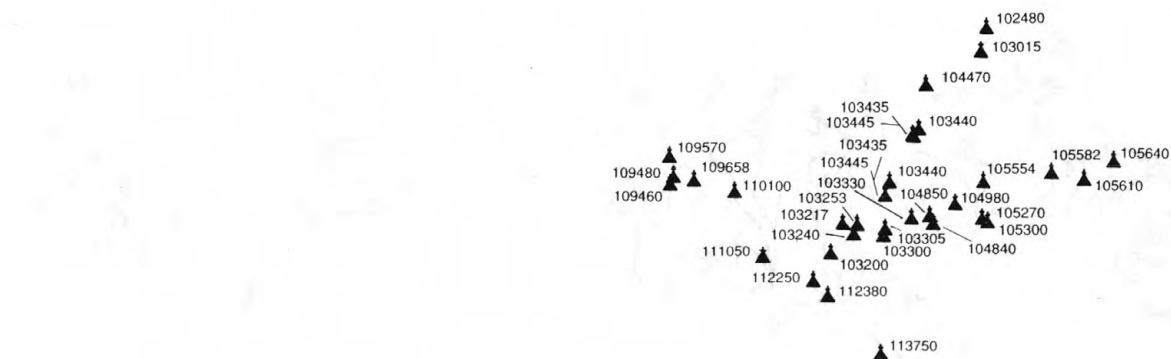


Figure 1.--Location of gaging-stations



▲ LOW-FLOW PARTIAL-RECORD STATION
 ▲ CREST-STAGE PARTIAL-RECORD STATION

STATION NUMBERS ARE IN ABBREVIATED FORM:
 THE FIRST TWO DIGITS ARE OMITTED. FOR EXAMPLE:
 STATION NUMBER 01102480 IS SHOWN ABOVE AS 102480

0 10 20 30 40 50 MILES
 0 10 20 30 40 50 KILOMETERS

Figure 2.--Location of partial-record stations

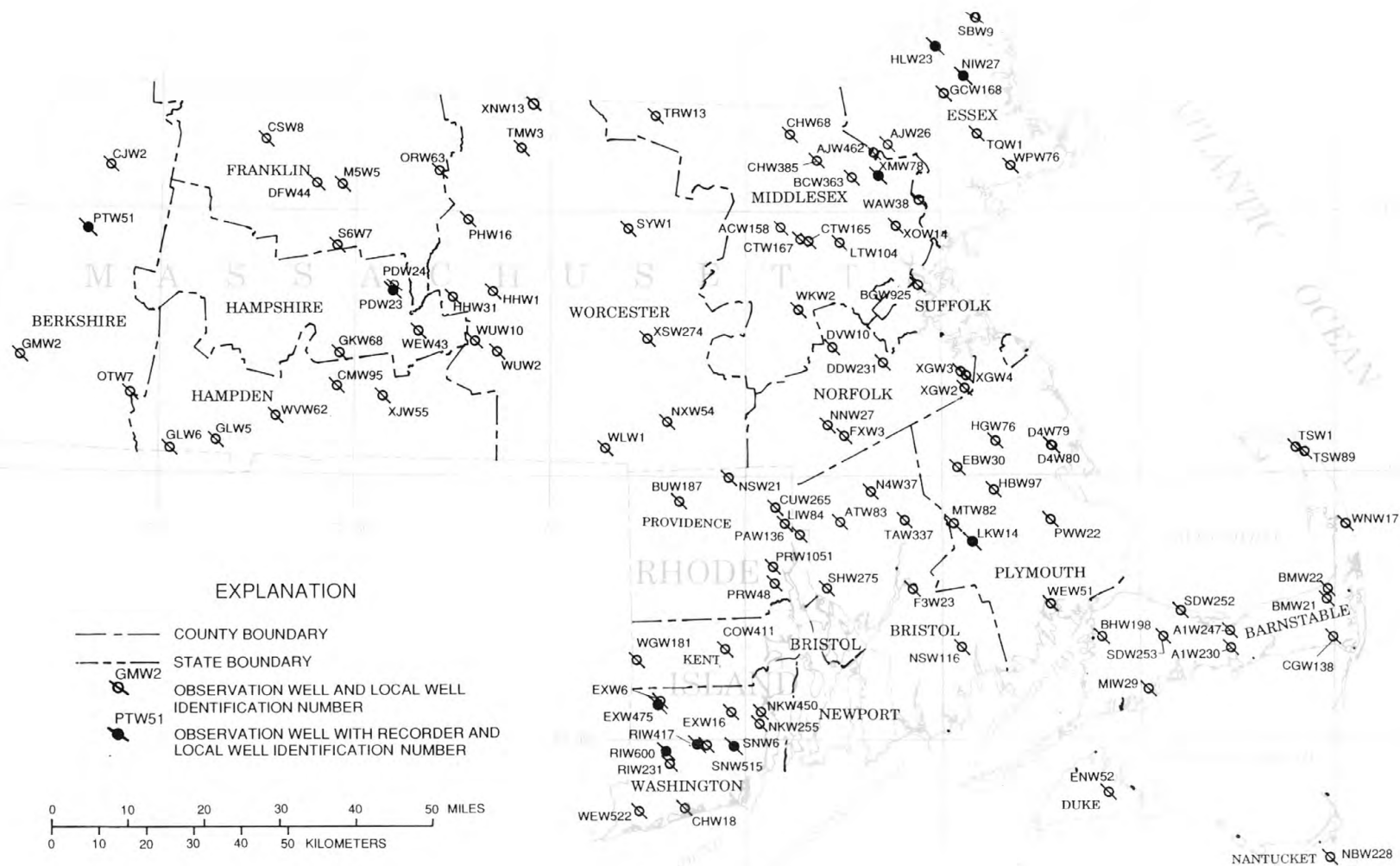


Figure 3.--Location of observation wells

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-89-1." 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, D. Fierra, Commissioner, Division of Water Resources, R. H. Thibedeau, Director; Department of Environmental Quality Engineering, D. S. Greenbaum, Commissioner, Division of Water Pollution Control, C. J. O'Leary, Director; Metropolitan District Commission, M. I. Bhatti, Commissioner, Watershed Management Division, Robert Mitchell, Acting Director, Parks Engineering and Construction Division, F. D. Faucher, Director; Department of Fisheries, Wildlife and Environmental Law Enforcement, Walter E. Bickford, Commissioner, Division of Fisheries and Wildlife, Richard Cronin, Director.

Rhode Island: State Water Resources Board, W. M. Stetson, Chairman, P. P. Calise, Acting General Manager; Department of Environmental Management, R. L. Bendick, Jr., 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 1989 water year ranged from 17 to 31 inches at index gaging stations in Massachusetts and Rhode Island and was in the normal range except in eastern Massachusetts, where it was below normal (lower quartile of record). However, runoff varied considerably in individual months during the year. In October, runoff was generally in the normal range, except in southeastern Massachusetts and southern Rhode Island, where it was below normal. In November, runoff was in the normal range in Rhode Island and above normal (upper quartile of record) in Massachusetts. A protracted period of below-normal runoff occurred from December through April in both States. Runoff at the index station 01111500 Branch River at Forestdale, R.I., set a new low for period of record for March. The combination of below-normal surface-water runoff and ground-water levels resulted in the issuance of regional drought warnings by many water suppliers and water-management agencies in Massachusetts and Rhode Island. Near the end of April, however, runoff began to increase, and, during May through September, runoff was generally in the above-normal range. 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 variously about November 21, April 19, May 6 or 13, or August 13. Recurrence intervals of most peak discharges were less than 2 years.

Storage in Quabbin Reservoir in central Massachusetts ranged from 69 percent full near the end of March to 82 percent full at the end of June, and was 80 percent full at the end of the water year. The combined storage of Borden Brook and Cobble Mountain Reservoirs ranged from 68 percent full at the end of October to 96 percent full at the end of June, and was 87 percent full at the end of the year. Storage in Scituate Reservoir in Rhode Island ranged from 69 percent full at the end of November to 103 percent full at the end of June, and was 102 percent full at the end of the year.

Water-quality samples 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 generally within the previously measured extremes. However, some new highs for periods of record were measured during the 1989 water year. A new high water temperature of 27.0 degrees Celsius was measured

at 01103500 Charles River at Dover, Mass.; a new high pH level of 7.9 units was measured at 01111230 Blackstone River at Millville, Mass.; and new highs for pH (8.10 units) and dissolved-oxygen concentration (15.8 milligrams per liter) were measured at 01116500 Pawtuxet River at Cranston, R.I.

Ground-water levels during October were above normal in northeastern Massachusetts, below normal in eastern Cape Cod, and in the normal range elsewhere in Massachusetts and Rhode Island. Two wells, Barnstable A1W 230 and Taunton TAW 337, reached new low water levels for periods of record during October. Levels in western Massachusetts were above normal in November; levels in southeastern Massachusetts and Cape Cod were below normal, while levels in the remainder of Massachusetts and all of Rhode Island were normal. December water levels were normal for Rhode Island and all of Massachusetts, except for localized below-normal areas in the east- and north-central parts of Massachusetts. During January, areas of below-normal levels expanded to include all of eastern Massachusetts and developed from the western part of Massachusetts east to the Quabbin Reservoir; levels in central Massachusetts and all of Rhode Island remained in the normal range. Water levels during February declined to below normal in both States except for a localized area in north-central Massachusetts, which remained in the normal range. New low water levels for February were reached at nine Massachusetts wells and one Rhode Island well. Minimal recharge in March resulted in a continuation of below-normal levels in all of Massachusetts and extreme northeastern Rhode Island; in the remainder of Rhode Island, levels generally increased and were normal. During March, record low monthly water levels were

reached at 29 wells in Massachusetts (34 percent of wells in the ground-water monitoring network) and one well in Rhode Island. A substantial increase in ground-water recharge during April marked the beginning of the turnaround from deficient water levels. Although levels in western and southeastern Massachusetts, including Cape Cod, remained below normal, levels in the remainder of Massachusetts increased to normal, while levels in Rhode Island were normal for the month. During May, recharge from above-average precipitation resulted in above-normal water levels in southeastern and extreme northwestern Massachusetts and most of Rhode Island. Water levels in the remainder of Massachusetts, including Cape Cod and northwestern Rhode Island, were normal. New record high water levels for May were set at eight wells. A record level at the Hardwick HHW 31 well also was a new high for the period of record. During June through September, water-levels were above normal in most of Massachusetts and Rhode Island, except in Cape Cod, where levels remained normal, and in northeastern Massachusetts, where levels returned to normal during July.

Record high monthly water levels were measured at the Topsfield TQW 1 well in August and September and were the highest since measurements began in 1936. During October through March, 50 new monthly low water levels were recorded. From April through September, 60 new monthly high water levels were recorded. The number of observation wells that set monthly and period of record extremes 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.

Table 1.--Number of observation wells, by month, in which new high or low water levels were set during the 1989 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 LOW FOR MONTH	5	1	2	2	10	30	2	--	--	--	--	--
NEW LOW FOR PERIOD OF RECORD	2	--	--	--	--	--	--	--	--	--	--	--
NEW HIGH FOR MONTH	--	3	--	--	--	1	1	8	11	6	20	14
NEW HIGH FOR PERIOD OF RECORD	--	--	--	--	--	--	--	1	--	--	--	--

DISCHARGE, IN CUBIC FEET PER SECOND

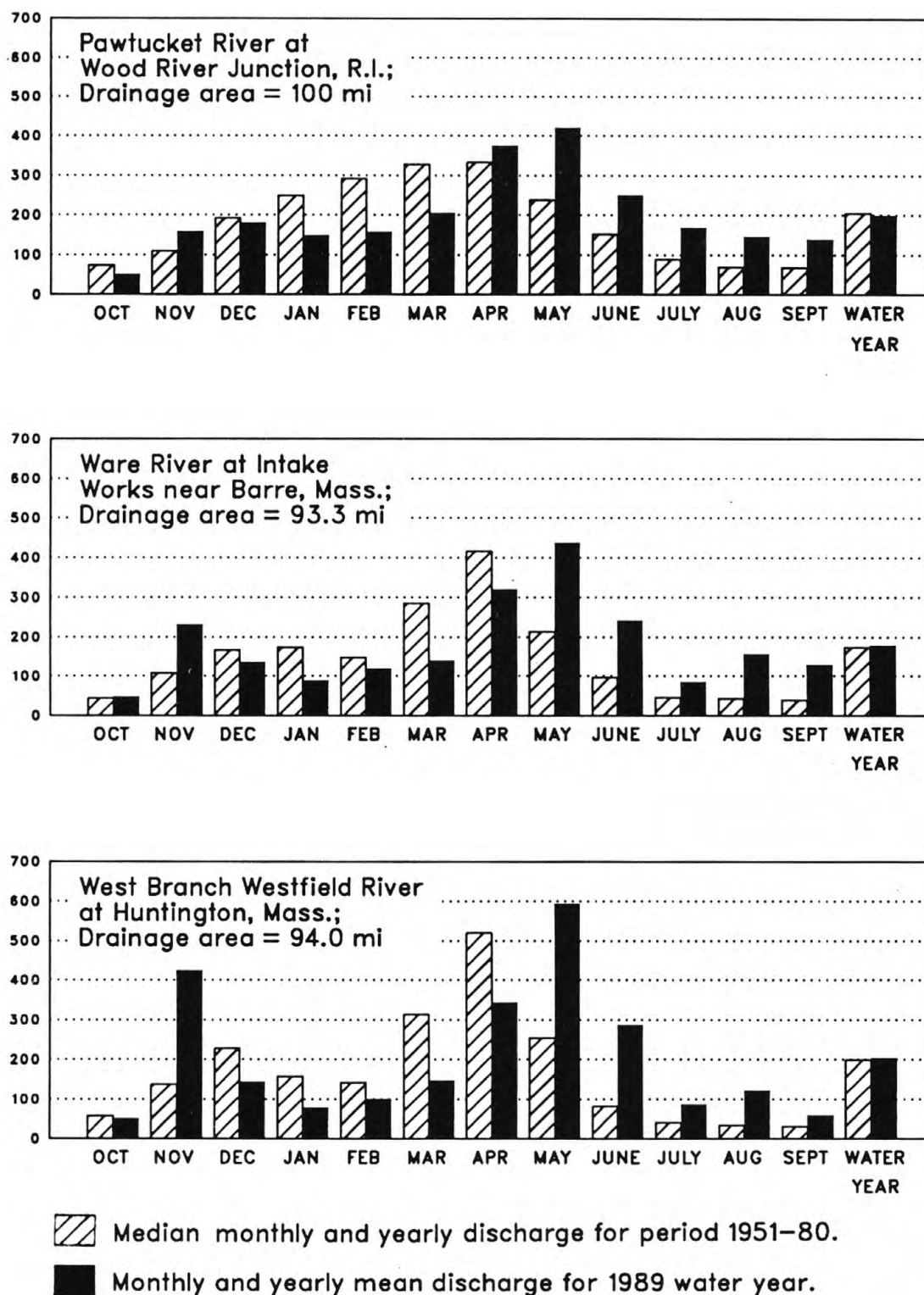


Figure 4.- Comparison of discharge at three long - term index gaging stations during 1989 water year with median discharge for period 1951-80.

UNSHADED AREA SHOWS RANGE BETWEEN
HIGHEST AND LOWEST MONTHEND WATER LEVEL

CURRENT —○— MEDIAN - - - - -

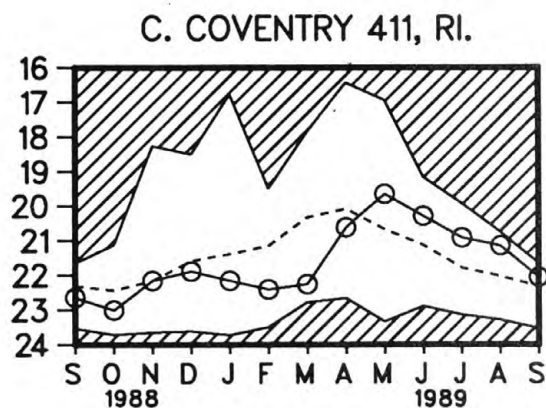
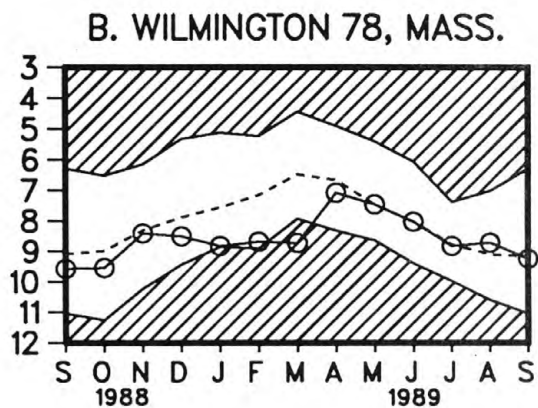
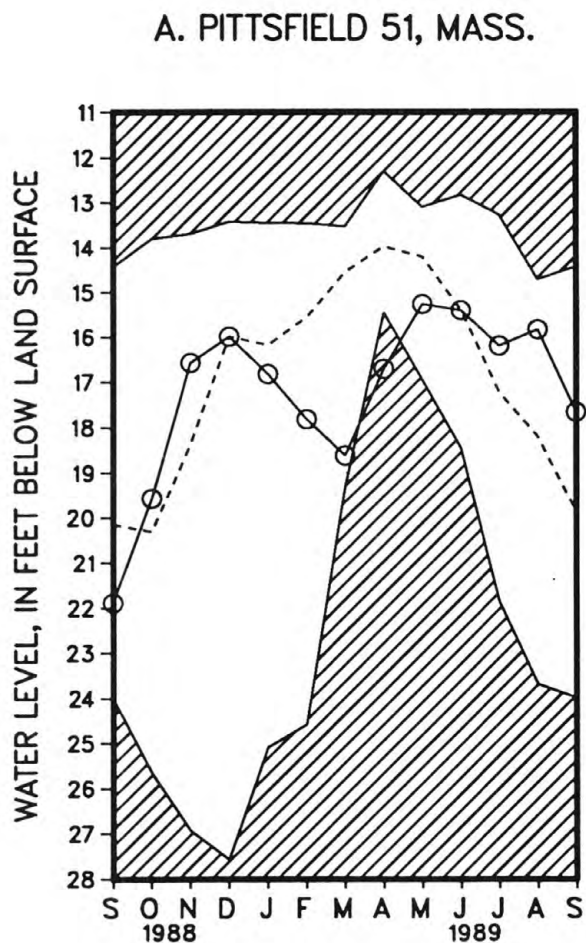


Figure 5.—Comparison of monthly water levels in selected observation wells during 1989 water year with median, maximum, and minimum levels for period of record.

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 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 1988 water year that began October 1, 1988, and ended September 30, 1989. 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 indention in the "List of Stations" in the front of this report. Each indention 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 3.

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 of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all gaging stations and partial-record stations for which data are given in this report are shown in figures 1 and 2.

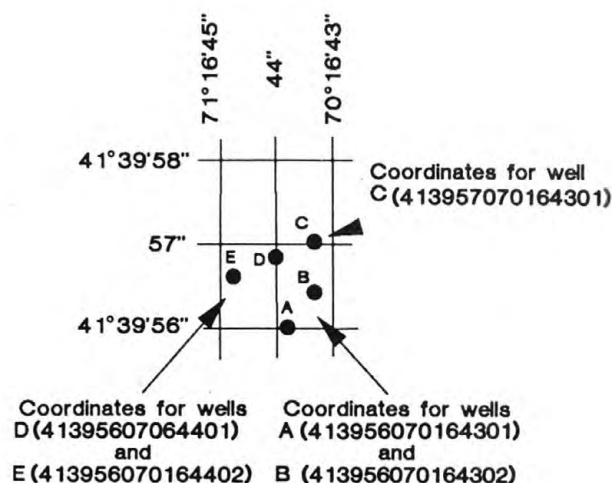


Figure 6.--System for numbering wells (latitude and longitude)

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 infor-

mation 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 co-operating 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 be-

cause 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 in-

formation, 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 3.

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 two parts, the station description and the data table of water levels observed during the water year. 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 **RE**-trieval 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-articles, 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:

Classification	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 computed 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 ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Forty-eight manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. 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) is on 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. Reports listed below are sold by the Books and Open-File Reports Section, U.S. Geological Survey, Box 25425, Federal Center, Denver, CO 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Check or money order is payable to the U.S. Geological Survey. Prices, effective December 1988, are subject to change. When ordering, please give the series (U.S. Geological Survey Techniques of Water-Resources Investigations), title, book number, and chapter number.

- 1-D1 Water temperature-influential factors, field measurement, and data presentation, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: Book 1, Chap. D1. 1975. 65 p. \$2.50.
- 1-D2 Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W. W. Wood: Book 1, Chap. D2. 1976. 24 p. \$2.50.
- 2-D1 Application of surface geophysics to ground-water investigations, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: Book 2, Chap. D1. 1974. 116 p. \$5.00.
- 2-E1 Application of borehole geophysics to water-resources investigations, by W. S. Keys and L. M. MacCary: Book 2, Chap. E1. 1971. 126 p. \$4.75.
- 3-A1 General field and office procedures for indirect discharge measurements, by M. A. Benson and Tate Dalrymple: Book 3, Chap. A1. 1967. 30 p. \$2.00.
- 3-A2 Measurement of peak discharge by the slope-area method, by Tate Dalrymple and M. A. Benson: Book 3, Chap. A2. 1967. 12 p. \$1.75.
- 3-A3 Measurement of peak discharge at culverts by indirect methods, by G. L. Bodhaine: Book 3, Chap. A3. 1968. 60 p. \$5.00.
- 3-A4 Measurement of peak discharge at width contractions by indirect methods, by H. F. Matthai: Book 3, Chap. A4. 1967. 44 p. \$2.25.
- 3-A5 Measurement of peak discharge at dams by indirect methods, by Harry Hulsing: Book 3, Chap. A5. 1967. 29 p. \$2.25.
- 3-A6 General procedure for gaging streams, by R. W. Carter and Jacob Davidian: Book 3, Chap. A6. 1968. 13 p. \$1.75.
- 3-A7 Stage measurements at gaging stations, by T. J. Buchanan and W. P. Somers: Book 3, Chap. A7. 1968. 28 p. \$4.50.
- 3-A8 Discharge measurements at gaging stations, by T. J. Buchanan and W. P. Somers: Book 3, Chap. A8. 1969. 65 p. \$3.25.
- 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.: Book 3, Chap. A9. 1982. 44 p. \$5.00.
- 3-A10 Discharge ratings at gaging stations, by E. J. Kennedy: Book 3, Chap. A10. 1985. 59 p. \$3.00.
- 3-A11 Measurement of discharge by moving-boat method, by G. F. Smoot and C. E. Novak: Book 3, Chap. A11. 1969. 22 p. \$2.00.
- 3-A12 Fluorometric procedures for dye tracing, by J. F. Wilson, Jr., E. B. Cobb, and F. A. Kilpatrick: Book 3, Chap. A12. Rev. 1986. 34 p. \$2.25.
- 3-A13 Computation of continuous records of streamflow, by E. J. Kennedy: Book 3, Chap. A13. 1983. \$4.50.
- 3-A14 The use of flumes in measuring discharge, by F. A. Kilpatrick and V. R. Schneider: Book 3, Chap. A14. 1983. 46 p. \$4.50.
- 3-A15 Computation of water-surface profiles in open channels, by Jacob Davidian: Book 3, Chap. A15. 1984. 48 p. \$2.50.
- 3-A16 Measurements of discharge using tracers, by F. A. Kilpatrick and E. D. Cobb: Book 3, Chap. A16. 1986. 52 p. \$2.50.
- 3-A17 Acoustic velocity meter systems, by Antonius Laenen: Book 3, Chap. A17. 1985. 38 p. \$1.75.
- 3-B1 Aquifer-test design, observation, and data analysis, by R.W. Stallman: Book 3, Chap. B1. 1971. 26 p. \$3.50.
- 3-B2 Introduction to ground-water hydraulics, a programmed text for self-instruction, by G. D. Bennett: Book 3, Chap. B2. 1976. 172 p. \$7.00.
- 3-B3 Type curves for selected problems of flow to wells in confined aquifers, by J. E. Reed: Book 3, Chap. B3. 1980. 106 p. \$6.00.

- 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: Book 3, Chap. B5. 1987. 15 p.
- 3-B6 The Principle of Superposition and its Application in Ground-Water Hydraulics, by T. E. Rielly, O. L. Franke, and G. D. Bennett: Book 3, Chap. B6. 1987. 28 p.
- 3-C1 Fluvial sediment concepts, by H. P. Guy: Book 3, Chap. C1. 1970. 55 p. \$3.75.
- 3-C2 Field methods for measurement of fluvial sediment, by H. P. Guy and V. W. Norman: Book 3, Chap. C2. 1970. 59 p. \$5.50.
- 3-C3 Computation of fluvial-sediment discharge, by George Porterfield: Book 3, Chap. C3. 1972. 66 p. \$3.25.
- 4-A1 Some statistical tools in hydrology, by H. C. Riggs: Book 4, Chap. A1. 1968. 39 p. \$2.50.
- 4-A2 Frequency curves, by H. C. Riggs: Book 4, Chap. A2. 1968. 15 p. \$2.00.
- 4-B1 Low-flow investigations, by H. C. Riggs: Book 4, Chap. B1. 1972. 18 p. \$3.50.
- 4-B2 Storage analyses for water supply, by H. C. Riggs and C. H. Hardison: Book 4, Chap. B2. 1973. 20 p. \$3.25.
- 4-B3 Regional analyses of streamflow characteristics, by H. C. Riggs: Book 4, Chap. B3. 1973. 15 p. \$3.50.
- 4-D1 Computation of rate and volume of stream depletion by wells, by C. T. Jenkins: Book 4, Chap. D1. 1970. 17 p. \$1.75.
- 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: Book 5, Chap. A1. 1979. 626 p. \$11.00.
- 5-A2 Determination of minor elements in water by emission spectroscopy, by P. R. Barnett and E. C. Mallory, Jr.: Book 5, Chap. A2. 1971. 31 p. \$2.75.
- 5-A3 Methods for analysis of organic substances in water, by D. F. Goerlitz and Eugene Brown: Book 5, Chap. A3. 1972. 40 p. \$2.50.
- 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. Lium, and K. V. Slack: Book 5, Chap. A4. 1977. 332 p. \$10.00.
- 5-A5 Methods for determination of radioactive substances in water and fluvial sediments, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: Book 5, Chap. A5. 1977. 95 p. \$6.50.
- 5-A6 Quality assurance practices for the chemical and biological analyses of water and fluvial sediments, by L. C. Friedman and D. E. Erdmann: Book 5, Chap. A6. 1982. 181 p. \$6.50.
- 5-C1 Laboratory theory and methods for sediment analysis, by H. P. Guy: Book 5, Chap. C1. 1969. 58 p. \$3.25.
- 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: Book 7, Chap. C1. 1976. 116 p. \$4.75.
- 7-C2 Computer model of two-dimensional solute transport and dispersion in ground water by L. F. Konikow and J. D. Bredehoeft: Book 7, Chap. C2. 1978. 90 p. \$3.25.
- 7-C3 A model for simulation of flow in singular and interconnected channels by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: Book 7, Chap. C3. 1981. 110 p. \$7.50.
- 8-A1 Methods of measuring water levels in deep wells, by M. S. Garber and F. C. Koopman: Book 8, Chap. A1. 1968. 23 p. \$2.00.
- 8-A2 Installation and service manual for U.S. Geological Survey manometers, by J. D. Craig: Book 8, Chap. A2. 1983. 57 p. \$6.00.
- 8-B2 Calibration and maintenance of vertical-axis type current meters, by G. F. Smoot and C. E. Novak: Book 8, Chap. B2. 1968. 15 p. \$1.75.

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

Note.--In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

MERRIMACK RIVER BASIN

31

01094400 NORTH NASHUA RIVER AT FITCHBURG, MASS.

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.--17 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)
Nov. 2	----	*1,300	unknown	May 2	----	1,000	unknown
Feb. 21	1845	768	5.60	Aug. 13	1845	891	5.84

Minimum discharge, 17 ft³/s, Sept. 10, 11, 12; minimum daily, 18 ft³/s, Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e300	136	e70	62	59	219	187	88	34	26	26
2	21	e700	119	e70	66	53	199	e540	109	33	e23	26
3	22	e275	109	e65	67	50	178	e560	138	31	e22	23
4	21	183	102	e55	59	47	192	e300	110	29	e25	23
5	22	e130	92	e50	52	49	192	e230	87	36	e25	24
6	21	e145	87	e45	49	51	368	e450	93	79	e45	21
7	21	e120	86	e45	48	45	408	e400	105	56	42	20
8	23	e100	82	e50	44	e40	328	e250	138	63	48	19
9	22	e85	76	e55	e41	38	264	e220	173	48	28	19
10	22	e80	70	e50	e37	38	212	e208	374	73	24	18
11	21	e82	67	e46	36	39	174	547	239	119	49	20
12	20	e76	e62	46	34	41	150	514	159	70	324	19
13	20	e100	67	64	33	40	137	368	138	56	483	23
14	19	e140	68	54	49	42	127	283	141	49	381	44
15	19	e105	e66	96	98	56	125	226	135	47	207	195
16	19	e88	e70	83	107	70	342	186	322	38	128	81
17	21	e94	e60	69	67	62	310	166	241	104	91	79
18	22	e100	e55	61	51	64	237	147	176	81	68	74
19	22	e86	e55	62	43	69	208	130	136	58	55	70
20	22	e140	e55	63	38	61	174	116	109	47	52	81
21	21	e450	e65	58	298	70	148	112	95	53	46	113
22	e300	269	e60	e51	378	64	133	108	86	44	39	97
23	e150	195	e60	47	195	60	121	89	84	38	37	85
24	e90	160	e90	46	115	59	113	240	89	32	34	70
25	e70	136	e130	45	90	129	104	305	78	29	28	55
26	e55	123	e90	60	74	188	96	204	63	24	25	171
27	e45	116	e80	73	74	204	90	162	57	23	25	173
28	e45	244	e120	58	65	200	88	138	50	45	24	115
29	e35	218	e130	55	---	198	97	107	46	43	27	90
30	e32	162	e100	59	---	207	181	89	40	32	47	82
31	e35	---	e80	63	---	214	---	83	---	36	31	---
TOTAL	1301	5202	2589	1814	2370	2607	5715	7665	3899	1550	2509	1956
MEAN	42.0	173	83.5	58.5	84.6	84.1	190	247	130	50.0	80.9	65.2
MAX	300	700	136	96	378	214	408	560	374	119	483	195
MIN	19	76	55	45	33	38	88	83	40	23	22	18

CAL YR 1988 TOTAL 38788.7 MEAN 106 MAX 779 MIN 7.9
WTR YR 1989 TOTAL 39177 MEAN 107 MAX 700 MIN 18

e. Estimated

MERRIMACK RIVER BASIN

01094500 NORTH NASHUA RIVER NEAR LEOMINSTER, MASS.

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.--54 years, 196 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)
Nov. 2	0300	*1,930	*4.80	May 11	1145	1,300	3.95
Feb. 21	2115	1,190	3.79	May 24	1330	1,200	3.81
May 2	1845	1,720	4.53	Aug. 13	2115	1,380	4.07
May 6	1515	1,160	3.75	Sept. 15	0515	1,220	3.84

Minimum discharge, 34 ft³/s, Oct. 1; minimum daily, 40 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	232	242	122	106	116	417	262	180	87	63	e62
2	41	1320	210	114	113	104	371	1050	213	82	58	e60
3	43	493	191	112	117	99	342	1090	262	75	48	e54
4	41	303	179	94	105	94	365	601	202	71	54	e50
5	42	235	161	78	91	95	354	428	165	83	52	e52
6	51	287	151	78	87	98	636	871	199	193	91	52
7	45	233	150	79	85	84	710	760	204	123	79	49
8	62	192	143	88	79	80	603	507	268	149	112	48
9	59	168	134	95	74	80	484	403	294	112	65	47
10	52	151	125	86	66	78	393	373	787	175	56	45
11	50	164	118	84	65	76	321	1070	489	229	114	45
12	48	145	99	81	65	83	281	997	314	140	496	46
13	46	190	102	117	64	80	257	688	281	111	807	46
14	45	281	121	94	90	79	237	518	280	111	650	79
15	43	209	126	183	186	98	229	423	280	107	332	505
16	42	170	111	147	190	129	675	362	643	88	e240	152
17	43	189	99	119	117	111	603	323	472	236	e190	159
18	45	203	95	107	95	116	445	281	352	156	e150	135
19	47	167	89	110	85	122	391	248	277	116	e130	136
20	46	344	91	109	77	110	331	219	224	101	e120	153
21	47	856	102	102	542	136	286	209	194	113	e105	209
22	536	472	109	88	674	124	255	207	174	94	e90	160
23	350	328	97	86	358	115	228	167	184	82	e85	144
24	196	267	142	84	217	112	208	609	178	74	e80	122
25	147	229	231	83	169	254	191	682	155	69	e68	101
26	114	202	169	115	138	336	179	424	135	63	e62	308
27	96	188	131	145	140	372	170	341	121	59	e58	283
28	94	399	181	108	122	345	161	286	111	109	e58	181
29	80	382	236	98	---	339	153	223	107	90	e64	144
30	65	284	167	104	---	393	309	188	99	70	e110	129
31	68	---	140	111	---	426	---	167	---	73	e75	---
TOTAL	2724	9283	4442	3221	4317	4884	10585	14977	7844	3441	4762	3756
MEAN	87.9	309	143	104	154	158	353	483	261	111	154	125
MAX	536	1320	242	183	674	426	710	1090	787	236	807	505
MIN	40	145	89	78	64	76	153	167	99	59	48	45

CAL YR 1988 TOTAL 64372 MEAN 176 MAX 1350 MIN 36
WTR YR 1989 TOTAL 74236 MEAN 203 MAX 1320 MIN 40

e Estimated

MERRIMACK RIVER BASIN

33

01095500 NASHUA RIVER AT CLINTON, MASS.

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.--93 years, 190 ft³/s, 23.96 in/yr, adjusted to present drainage area.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Mean	Per square mile	Runoff, in inches
October.....	26.1	0.24	0.28
November.....	246	2.28	2.55
December.....	108	1.00	1.16
Calendar year 1988.....	134	1.24	16.89
January.....	86.1	.80	.92
February.....	132	1.23	1.28
March.....	160	1.49	1.72
April.....	350	3.25	3.63
May.....	489	4.54	5.24
June.....	274	2.54	2.84
July.....	100	.93	1.07
August.....	183	1.70	1.96
September.....	144	1.34	1.50
Water year 1989.....	191	1.77	24.14

MERRIMACK RIVER BASIN

01096000 SQUANNACOOK RIVER NEAR WEST GROTON, MASS.

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.--40 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)
Nov. 2	2200	798	5.07	May 3	0900	*832	*5.13

Minimum discharge, 14 ft³/s, Sept. 13; minimum daily, 15 ft³/s, Sept. 10-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	39	139	74	59	63	203	143	83	48	28	24
2	19	436	121	66	66	59	200	240	96	44	25	21
3	18	497	111	65	62	55	172	707	151	40	23	19
4	16	223	105	e55	54	53	177	383	135	37	24	18
5	17	156	96	e45	48	52	184	240	99	37	27	17
6	18	144	86	42	44	54	226	294	86	57	31	17
7	17	149	88	41	43	51	370	503	109	67	31	17
8	20	124	88	44	e39	43	317	316	130	69	33	16
9	23	107	82	51	39	39	266	222	186	63	34	16
10	25	93	74	50	35	40	214	186	344	65	28	15
11	26	90	e72	47	34	41	178	311	500	120	27	15
12	24	90	e58	42	34	47	155	612	248	89	88	15
13	21	87	55	46	33	45	140	479	168	59	288	15
14	20	131	62	47	34	46	130	307	169	48	314	17
15	19	136	e70	e56	50	57	123	235	157	45	206	73
16	19	109	e66	e90	92	83	216	196	305	42	122	82
17	19	100	59	e82	e70	74	383	175	362	61	84	60
18	20	111	56	e68	51	71	277	155	237	98	62	54
19	19	104	52	e62	44	71	213	138	172	73	50	47
20	18	113	51	e58	39	64	185	124	132	54	45	52
21	18	359	59	55	77	62	157	113	114	50	43	63
22	54	344	70	45	317	63	140	107	102	47	41	67
23	177	208	60	45	254	61	129	97	96	40	39	57
24	117	162	61	44	136	63	120	136	113	36	31	45
25	77	141	92	45	95	80	112	291	101	34	32	38
26	60	129	113	43	e82	151	103	209	87	30	27	54
27	50	118	88	60	75	198	97	151	75	27	24	128
28	44	144	82	62	e69	182	92	131	65	34	23	94
29	39	199	118	55	---	175	92	113	60	48	23	68
30	37	163	105	55	---	172	113	96	54	39	29	53
31	35	---	83	60	---	212	---	87	---	32	28	---
TOTAL	1104	5006	2522	1700	2075	2527	5484	7497	4736	1633	1910	1277
MEAN	35.6	167	81.4	54.8	74.1	81.5	183	242	158	52.7	61.6	42.6
MAX	177	497	139	90	317	212	383	707	500	120	314	128
MIN	16	39	51	41	33	39	92	87	54	27	23	15
CFSM	.56	2.62	1.28	.86	1.16	1.28	2.87	3.80	2.48	.83	.97	.67
IN.	.64	2.92	1.47	.99	1.21	1.48	3.20	4.38	2.77	.95	1.12	.75

CAL YR 1988 TOTAL 34908 MEAN 95.4 MAX 622 MIN 12 CFSM 1.50 IN. 20.39
WTR YR 1989 TOTAL 37471 MEAN 103 MAX 707 MIN 15 CFSM 1.61 IN. 21.88

e Estimated

MERRIMACK RIVER BASIN

35

01096500 NASHUA RIVER AT EAST PEPPERELL, MASS.

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 except those for estimated daily discharges, which are fair. 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.--54 years, 573 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, 2,540 ft³/s, May 13, gage height, 5.65 ft; minimum daily, 112 ft³/s, Oct. 13, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	242	850	394	286	399	986	799	501	372	216	214
2	120	907	779	393	283	395	812	938	504	362	211	188
3	113	1650	764	353	280	387	968	1990	615	296	212	170
4	116	1290	554	329	279	279	931	2280	779	269	211	168
5	121	914	465	e300	284	230	899	1560	750	267	171	154
6	116	821	525	e290	285	231	992	1390	479	268	150	150
7	116	835	425	e290	283	234	1510	1910	590	163	147	150
8	123	739	367	e310	251	234	1660	1810	473	211	148	150
9	156	763	368	e330	238	234	1520	1370	578	353	159	149
10	157	529	356	e320	201	234	1270	1120	1040	317	191	149
11	138	322	392	e290	188	232	1070	1360	1560	474	158	132
12	123	374	344	e270	175	230	929	2220	1260	460	369	128
13	112	382	324	e250	167	231	815	2430	906	330	901	129
14	115	583	359	217	177	231	780	1910	823	272	1540	130
15	112	792	347	197	234	231	759	1470	776	255	1510	366
16	114	625	321	361	308	233	900	1220	1110	237	1110	703
17	138	390	320	403	362	342	1580	1070	1520	614	729	493
18	150	453	319	398	331	388	1530	969	1340	480	613	519
19	142	526	316	388	300	219	1240	874	1050	515	241	463
20	139	545	317	280	277	186	1080	598	848	421	267	492
21	132	1210	323	234	349	280	943	722	758	305	388	559
22	313	1620	322	234	1090	322	844	689	653	240	310	576
23	782	1270	325	235	1300	306	696	777	345	266	245	495
24	628	977	322	265	896	288	750	755	718	292	301	466
25	444	837	325	276	509	363	766	1250	640	287	242	393
26	408	767	466	254	399	610	589	1470	599	183	165	374
27	332	666	469	247	409	927	374	1130	426	141	149	632
28	229	686	423	278	402	872	381	952	361	144	147	643
29	239	969	529	289	---	808	386	822	366	199	148	515
30	236	980	695	287	---	803	459	490	381	230	150	422
31	221	---	544	285	---	1020	---	691	---	221	198	---
TOTAL	6515	23664	13555	9247	10543	11979	28419	39036	22749	9444	11697	10272
MEAN	210	789	437	298	377	386	947	1259	758	305	377	342
MAX	782	1650	850	403	1300	1020	1660	2430	1560	614	1540	703
MIN	112	242	316	197	167	186	374	490	345	141	147	128

CAL YR 1988 TOTAL 176275 MEAN 482 MAX 2430 MIN 19
WTR YR 1989 TOTAL 197120 MEAN 540 MAX 2430 MIN 112

e Estimated

MERRIMACK RIVER BASIN

01096550 MERRIMACK RIVER ABOVE LOWELL, MASS.
(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.

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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (µS/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED SATUR-ATION (%)	COLI-FORM, FECA, 0.7 UM-MF (COLS./100 ML)
NOV 15...	1115	7500	91	6.70	7.0	10.0	1.6	766	11.4	100	470
JAN 25...	1100	1860	176	6.50	5.0	2.0	1.5	759	12.5	91	1800
MAR 29...	0930	10900	114	6.60	23.0	7.0	0.90	760	14.0	116	230
MAY 09...	1100	31300	59	6.50	18.0	11.0	5.0	760	11.0	100	120
JUN 21...	1100	12100	83	6.70	23.0	24.0	--	760	8.3	99	440
AUG 30...	1100	1720	142	6.90	27.5	21.0	--	752	7.3	83	>1200

DATE	STREP-TOCOCCHI FECA, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB WH TOT FLD (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)
NOV 15...	5300	17	7	5.0	0.96	10	55	1	1.3	0	12
JAN 25...	>100000	21	7	6.4	1.2	20	67	2	0.70	0	16
MAR 29...	22000	16	7	4.8	1.0	13	61	1	1.6	0	9
MAY 09...	<100	11	5	3.0	0.60	7.3	59	1	0.90	0	5
JUN 21...	--	14	5	4.5	0.78	9.8	58	1	0.90	0	10
AUG 30...	<20	--	--	--	--	--	--	--	--	0	18

DATE	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)
NOV 15...	10	14	13	0.10	6.3	56	59	0.360	0.150	0.60	0.050
JAN 25...	14	14	31	0.10	6.3	89	91	0.380	0.430	0.80	0.110
MAR 29...	9	12	19	0.10	4.9	69	64	0.220	0.210	0.70	0.100
MAY 09...	5	6.0	8.9	0.10	4.1	41	35	0.130	0.030	0.30	0.020
JUN 21...	9	6.0	13	0.10	4.9	55	46	0.190	0.090	0.50	0.030
AUG 30...	17	--	--	--	--	--	--	0.450	0.150	0.50	0.190

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

MERRIMACK RIVER BASIN

01097000 ASSABET RIVER AT MAYNARD, MASS.

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.--No estimated daily discharges. Records good. 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.--48 years, 186 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, 739 ft³/s, May 13, gage height, 4.25 ft; minimum daily, 29 ft³/s, Oct. 16, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	56	238	108	84	115	390	272	162	81	73	87
2	42	245	203	100	85	111	385	358	181	74	60	75
3	44	281	179	96	97	107	331	516	199	63	66	69
4	39	271	161	90	87	104	298	564	198	61	48	67
5	36	219	149	72	76	103	288	467	173	62	58	44
6	33	167	137	61	65	103	334	438	150	87	57	36
7	31	139	130	57	67	98	440	495	157	114	68	54
8	35	123	130	65	64	90	531	490	190	111	95	45
9	37	101	116	73	59	78	546	422	215	100	99	31
10	42	108	107	74	56	75	508	371	274	89	90	41
11	33	88	110	70	54	73	436	461	324	160	87	52
12	43	85	121	67	53	80	375	655	299	138	135	38
13	36	91	91	72	34	90	335	729	251	112	202	42
14	33	151	91	71	67	87	302	648	233	88	335	52
15	30	160	103	83	74	97	261	544	213	73	334	93
16	29	142	109	107	122	114	388	461	256	68	321	110
17	29	128	97	98	113	123	567	407	317	109	208	119
18	36	136	85	103	86	119	611	368	347	125	176	130
19	44	136	79	91	72	133	546	324	302	151	167	123
20	36	149	78	89	65	135	481	288	241	134	161	160
21	36	276	82	86	128	144	421	267	201	140	156	168
22	100	413	91	76	321	164	367	271	171	165	142	170
23	188	434	88	49	396	153	320	249	156	183	123	171
24	174	360	89	68	310	130	290	238	152	162	113	164
25	120	294	141	79	198	179	262	266	147	125	100	156
26	83	242	157	72	149	279	249	277	138	100	90	150
27	57	216	129	94	125	310	228	253	119	78	80	153
28	45	221	117	100	127	261	209	227	108	84	72	153
29	54	246	145	84	---	232	200	201	100	91	61	143
30	50	261	143	80	---	236	232	176	91	90	70	116
31	46	---	124	83	---	312	---	160	---	81	101	---
TOTAL	1685	5939	3820	2518	3234	4435	11131	11863	6065	3299	3948	3012
MEAN	54.4	198	123	81.2	115	143	371	383	202	106	127	100
MAX	188	434	238	108	396	312	611	729	347	183	335	171
MIN	29	56	78	49	34	73	200	160	91	61	48	31

CAL YR 1988 TOTAL 53428 MEAN 146 MAX 657 MIN 23
WTR YR 1989 TOTAL 60949 MEAN 167 MAX 729 MIN 29

MERRIMACK RIVER BASIN

39

01097300 NASHOBA BROOK NEAR ACTON, MASS.

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 fair. Occasional regulation since 1967 by pond upstream.

AVERAGE DISCHARGE.--26 years, 20.6 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, 89 ft³/s, Apr. 17, gage height, 3.56 ft; minimum, 1.4 ft³/s, Sept. 11-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	4.6	23	e7.9	7.2	8.8	51	29	11	4.4	2.6	3.0
2	1.7	26	18	7.3	8.1	8.2	39	39	11	3.9	2.3	2.7
3	1.9	51	15	7.2	7.5	7.7	30	76	12	3.5	2.0	2.4
4	1.7	36	13	e6.9	6.7	7.6	29	61	12	3.2	1.8	2.1
5	2.0	20	12	5.3	6.2	7.6	30	40	9.5	3.2	1.7	2.0
6	2.2	14	9.8	4.2	5.2	7.6	36	39	8.6	4.9	2.3	2.0
7	2.4	12	9.5	4.1	5.0	e6.9	64	53	10	7.1	6.0	2.0
8	2.3	9.4	9.9	4.2	e4.8	6.7	67	42	12	6.6	5.6	1.8
9	2.8	8.4	9.3	4.9	e4.4	6.0	69	32	17	5.5	4.9	1.7
10	2.9	7.7	8.0	5.2	3.9	5.7	55	27	26	4.6	3.5	1.6
11	2.7	7.4	7.8	5.0	3.6	5.6	41	42	38	7.3	3.2	1.5
12	2.3	7.4	6.5	5.0	3.6	6.6	33	77	23	7.6	9.0	1.4
13	2.1	7.8	5.1	4.6	3.7	8.3	28	75	15	4.9	28	1.4
14	2.0	14	5.2	e5.0	4.0	8.5	26	54	14	3.9	68	1.4
15	2.7	18	6.8	5.8	6.1	9.2	24	41	13	3.7	56	6.3
16	2.2	13	e7.4	7.1	13	13	45	34	26	3.3	29	9.8
17	1.9	10	6.2	6.6	e9.2	13	86	30	40	4.8	17	6.2
18	1.8	11	5.4	6.3	e6.5	11	70	27	31	12	10	5.6
19	1.9	11	5.0	6.2	5.2	13	53	23	21	9.3	7.3	5.4
20	1.9	13	4.8	6.6	e4.8	12	45	21	14	5.9	6.2	14
21	1.9	40	5.1	6.5	12	12	38	19	11	5.2	5.8	19
22	5.3	55	5.9	6.2	52	18	31	23	9.7	5.3	5.3	16
23	11	37	e5.8	5.3	48	15	28	23	8.7	4.4	4.6	9.6
24	12	24	6.3	5.2	26	13	25	19	7.9	3.6	4.3	7.9
25	7.2	19	12	5.2	15	21	22	27	7.8	3.1	3.6	6.6
26	5.3	15	16	5.2	e12	46	20	25	7.1	2.7	3.2	7.6
27	4.5	14	e11	6.7	11	40	19	19	6.4	2.5	2.9	17
28	4.2	17	9.3	e7.4	10	29	18	17	5.6	2.7	2.7	13
29	4.0	30	15	6.5	---	27	16	14	5.4	4.6	2.6	8.3
30	3.9	32	13	6.5	---	28	21	12	4.9	3.8	3.7	6.5
31	3.8	---	e9.5	7.0	---	46	---	11	---	3.0	3.9	---
TOTAL	106.1	584.7	296.6	183.1	304.7	468.0	1159	1071	438.6	150.5	309.0	185.8
MEAN	3.42	19.5	9.57	5.91	10.9	15.1	38.6	34.5	14.6	4.85	9.97	6.19
MAX	12	55	23	7.9	52	46	86	77	40	12	68	19
MIN	1.6	4.6	4.8	4.1	3.6	5.6	16	11	4.9	2.5	1.7	1.4

CAL YR 1988 TOTAL 4626.51 MEAN 12.6 MAX 101 MIN .88
WTR YR 1989 TOTAL 5257.1 MEAN 14.4 MAX 86 MIN 1.4

e Estimated

MERRIMACK RIVER BASIN

01098530 SUDBURY RIVER AT SAXONVILLE, MASS.

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 good 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.--9 years (water years 1981-89), 185 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, 623 ft³/s, Aug. 13, gage height, 8.90 ft; minimum daily, 15 ft³/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	67	236	127	65	e115	429	279	114	66	37	92
2	49	269	194	124	65	e105	412	337	112	52	37	90
3	58	187	162	120	67	e95	399	363	118	45	68	84
4	43	166	151	e90	69	e88	395	361	122	42	78	80
5	45	154	140	e62	62	e82	370	340	125	43	84	78
6	41	153	139	e65	58	e76	482	372	124	97	97	76
7	35	139	143	68	55	e72	513	368	152	71	101	76
8	177	127	137	67	51	e68	546	343	206	62	145	75
9	251	121	159	67	49	e67	543	330	215	54	100	73
10	227	99	160	66	44	e65	498	349	316	106	92	72
11	198	89	159	58	42	e63	452	529	287	111	126	71
12	86	84	150	57	41	e61	412	573	279	69	266	70
13	41	93	146	65	40	e65	382	526	320	56	438	70
14	31	151	145	58	41	e72	337	484	303	52	573	75
15	23	112	143	67	60	e78	304	435	288	51	547	214
16	18	104	134	70	80	e80	471	391	348	48	498	129
17	15	121	128	67	71	e100	514	366	336	116	429	144
18	18	127	127	66	62	e110	487	345	335	107	339	136
19	25	123	123	63	57	e135	475	311	310	88	298	165
20	19	221	120	61	52	e120	481	300	283	91	270	233
21	18	403	114	67	e150	146	445	290	259	216	235	274
22	91	308	90	68	e360	140	416	253	240	149	140	296
23	78	266	92	69	e300	129	393	216	207	126	137	338
24	59	222	112	69	e240	140	368	202	140	109	122	309
25	67	179	151	67	e190	271	361	139	138	95	104	270
26	69	154	132	73	e150	264	355	123	131	79	102	199
27	65	165	123	86	e135	257	347	123	116	57	94	191
28	60	240	125	75	e125	243	321	122	117	64	90	163
29	60	287	137	68	---	210	247	104	121	69	87	145
30	55	263	131	65	---	235	294	98	109	49	123	128
31	52	---	132	65	---	352	---	100	---	42	99	---
TOTAL	2128	5194	4335	2260	2781	4104	12449	9472	6271	2482	5956	4416
MEAN	68.6	173	140	72.9	99.3	132	415	306	209	80.1	192	147
MAX	251	403	236	127	360	352	546	573	348	216	573	338
MIN	15	67	90	57	40	61	247	98	109	42	37	70

CAL YR 1988 TOTAL 55763 MEAN 152 MAX 545 MIN 15
WTR YR 1989 TOTAL 61848 MEAN 169 MAX 573 MIN 15

e Estimated

MERRIMACK RIVER BASIN

41

01099500 CONCORD RIVER BELOW RIVER MEADOW BROOK AT LOWELL, MASS.

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 excellent 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.--53 years, 635 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, 1,600 ft³/s, May 14, gage height, 6.65 ft; minimum daily, 100 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	201	806	393	267	581	926	957	568	358	232	332
2	113	502	792	373	268	535	968	1080	559	327	215	307
3	117	597	762	354	279	496	1010	1170	554	292	194	279
4	112	636	707	e310	276	458	1030	1200	524	263	184	259
5	127	651	656	e275	260	418	1020	1230	500	241	172	240
6	132	657	608	259	243	373	1110	1290	480	259	205	219
7	115	627	573	238	223	340	1210	1280	471	261	196	196
8	115	581	530	219	211	316	1320	1260	505	265	228	184
9	146	525	500	216	197	303	1430	1230	528	260	237	177
10	195	483	469	217	186	286	1470	1190	658	265	243	166
11	228	449	439	214	180	279	1470	1260	713	268	262	161
12	241	397	e390	209	172	280	1420	1390	749	285	343	158
13	240	371	376	210	168	294	1390	1510	771	288	527	155
14	216	404	369	211	168	307	1330	1580	773	273	788	155
15	178	439	369	226	e190	330	1240	1590	764	255	941	266
16	152	449	336	246	e240	350	1320	1530	850	234	1070	274
17	137	453	346	262	e260	370	1430	1450	885	275	1130	310
18	128	451	328	262	e250	392	1490	1370	917	309	1110	326
19	110	446	303	264	e220	415	1540	1290	917	310	1060	349
20	102	484	292	263	e200	441	1550	1200	894	314	989	406
21	100	685	295	251	e250	463	1510	1130	843	318	918	486
22	191	766	298	241	e400	494	1430	1070	784	328	830	537
23	278	867	289	239	e600	515	1350	993	725	345	752	584
24	328	921	300	226	e680	509	1280	938	677	362	679	595
25	340	921	358	214	e700	582	1210	917	628	357	612	601
26	317	886	392	218	e680	695	1140	872	576	330	549	640
27	289	835	400	244	e640	757	1080	821	528	299	491	638
28	246	838	406	262	e610	790	1030	764	483	289	441	618
29	210	845	421	269	---	794	978	713	432	266	393	594
30	192	815	426	266	---	805	972	660	393	259	385	557
31	177	---	419	267	---	878	---	609	---	253	342	---
TOTAL	5683	18182	13955	7918	9018	14846	37654	35544	19649	9008	16718	10769
MEAN	183	606	450	255	322	479	1255	1147	655	291	539	359
MAX	340	921	806	393	700	878	1550	1590	917	362	1130	640
MIN	100	201	289	209	168	279	926	609	393	234	172	155

CAL YR 1988 TOTAL 185356 MEAN 506 MAX 1360 MIN 73
WTR YR 1989 TOTAL 198944 MEAN 545 MAX 1590 MIN 100

e Estimated

MERRIMACK RIVER BASIN

01100000 MERRIMACK RIVER BELOW CONCORD RIVER, AT LOWELL, MASS.

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 below 1,500 ft³/s, which are fair and those for estimated daily discharges, which are poor. 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.--66 years, 7,582 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, 35,300 ft³/s, May 8, gage height, 49.81 ft; minimum daily, 1,100 ft³/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1300	4130	9970	e4400	2950	3820	17900	8100	7580	4940	2300	e2000
2	e1300	5170	9250	3880	3370	3890	15200	9920	7670	4910	2180	e1800
3	e1300	14300	8410	e3500	e2800	3810	14100	21400	6700	3870	1780	e2000
4	e1400	16800	7800	e3500	e2300	3260	14100	31800	4660	4580	1820	e2200
5	e1300	13600	7230	e3300	e2100	2820	15000	29100	7390	3860	1920	e2000
6	e1200	10400	6420	e3050	e2600	3170	19100	25200	6480	2930	2240	e2000
7	e1100	9670	6050	e2900	e2300	2950	29800	28800	7700	2730	2120	e1800
8	e1200	11300	5280	3110	e2350	2360	34700	34600	7900	3290	2270	e1700
9	e1400	10300	5560	3280	e2150	2660	32600	32200	10500	4400	2030	e1700
10	e1500	e9350	5510	e2800	e3050	2200	27000	26800	14600	4870	2560	e1600
11	e2000	e7500	5300	3070	e1800	2460	22200	22500	21300	4000	2710	e1500
12	e1800	e7000	e4400	2800	e1650	2360	19900	24300	21900	5410	3540	e1500
13	e2100	e6500	e3500	2840	1750	2620	17800	30600	19200	5490	4090	e1400
14	e2200	e7000	e3950	2690	1830	2570	15300	33100	16500	4530	9870	e1300
15	e2100	e7500	4010	2840	2420	2840	13800	29300	14100	3930	11300	e2500
16	e2000	e7590	e4250	2910	2560	3960	14000	24600	14500	3500	10600	e2700
17	e2000	7740	3980	3210	2620	5700	17800	20500	18300	4060	7480	e2500
18	e1620	7060	e3950	3120	2490	5740	20600	18100	19200	4130	6530	e2500
19	2530	7230	e2800	3070	2390	5240	19600	15100	16600	4370	5210	e2500
20	2100	8060	e3800	3200	2340	4430	18600	13200	14300	3170	4550	e3000
21	1370	10900	e4100	3130	3250	4260	17300	11900	12800	3210	3660	e4500
22	3260	13700	e2450	2660	6320	3910	15100	10800	11200	2100	4080	e5000
23	5290	13400	e2450	2760	8470	4090	13600	10700	8900	4360	3150	e4500
24	4160	12500	e2800	2880	8120	4730	12500	8320	7610	4080	3270	e3500
25	4210	10900	e3950	2700	6790	4500	11400	10300	8510	2980	3090	e3000
26	4440	9410	e3950	2670	5000	6290	10700	11700	7810	2790	3170	e5000
27	4740	8040	3890	2570	4940	8190	10300	10300	7570	2770	2260	e5500
28	3390	8570	4140	2890	4700	10200	7660	9740	5100	2480	2050	e5000
29	2600	10400	e4800	2830	---	12100	7510	9660	5330	2170	2020	e4700
30	2580	10500	e4900	2910	---	17100	8380	9140	5690	2690	e2190	e4600
31	2980	---	4530	3010	---	20700	---	7000	---	3900	e2500	---
TOTAL	72470	286520	153380	94480	95410	164930	513550	588780	337600	116500	118540	85500
MEAN	2338	9551	4948	3048	3407	5320	17120	18990	11250	3758	3824	2850
MAX	5290	16800	9970	4400	8470	20700	34700	34600	21900	5490	11300	5500
MIN	1100	4130	2450	2570	1650	2200	7510	7000	4660	2100	1780	1300

CAL YR 1988 TOTAL 2350343 MEAN 6422 MAX 35600 MIN 821
WTR YR 1989 TOTAL 2627660 MEAN 7199 MAX 34700 MIN 1100

e Estimated

MERRIMACK RIVER BASIN

43

01100600 SHAWSHEEN RIVER NEAR WILMINGTON, MASS.

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.--25 years (water years 1965-89), 59.8 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)
Apr. 17	1900	*273	*4.91				

Minimum discharge, 2.5 ft³/s, Oct. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.9	17	49	e28	17	36	113	77	21	15	18	19
2	e3.7	77	38	26	19	e34	107	90	21	14	14	16
3	e3.9	169	31	24	18	28	82	118	37	13	12	14
4	e4.3	147	28	e16	22	23	68	127	34	12	10	12
5	e4.1	86	25	e12	24	23	63	95	25	12	9.5	11
6	e4.0	54	22	9.6	22	e19	72	79	21	21	13	10
7	e4.3	37	22	9.4	16	e17	146	80	28	29	20	10
8	e4.6	26	23	11	e12	e20	188	81	34	24	25	9.9
9	e5.0	22	22	15	e11	e20	184	69	41	18	30	9.8
10	e4.3	19	20	14	e10	22	150	54	53	17	20	9.4
11	e3.7	22	19	14	8.4	22	107	60	68	25	16	9.2
12	e3.4	21	19	e12	8.8	26	82	111	66	17	35	9.0
13	e3.2	20	16	19	9.7	31	69	167	47	9.4	65	8.7
14	e3.1	38	20	22	11	29	63	122	39	6.5	203	9.0
15	8.0	45	21	27	21	32	60	83	37	5.0	183	38
16	9.0	41	21	29	41	40	83	64	50	4.3	97	48
17	6.9	31	16	22	e30	38	223	55	72	17	54	45
18	6.2	37	14	20	27	37	234	49	77	35	34	35
19	7.5	38	12	19	19	44	163	44	59	39	22	28
20	10	37	13	21	18	43	123	41	45	31	19	39
21	9.0	73	16	20	35	45	101	38	33	19	18	46
22	28	153	19	21	93	55	86	42	28	17	20	51
23	51	122	18	14	147	51	78	39	25	12	15	50
24	55	72	19	14	e110	44	71	36	29	8.7	12	41
25	43	49	41	17	70	57	64	37	30	6.5	12	30
26	23	36	45	22	51	84	62	31	25	7.4	15	25
27	15	31	e42	33	38	96	58	29	22	10	14	39
28	12	37	31	28	e38	80	57	31	20	11	13	39
29	10	50	35	26	---	63	54	27	19	19	13	29
30	9.3	53	31	22	---	59	64	24	17	15	25	20
31	9.7	---	e28	17	---	77	---	22	---	22	28	---
TOTAL	368.1	1660	776	604.0	946.9	1295	3075	2022	1123	511.8	1084.5	760.0
MEAN	11.9	55.3	25.0	19.5	33.8	41.8	102	65.2	37.4	16.5	35.0	25.3
MAX	55	169	49	33	147	96	234	167	77	39	203	51
MIN	3.1	17	12	9.4	8.4	17	54	22	17	4.3	9.5	8.7
(†)	2.08	3.90	4.87	3.98	5.05	5.35	6.55	4.39	0	2.98	2.26	0

CAL YR 1988 TOTAL 14399.4 MEAN 39.3 MAX 335 MIN 3.1
WTR YR 1989 TOTAL 14226.3 MEAN 39.0 MAX 234 MIN 3.1

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, MASS.

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. Occasional regulation by mill and ponds upstream.

AVERAGE DISCHARGE.--44 years, 36.9 ft³/s, 23.53 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, 113 ft³/s, Apr. 19, gage height, 2.95 ft; minimum daily, 1.5 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	13	48	21	13	26	71	47	23	8.2	8.7	3.6
2	2.1	44	46	20	15	24	71	56	22	6.9	5.7	3.4
3	2.2	55	43	20	15	22	67	64	22	6.8	4.9	2.9
4	2.0	66	40	18	13	21	64	69	22	5.5	4.6	2.6
5	2.7	65	36	14	11	20	61	69	20	4.7	4.6	2.5
6	3.1	62	32	12	10	20	66	69	19	7.4	4.6	2.3
7	2.8	56	31	11	9.9	18	71	66	20	9.1	4.4	2.2
8	3.5	51	30	11	9.5	16	83	63	22	14	4.3	2.1
9	5.2	46	28	11	9.1	15	88	58	24	17	3.8	2.0
10	5.1	41	25	10	8.5	15	88	54	31	20	3.5	1.9
11	5.0	38	23	9.7	7.9	15	84	59	36	23	3.7	1.7
12	4.0	34	19	9.1	7.5	16	78	74	36	22	5.7	1.6
13	3.2	32	17	9.5	7.1	16	71	85	35	20	12	1.5
14	3.1	33	16	8.9	7.4	17	65	90	34	18	21	1.6
15	3.0	32	17	11	10	22	61	87	34	16	26	3.0
16	2.9	31	16	11	13	32	77	82	41	15	27	5.6
17	3.3	31	14	10	11	36	96	76	44	20	24	7.0
18	3.1	31	13	10	9.9	38	110	70	47	23	21	6.9
19	3.1	30	12	11	9.4	36	112	64	45	23	18	7.1
20	3.0	33	11	11	9.0	33	108	58	41	21	16	8.9
21	2.7	44	13	11	22	34	101	53	36	20	16	12
22	10	49	13	9.8	46	36	94	49	32	19	14	14
23	15	52	13	9.2	64	35	86	44	27	21	12	15
24	17	51	15	9.3	e59	35	78	40	25	20	9.5	16
25	17	47	21	9.9	48	48	70	38	23	18	8.1	15
26	16	44	23	9.3	e39	59	64	35	20	15	6.6	17
27	15	41	20	11	33	68	58	33	16	13	5.4	19
28	14	44	22	10	29	69	53	31	14	13	4.8	18
29	13	47	27	10	---	65	49	29	12	12	4.5	17
30	12	48	25	10	---	65	49	27	9.7	11	4.9	15
31	11	---	23	11	---	69	---	24	---	12	4.2	---
TOTAL	207.1	1291	732	359.7	546.2	1041	2294	1763	832.7	474.6	313.5	228.4
MEAN	6.68	43.0	23.6	11.6	19.5	33.6	76.5	56.9	27.8	15.3	10.1	7.61
MAX	17	66	48	21	64	69	112	90	47	23	27	19
MIN	2.0	13	11	8.9	7.1	15	49	24	9.7	4.7	3.5	1.5
CFSM	.31	2.02	1.11	.54	.92	1.58	3.59	2.67	1.30	.72	.47	.36
IN.	.36	2.25	1.28	.63	.95	1.82	4.01	3.08	1.45	.83	.55	.40

CAL YR 1988 TOTAL 10610.4 MEAN 29.0 MAX 101 MIN 1.4 CFMS 1.36 IN. 18.53
WTR YR 1989 TOTAL 10083.2 MEAN 27.6 MAX 112 MIN 1.5 CFMS 1.30 IN. 17.61

e Estimated

IPSWICH RIVER BASIN

45

01101500 IPSWICH RIVER AT SOUTH MIDDLETON, MASS.

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.--No estimated daily discharges. Records good above 100 ft³/s, fair below. Diversions upstream for municipal supply of Reading, Lynn, and Peabody. Occasional regulation by mill upstream.

AVERAGE DISCHARGE.--51 years, 62.4 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, 194 ft³/s, Apr. 17, gage height, 3.38 ft; minimum, 0.58 ft³/s, Feb. 19, 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	18	75	36	22	45	95	72	28	14	5.5	9.1
2	1.2	104	71	34	25	39	90	81	42	13	4.8	8.4
3	1.1	100	67	32	25	31	86	101	52	11	4.2	7.7
4	1.2	87	62	28	21	20	85	96	45	11	3.5	6.8
5	2.0	82	56	23	20	17	81	90	39	10	3.1	6.0
6	2.4	85	50	17	17	16	90	102	38	14	3.2	5.5
7	2.7	81	48	15	15	19	112	111	42	13	5.1	5.0
8	4.1	73	46	15	14	12	124	101	52	14	7.3	4.5
9	5.0	63	43	16	13	9.5	140	94	55	12	7.0	3.8
10	5.2	54	39	16	12	12	134	88	70	12	4.8	3.4
11	4.6	49	36	15	11	8.0	123	110	76	13	5.1	3.2
12	3.7	44	31	14	10	9.7	111	180	68	11	11	2.8
13	3.3	42	26	15	10	11	99	172	64	10	38	2.6
14	3.0	51	26	15	5.7	11	89	156	65	9.9	81	2.7
15	2.8	48	28	17	9.4	16	81	145	61	9.6	59	11
16	2.5	45	26	21	6.7	25	128	134	79	8.9	43	11
17	2.2	46	23	20	7.0	25	191	122	82	15	40	12
18	2.2	50	21	20	2.2	27	176	110	79	23	34	12
19	2.2	47	19	21	1.4	40	175	94	72	16	29	12
20	2.2	56	18	21	1.6	46	172	75	64	14	26	16
21	2.1	108	19	20	16	38	155	69	55	13	26	19
22	17	106	22	18	65	45	137	70	48	13	22	18
23	30	96	20	16	63	41	120	53	41	11	18	15
24	22	92	23	15	55	40	106	48	37	10	16	15
25	20	87	41	15	51	60	93	46	32	9.1	14	13
26	19	80	40	15	59	76	84	41	27	8.0	12	15
27	18	74	35	20	49	72	77	37	23	7.4	10	21
28	15	81	37	19	49	72	70	36	20	7.9	9.5	17
29	13	88	46	19	---	73	64	30	18	7.4	8.9	15
30	10	80	42	20	---	76	70	26	15	7.0	11	14
31	9.1	---	39	21	---	93	---	22	---	7.0	11	---
TOTAL	229.8	2117	1175	609	656.0	1125.2	3358	2712	1489	355.2	573.0	307.5
MEAN	7.41	70.6	37.9	19.6	23.4	36.3	112	87.5	49.6	11.5	18.5	10.2
MAX	30	108	75	36	65	93	191	180	82	23	81	21
MIN	1.0	18	18	14	1.4	8.0	64	22	15	7.0	3.1	2.6

CAL YR 1988 TOTAL 16129.7 MEAN 44.1 MAX 236 MIN 1.0
WTR YR 1989 TOTAL 14706.7 MEAN 40.3 MAX 191 MIN 1.0

IPSWICH RIVER BASIN

01102000 IPSWICH RIVER NEAR IPSWICH, MASS.

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 good except those for estimated daily discharges, which are poor. Diversions upstream for municipal supply of Reading, Lynn, Peabody, Danvers, Salem, and Beverly. Some regulation by reservoirs upstream.

AVERAGE DISCHARGE.--59 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, 550 ft³/s, Apr. 19, gage height, 4.60 ft; minimum, 6.7 ft³/s, Oct. 2; minimum daily, 7.0 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	24	e140	78	44	74	213	224	65	52	26	28
2	7.0	e120	e140	75	48	66	242	233	63	49	24	26
3	7.3	e160	e140	68	52	61	258	245	94	43	22	23
4	7.6	e180	e135	54	49	52	262	257	123	37	19	20
5	11	e170	e125	49	45	42	254	267	131	35	17	18
6	12	e160	e115	44	41	40	255	280	134	48	16	16
7	12	e160	e100	38	36	36	260	276	132	60	16	15
8	13	e145	e86	36	34	52	281	267	134	80	17	14
9	17	e130	e74	38	34	51	311	258	137	88	18	13
10	18	e115	62	39	30	36	337	250	158	88	16	12
11	18	e105	56	38	18	33	352	262	172	84	17	11
12	17	e96	39	36	13	31	347	317	183	82	27	9.7
13	16	e92	35	38	13	33	328	385	188	77	52	8.6
14	15	e88	33	37	14	36	303	463	187	69	93	8.6
15	14	e84	37	41	18	44	280	490	179	57	122	e16
16	13	e84	35	46	27	53	311	467	189	47	153	26
17	13	e84	28	47	24	50	377	432	196	53	166	32
18	12	e86	21	48	21	52	453	389	207	67	164	40
19	11	e92	19	47	16	54	532	348	212	77	152	e46
20	11	e110	31	45	23	50	542	312	209	79	135	e56
21	11	e160	46	43	35	62	505	282	197	79	118	60
22	19	e200	52	38	92	72	459	254	180	74	103	67
23	34	e200	52	37	120	67	418	229	163	68	89	71
24	40	e190	54	32	127	58	383	211	148	58	77	69
25	46	e180	71	31	88	97	350	194	137	50	63	63
26	48	e145	83	29	97	140	319	175	126	41	49	59
27	41	e135	80	34	89	158	291	159	116	34	39	59
28	35	e130	90	35	66	169	267	146	104	32	33	60
29	30	e135	96	39	---	176	245	137	89	31	28	60
30	26	e135	92	39	---	183	233	118	75	30	31	57
31	23	---	85	41	---	198	---	90	---	28	30	---
TOTAL	604.9	3895	2252	1340	1314	2326	9968	8417	4428	1797	1932	1063.9
MEAN	19.5	130	72.6	43.2	46.9	75.0	332	272	148	58.0	62.3	35.5
MAX	48	200	140	78	127	198	542	490	212	88	166	71
MIN	7.0	24	19	29	13	31	213	90	63	28	16	8.6

CAL YR 1988 TOTAL 45425.8 MEAN 124 MAX 522 MIN 7.0
WTR YR 1989 TOTAL 39337.8 MEAN 108 MAX 542 MIN 7.0

e Estimated

MYSTIC RIVER BASIN

47

01102500 ABERJONA RIVER AT WINCHESTER, MASS.

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.--50 years, 28.6 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, 317 ft³/s, Nov. 2, gage height, 12.48 ft; minimum, 0.69 ft³/s, Sept. 25; minimum daily, 2.9 ft³/s, Oct. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	31	20	12	6.4	12	59	45	12	8.0	6.7	7.1
2	3.5	205	18	11	6.3	11	41	77	28	7.0	5.7	5.1
3	11	79	16	11	7.5	10	36	70	36	6.4	5.0	3.8
4	6.5	32	16	9.5	7.0	10	35	48	21	6.3	4.4	3.6
5	9.4	19	14	7.8	5.7	10	31	38	14	8.2	4.2	3.8
6	7.6	20	14	7.1	5.6	10	69	52	18	31	12	4.0
7	5.8	14	14	7.1	5.5	9.1	73	43	32	14	11	4.2
8	17	12	14	7.5	5.4	8.6	87	34	36	9.2	30	3.8
9	15	11	15	7.9	5.0	8.3	73	29	28	7.0	13	3.8
10	7.1	11	25	7.3	4.6	8.3	54	31	63	17	8.7	3.7
11	5.4	15	22	6.9	4.6	8.4	43	88	38	21	19	3.6
12	4.7	10	18	9.0	4.5	11	38	131	24	12	49	3.3
13	4.0	22	14	11	4.3	11	34	79	25	8.2	131	3.2
14	3.9	33	14	7.3	5.4	9.7	31	56	25	7.0	87	5.4
15	3.9	19	13	11	14	10	31	45	30	7.7	36	60
16	2.9	13	10	9.2	16	10	157	40	74	7.2	21	21
17	3.7	24	24	7.8	8.9	9.9	140	36	46	45	15	29
18	4.1	25	35	7.1	6.7	14	88	33	36	32	12	14
19	4.0	16	21	6.9	6.0	17	75	31	23	16	11	23
20	3.8	57	9.8	6.7	5.5	12	63	27	21	11	9.9	29
21	3.4	113	9.7	5.9	64	25	53	26	19	16	12	43
22	54	51	9.5	5.4	71	20	46	26	19	9.7	9.4	21
23	38	29	11	5.6	41	15	41	20	14	7.5	7.5	16
24	15	21	26	5.7	22	15	37	20	21	6.8	6.7	16
25	8.7	18	35	5.4	14	52	34	22	16	6.3	5.8	5.3
26	6.7	16	23	9.2	14	41	31	18	13	5.8	5.3	25
27	5.0	15	16	11	13	29	30	21	12	5.2	4.8	20
28	5.5	49	18	7.3	12	24	28	25	11	23	4.8	13
29	4.8	39	20	6.3	---	22	26	18	10	11	4.8	9.4
30	4.1	25	15	7.3	---	55	61	14	8.9	9.2	20	7.4
31	3.4	---	13	6.6	---	88	---	12	---	9.6	11	---
TOTAL	275.4	1044	543.0	246.8	385.9	596.3	1645	1255	773.9	391.3	583.7	410.5
MEAN	8.88	34.8	17.5	7.96	13.8	19.2	54.8	40.5	25.8	12.6	18.8	13.7
MAX	54	205	35	12	71	88	157	131	74	45	131	60
MIN	2.9	10	9.5	5.4	4.3	8.3	26	12	8.9	5.2	4.2	3.2

CAL YR 1988 TOTAL 9158.0 MEAN 25.0 MAX 236 MIN 2.6
WTR YR 1989 TOTAL 8150.8 MEAN 22.3 MAX 205 MIN 2.9

CHARLES RIVER BASIN

01103500 CHARLES RIVER AT DOVER, MASS.
(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. Flow affected by diversions to and from basin for municipal supplies.

AVERAGE DISCHARGE.--52 years, 302 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, 903 ft³/s, Aug. 17, gage height, 3.99 ft; minimum, 29 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	79	422	193	153	246	528	374	222	165	137	203
2	46	196	397	179	154	217	530	444	225	148	128	191
3	48	237	370	156	155	200	534	490	252	132	118	174
4	43	268	333	e130	142	190	521	510	288	122	110	156
5	45	274	299	127	130	187	497	524	310	116	102	142
6	43	256	267	118	120	186	521	541	319	132	101	131
7	41	217	243	113	112	188	541	527	325	134	104	122
8	52	177	226	113	103	182	590	500	339	135	130	119
9	60	146	216	113	98	164	624	475	345	131	124	118
10	66	129	205	115	98	156	643	452	396	155	130	116
11	66	122	190	110	93	154	641	520	406	174	151	114
12	63	116	150	113	89	156	620	579	423	141	227	111
13	58	129	152	112	87	162	587	618	438	131	414	109
14	53	168	147	121	93	166	543	659	437	126	574	108
15	49	194	149	136	105	179	499	678	423	129	684	191
16	47	205	144	146	140	198	580	668	443	123	836	211
17	45	218	153	147	158	206	614	639	432	187	894	238
18	45	237	140	146	158	214	640	595	433	234	847	247
19	39	257	132	147	141	255	671	547	423	222	770	262
20	35	311	129	141	121	275	672	497	405	221	685	285
21	37	483	134	126	176	302	648	449	381	257	598	324
22	102	518	142	122	327	313	607	403	352	266	527	347
23	92	583	143	117	409	317	563	349	323	276	469	350
24	94	613	148	110	442	307	518	319	293	276	420	349
25	108	609	179	106	441	405	470	294	268	268	371	337
26	103	577	195	115	406	451	428	272	249	249	331	332
27	93	530	203	127	350	490	391	256	232	228	294	309
28	87	503	212	140	294	509	354	250	221	220	259	288
29	77	468	227	138	---	499	324	246	200	193	228	277
30	68	441	227	142	---	496	353	237	182	171	219	260
31	64	---	212	150	---	536	---	227	---	149	207	---
TOTAL	1912	9261	6486	4069	5295	8506	16252	14139	9985	5611	11189	6521
MEAN	61.7	309	209	131	189	274	542	456	333	181	361	217
MAX	108	613	422	193	442	536	672	678	443	276	894	350
MIN	35	79	129	106	87	154	324	227	182	116	101	108

CAL YR 1988 TOTAL 90857 MEAN 248 MAX 923 MIN 32
WTR YR 1989 TOTAL 99226 MEAN 272 MAX 894 MIN 35

e Estimated

CHARLES RIVER BASIN

49

01103500 CHARLES RIVER AT DOVER, MASS.--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 1988 TO SEPTEMBER 1989

		DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
DATE	TIME										
NOV											
15...	0745	192	223	7.10	7.0	7.0	3.2	766	11.3	93	2500
MAR											
29...	1400	496	173	6.80	23.0	13.0	0.50	760	13.2	126	K20
JUN											
20...	1015	499	160	6.40	22.0	21.5	2.2	759	8.0	91	K52
AUG											
30...	1530	206	170	6.90	30.0	27.0	--	750	7.4	95	90
DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3
NOV											
15...	>10000	49	25	14	3.3	24	50	2	2.8	0	27
MAR											
29...	6600	32	18	9.1	2.2	19	55	2	1.8	0	16
JUN											
20...	--	31	10	8.9	2.0	17	53	1	1.5	0	23
AUG											
30...	K100	--	--	--	--	--	--	--	--	0	32
DATE	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)
NOV											
15...	24	24	36	0.10	8.8	134	131	0.660	0.040	0.60	0.060
MAR											
29...	14	22	30	0.10	5.2	101	100	0.420	0.020	0.30	0.050
JUN											
20...	21	10	26	0.10	7.3	102	87	0.170	0.060	0.90	0.070
AUG											
30...	27	--	--	--	--	--	--	0.320	0.090	0.50	0.140

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

CHARLES RIVER BASIN

51

01104000 MOTHER BROOK AT DEDHAM, MASS.

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.--58 years, 77.9 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, 366 ft³/s, Aug. 16, gage height, 83.67 ft; minimum, 0.64 ft³/s, Oct. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	7.5	53	20	e20	33	e115	110	47	21	11	37
2	.75	37	60	13	e22	20	e125	128	43	13	6.4	30
3	1.1	27	111	9.4	e15	12	e115	145	45	7.7	6.5	21
4	3.6	26	115	8.1	e10	8.0	e105	137	51	4.2	16	14
5	3.6	26	90	5.4	e6.0	6.4	e90	132	59	3.8	15	14
6	4.6	21	69	4.6	e4.0	5.5	e100	137	70	5.2	13	29
7	e2.3	19	55	3.0	e3.0	5.1	111	130	75	2.4	15	31
8	e15	30	46	e2.2	e2.5	8.0	123	119	88	1.8	36	45
9	e10	23	36	e2.0	e2.2	27	130	107	98	1.5	24	42
10	e4.0	14	30	e10	e1.9	25	130	100	124	4.5	17	36
11	e2.6	13	25	e20	e1.7	21	150	131	123	9.1	32	29
12	e2.2	8.5	14	e15	e1.5	20	210	157	116	12	86	24
13	e1.8	10	15	e12	1.4	23	204	155	112	10	218	19
14	1.9	17	27	e12	2.4	23	184	158	97	24	322	23
15	4.1	16	28	e17	9.7	24	155	163	87	25	294	89
16	3.8	16	25	e20	19	29	200	163	106	15	321	75
17	2.8	20	25	e20	23	27	216	153	91	33	343	85
18	2.7	25	21	e18	22	34	199	135	85	50	330	90
19	3.2	26	21	e12	16	44	204	113	79	63	299	120
20	4.5	58	21	e7.0	11	41	203	137	69	55	261	134
21	3.8	162	21	e5.0	26	56	188	131	58	84	221	148
22	17	136	22	e4.0	68	54	175	116	63	72	181	159
23	20	135	20	e12	88	47	153	93	90	66	143	182
24	13	146	21	e20	101	56	145	77	74	59	111	178
25	11	145	30	e20	105	e70	171	65	57	48	82	136
26	10	129	30	e20	82	e95	151	44	42	33	60	141
27	7.6	106	28	e15	66	e98	135	32	37	32	39	134
28	4.4	114	31	e10	46	e105	120	25	55	79	37	101
29	2.9	94	32	e8.0	---	e105	103	17	46	58	66	80
30	1.9	64	28	e8.0	---	e105	118	23	32	34	66	64
31	1.1	---	26	e18	---	e105	---	47	---	20	50	---
TOTAL	168.22	1671.0	1176	370.7	776.3	1332.0	4528	3380	2219	946.2	3721.9	2310
MEAN	5.43	55.7	37.9	12.0	27.7	43.0	151	109	74.0	30.5	120	77.0
MAX	20	162	115	20	105	105	216	163	124	84	343	182
MIN	.75	7.5	14	2.0	1.4	5.1	90	17	32	1.5	6.4	14

CAL YR 1988 TOTAL 16532.06 MEAN 45.2 MAX 259 MIN .43
WTR YR 1989 TOTAL 22599.32 MEAN 61.9 MAX 343 MIN .75

e Estimated

CHARLES RIVER BASIN

01104200 CHARLES RIVER AT WELLESLEY, MASS.

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.--30 years, 278 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, 975 ft³/s, June 5, gage height, 4.60 ft; minimum, 7.5 ft³/s, Jan. 10; minimum daily, 25 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	105	426	202	133	283	544	331	218	164	146	190
2	48	280	303	189	143	250	536	397	222	151	137	181
3	31	247	277	174	147	231	537	430	245	144	76	174
4	29	273	269	153	146	218	535	444	281	133	80	164
5	26	283	260	124	145	212	523	458	298	130	91	106
6	25	281	241	129	137	204	559	500	314	169	108	106
7	31	175	222	129	129	204	581	486	350	152	83	75
8	51	163	207	122	116	121	612	463	355	151	115	75
9	71	153	199	119	112	138	634	444	361	146	113	84
10	77	144	193	70	115	149	628	439	438	167	118	90
11	77	137	178	74	111	151	477	539	442	176	114	92
12	76	132	149	91	105	153	471	605	456	152	230	96
13	73	e160	114	100	103	164	496	593	509	102	524	97
14	44	e200	115	97	68	168	481	608	518	110	719	62
15	38	e190	125	107	85	181	459	625	508	149	696	152
16	47	e200	126	120	125	192	554	623	565	138	755	157
17	50	e240	127	130	143	205	601	616	541	215	815	198
18	51	e255	131	134	151	230	584	591	534	221	816	177
19	32	e250	124	136	149	266	587	434	519	217	780	204
20	30	e360	118	140	137	281	592	420	499	225	726	256
21	31	e520	120	128	193	320	591	427	482	308	660	307
22	84	e510	127	128	316	330	554	400	352	309	591	310
23	91	e520	129	91	362	330	528	365	338	342	534	304
24	85	e530	137	89	388	346	404	336	326	354	479	321
25	91	538	170	95	391	472	363	324	302	323	431	298
26	100	531	177	99	381	479	358	305	274	293	391	337
27	98	505	183	108	364	493	327	301	188	183	351	336
28	93	518	194	117	325	499	307	300	180	231	210	311
29	83	492	215	127	---	505	290	292	179	207	184	295
30	77	452	214	135	---	519	332	202	168	177	204	287
31	71	---	212	121	---	576	---	203	---	161	185	---
TOTAL	1857	9344	5782	3778	5220	8870	15045	13501	10962	6100	11462	5842
MEAN	59.9	311	187	122	186	286	501	436	365	197	370	195
MAX	100	538	426	202	391	576	634	625	565	354	816	337
MIN	25	105	114	70	68	121	290	202	168	102	76	62

CAL YR 1988 TOTAL 88885 MEAN 243 MAX 798 MIN 21
WTR YR 1989 TOTAL 97763 MEAN 268 MAX 816 MIN 25

e Estimated

CHARLES RIVER BASIN

53

01104500 CHARLES RIVER AT WALTHAM, MASS.

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 except those for estimated daily discharges, which are fair. 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.--58 years (water years 1932-89), 302 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, 779 ft³/s, Aug. 17, gage height, 2.78 ft; minimum, 30 ft³/s, Oct. 6; minimum daily, 34 ft³/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	113	441	217	139	321	557	361	237	186	164	217
2	54	337	378	201	153	283	534	428	235	178	150	208
3	62	273	279	186	165	262	533	470	250	167	123	199
4	35	275	285	164	171	248	533	479	279	160	83	192
5	44	289	277	131	167	239	525	485	306	155	96	164
6	35	294	261	125	155	233	575	525	319	196	120	121
7	34	243	245	125	150	230	588	518	369	174	137	119
8	52	170	229	118	138	193	621	497	391	167	144	95
9	77	170	216	121	131	148	627	471	365	161	125	111
10	77	161	205	98	125	172	618	463	440	183	123	120
11	78	152	192	57	123	176	555	572	439	225	142	123
12	78	140	166	84	120	181	464	663	440	172	239	113
13	74	166	146	99	116	188	497	629	476	156	535	112
14	69	217	126	102	110	191	487	617	499	116	731	105
15	46	204	140	109	72	200	476	618	496	161	694	198
16	53	216	129	124	e80	208	614	617	552	149	723	180
17	59	257	137	133	e130	227	684	601	534	231	764	228
18	63	275	137	143	e160	250	645	580	523	235	771	217
19	56	268	126	143	e160	299	631	495	510	208	745	226
20	41	386	121	146	e150	304	614	403	496	225	704	284
21	40	601	125	135	e190	343	595	431	473	324	653	339
22	112	537	130	135	e380	351	565	408	401	305	592	355
23	112	522	136	120	393	359	534	376	327	301	543	319
24	102	528	149	91	393	353	472	354	333	306	494	326
25	103	533	192	99	388	483	382	340	313	307	450	315
26	113	529	191	108	379	497	378	321	295	296	409	343
27	121	512	185	124	375	499	358	315	253	235	373	347
28	115	547	205	126	348	500	334	310	208	234	293	322
29	98	517	223	135	---	498	321	300	208	230	202	301
30	91	475	227	149	---	539	375	257	195	195	241	291
31	86	---	228	146	---	594	---	209	---	179	218	---
TOTAL	2229	9907	6227	3994	5561	9569	15692	14113	11162	6517	11781	6590
MEAN	71.9	330	201	129	199	309	523	455	372	210	380	220
MAX	121	601	441	217	393	594	684	663	552	324	771	355
MIN	34	113	121	57	72	148	321	209	195	116	83	95

CAL YR 1988 TOTAL 95273 MEAN 260 MAX 827 MIN 28
WTR YR 1989 TOTAL 103342 MEAN 283 MAX 771 MIN 34

e Estimated

NEPONSET RIVER BASIN

01105000 NEPONSET RIVER AT NORWOOD, MASS.

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 good except those for estimated daily discharges, which are fair. Flow regulated by mills and reservoirs upstream. Flow affected by several diversions upstream for municipal and industrial use.

AVERAGE DISCHARGE.--50 years, 54.8 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, 320 ft³/s, Aug. 13, gage height, 7.80 ft, minimum daily, 5.1 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	30	80	35	30	42	103	96	39	26	24	46
2	5.9	91	70	33	29	39	90	115	62	24	20	37
3	7.1	86	64	31	28	37	79	117	107	20	18	31
4	6.8	78	60	30	28	35	77	106	84	18	16	26
5	11	59	51	24	26	34	77	89	64	20	15	23
6	11	44	46	21	23	34	103	100	57	31	16	21
7	7.9	36	53	20	22	32	117	98	77	23	14	20
8	18	31	42	21	20	30	128	87	86	17	37	18
9	21	27	37	27	19	30	125	74	86	21	23	17
10	17	25	34	27	17	28	110	78	112	29	19	17
11	12	25	32	23	16	28	96	145	104	29	35	16
12	8.8	26	27	23	16	29	86	181	82	21	86	15
13	7.5	40	25	27	16	30	77	156	69	17	239	14
14	6.8	53	26	29	16	30	68	132	65	21	273	20
15	6.4	52	30	35	25	33	66	113	61	25	210	74
16	6.8	48	29	37	36	38	124	105	84	20	166	67
17	6.8	52	26	33	35	37	141	97	83	67	128	63
18	6.8	52	25	30	27	41	127	88	75	68	106	51
19	6.7	51	23	29	24	54	111	79	62	55	93	58
20	18	93	23	28	25	53	101	71	52	45	80	76
21	31	203	24	28	61	60	85	65	43	111	64	106
22	35	168	25	23	111	66	79	60	31	90	60	93
23	28	125	25	21	103	56	72	49	31	70	56	83
24	21	101	28	21	75	54	64	47	e38	51	53	72
25	17	81	42	21	57	128	60	54	e36	41	36	57
26	15	73	41	23	53	130	56	52	e34	33	36	74
27	14	68	33	29	51	107	53	52	e33	28	33	78
28	11	95	35	29	43	90	50	59	30	61	30	67
29	11	109	45	28	---	79	47	50	29	59	28	54
30	11	95	41	30	---	80	96	42	28	35	53	41
31	11	---	38	29	---	101	---	37	---	28	59	---
TOTAL	402.4	2117	1180	845	1032	1665	2668	2694	1844	1204	2126	1435
MEAN	13.0	70.6	38.1	27.3	36.9	53.7	88.9	86.9	61.5	38.8	68.6	47.8
MAX	35	203	80	37	111	130	141	181	112	111	273	106
MIN	5.1	25	23	20	16	28	47	37	28	17	14	14

CAL YR 1988 TOTAL 18411.9 MEAN 50.3 MAX 271 MIN 4.6
WTR YR 1989 TOTAL 19212.4 MEAN 52.6 MAX 273 MIN 5.1

e Estimated

NEPONSET RIVER BASIN

55

01105500 EAST BRANCH NEPONSET RIVER AT CANTON, MASS.

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.--37 years, 51.0 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, 490 ft³/s, Aug. 13, gage height, 4.06 ft; minimum daily, 5.4 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	12	56	26	21	42	90	e86	31	17	22	35
2	5.5	115	51	25	21	41	64	e110	57	16	20	29
3	6.3	72	48	25	20	39	63	e105	138	15	18	25
4	6.7	37	45	23	20	38	70	e92	79	14	17	23
5	9.7	28	42	19	18	39	80	e81	59	11	15	21
6	9.1	28	39	17	17	41	e100	e90	48	28	15	20
7	7.8	28	38	17	17	37	e110	e82	60	25	16	21
8	16	26	36	19	17	35	e120	e76	69	19	34	25
9	29	25	34	22	17	35	e110	65	74	16	25	26
10	17	24	32	20	15	30	e100	53	107	21	19	24
11	12	26	31	19	15	26	e86	140	97	34	27	23
12	9.2	23	27	19	15	27	e74	167	73	21	85	21
13	8.2	27	25	24	15	27	e68	131	45	17	218	20
14	7.6	50	29	21	17	29	e65	110	56	15	337	20
15	7.2	36	31	27	24	37	e60	96	52	21	214	97
16	7.1	29	29	30	34	37	e120	93	82	18	207	73
17	8.4	33	26	25	25	35	e130	92	77	58	153	66
18	7.8	40	25	24	20	48	e115	81	54	64	102	59
19	7.3	32	24	23	19	59	e98	60	50	38	107	54
20	6.9	74	25	23	19	52	e86	59	43	29	96	88
21	6.8	193	28	22	61	68	e78	54	38	84	68	129
22	17	120	28	20	95	57	e73	50	33	76	66	122
23	22	91	23	19	67	49	e66	41	31	52	63	85
24	15	78	26	19	50	81	e59	39	26	41	60	55
25	12	70	39	19	48	140	e53	38	27	32	49	38
26	10	63	31	20	47	94	e50	35	25	26	35	62
27	11	54	26	27	47	73	e47	37	23	25	32	77
28	8.9	79	27	24	44	77	e46	41	21	37	29	62
29	8.7	92	36	22	---	80	e44	35	20	40	27	51
30	8.3	65	30	24	---	84	e84	32	18	32	59	47
31	7.9	---	28	23	---	106	---	30	---	26	49	---
TOTAL	321.8	1670	1015	687	845	1663	2409	2301	1613	968	2284	1498
MEAN	10.4	55.7	32.7	22.2	30.2	53.6	80.3	74.2	53.8	31.2	73.7	49.9
MAX	29	193	56	30	95	140	130	167	138	84	337	129
MIN	5.4	12	23	17	15	26	44	30	18	11	15	20

CAL YR 1988 TOTAL 13744.7 MEAN 37.6 MAX 214 MIN 4.9
WTR YR 1989 TOTAL 17274.8 MEAN 47.3 MAX 337 MIN 5.4

e Estimated

WEYMOUTH BACK RIVER BASIN

01105600 OLD SWAMP RIVER NEAR SOUTH WEYMOUTH, MASS.

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.

AVERAGE DISCHARGE.--23 years, 9.21 ft³/s, 27.79 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)
May 12	0145	*75	*4.06				

Minimum discharge, 0.54 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.59	6.9	9.7	5.1	4.3	6.5	16	22	e6.4	e1.2	2.4	2.6
2	.57	27	8.1	4.8	4.1	6.5	11	30	e20	e1.0	2.5	1.8
3	1.1	16	7.2	4.8	4.6	6.0	9.4	35	e25	e.90	3.9	1.4
4	1.6	7.0	6.8	e4.1	4.0	5.9	9.4	18	e15	e.80	2.5	1.2
5	4.0	4.6	6.2	e3.5	3.6	6.1	8.8	12	e10	e1.7	1.8	.99
6	2.1	4.3	5.5	e3.7	3.3	6.9	16	27	e15	7.1	1.6	1.0
7	1.5	3.5	5.8	3.5	3.1	e6.1	16	20	e19	3.1	1.4	1.0
8	7.4	3.2	5.6	3.6	e2.9	e5.6	25	12	e22	1.6	2.5	.95
9	8.0	2.9	5.1	3.7	e2.8	5.3	25	10	e30	1.3	1.5	.86
10	4.3	2.9	4.7	3.6	e2.4	5.3	15	11	e35	5.9	1.2	.86
11	2.9	3.8	4.5	3.3	2.5	5.4	11	41	e26	11	8.1	.78
12	2.2	2.9	4.3	3.8	2.4	6.0	9.5	58	e21	4.3	29	.66
13	2.0	5.3	3.7	4.4	2.3	6.3	8.4	31	e18	2.1	39	.67
14	1.7	8.3	4.9	3.9	3.3	6.8	7.8	20	e20	1.6	41	1.3
15	1.2	5.3	5.6	6.4	5.8	11	7.7	15	e25	1.6	17	15
16	.75	4.2	4.7	5.9	7.8	12	31	13	e19	1.2	10	10
17	1.5	6.3	3.9	4.8	e5.3	8.5	33	e12	11	22	9.5	17
18	1.6	6.8	4.2	4.1	e4.3	11	19	e11	7.7	17	6.8	8.0
19	1.7	5.1	4.1	3.9	3.7	16	14	e10	5.4	5.9	4.8	6.8
20	1.8	23	4.8	3.9	3.4	11	11	e9.0	4.0	3.8	4.1	8.8
21	2.0	50	6.3	e3.7	17	15	9.9	e8.6	e3.3	22	3.6	13
22	5.7	24	6.1	e2.9	27	12	8.7	e8.0	e2.9	11	3.1	14
23	3.7	12	5.1	2.9	19	8.5	8.1	e7.2	e2.4	5.2	2.6	7.7
24	2.9	9.1	6.9	2.9	10	9.3	7.5	e8.0	e2.2	3.3	2.3	5.4
25	2.5	7.4	9.5	2.9	e8.6	36	7.1	e8.4	e2.0	2.5	1.9	3.9
26	2.2	6.7	7.0	3.9	e7.7	27	6.9	e8.0	e1.8	1.8	1.6	12
27	2.0	6.2	e5.3	5.6	7.5	15	6.5	e12	e1.7	1.5	1.4	11
28	1.8	22	6.9	4.3	e6.9	11	6.4	e9.0	e1.7	15	1.2	5.9
29	2.0	24	8.6	3.8	---	9.4	6.3	e7.2	e1.5	11	1.2	4.4
30	1.9	14	6.6	4.7	---	11	29	e6.0	e1.4	5.1	13	3.5
31	1.9	---	5.5	4.6	---	19	---	e5.2	---	3.3	5.5	---
TOTAL	77.11	324.7	183.2	127.0	179.6	327.4	400.4	504.6	375.4	176.80	228.0	162.47
MEAN	2.49	10.8	5.91	4.10	6.41	10.6	13.3	16.3	12.5	5.70	7.35	5.42
MAX	8.0	50	9.7	6.4	27	36	33	58	35	22	41	17
MIN	.57	2.9	3.7	2.9	2.3	5.3	6.3	5.2	1.4	.80	1.2	.66
CFSM	.55	2.41	1.31	.91	1.43	2.35	2.97	3.62	2.78	1.27	1.63	1.20
IN.	.64	2.68	1.51	1.05	1.48	2.71	3.31	4.17	3.10	1.46	1.88	1.34

CAL YR 1988 TOTAL 2890.05 MEAN 7.90 MAX 103 MIN .47 CFSM 1.75 IN. 23.89
WTR YR 1989 TOTAL 3066.68 MEAN 8.40 MAX 58 MIN .57 CFSM 1.87 IN. 25.35

e Estimated

NORTH RIVER BASIN

57

01105730 INDIAN HEAD RIVER AT HANOVER, MASS.

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.--23 years, 61.7 ft³/s, 27.74 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)
May 12	0415	*381	*4.33	No other peak greater than base discharge.			

Minimum discharge, 4.0 ft³/s, Oct. 2; minimum daily, 4.7 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	17	81	30	29	45	112	e140	31	14	37	35
2	5.3	121	68	28	28	43	85	e250	47	13	37	28
3	5.1	99	58	28	28	41	72	e190	123	12	55	23
4	6.7	56	52	25	27	39	71	e130	81	11	38	19
5	12	42	46	19	22	39	69	99	77	e25	30	17
6	13	37	41	17	21	46	88	107	77	e36	26	17
7	10	32	41	18	20	42	130	116	66	31	23	16
8	19	27	40	21	19	37	153	86	e80	21	28	14
9	41	25	37	24	18	35	e160	71	e100	15	25	14
10	27	24	34	22	15	34	e120	69	e130	35	18	14
11	19	25	32	20	14	34	e90	214	e100	101	27	13
12	14	24	27	20	14	38	e74	359	e85	53	170	12
13	12	24	24	28	15	39	e64	276	e72	30	211	11
14	11	41	31	24	19	41	e60	181	e65	23	283	11
15	10	36	35	33	27	58	e60	132	e60	20	213	30
16	11	30	30	39	43	69	e200	96	e110	18	126	54
17	11	33	25	31	33	58	e200	91	e90	93	92	145
18	11	43	24	28	26	60	e150	79	e70	130	77	92
19	10	34	23	27	23	113	e110	69	e56	69	59	60
20	10	76	23	26	22	82	e90	62	e45	44	50	61
21	9.3	246	31	25	63	97	e80	57	e35	97	44	72
22	21	186	32	21	149	96	e72	51	33	97	39	76
23	25	113	28	20	119	72	e66	45	30	58	35	59
24	19	82	31	20	84	64	e62	44	26	40	35	48
25	16	66	45	20	58	185	e58	43	24	33	29	39
26	14	57	39	22	55	181	e54	40	22	27	25	54
27	12	51	32	34	53	122	e52	39	19	24	23	79
28	12	103	34	30	47	94	e50	43	18	108	21	56
29	12	154	49	28	---	79	e50	37	18	144	20	44
30	11	110	39	30	---	73	e160	33	16	77	66	38
31	11	---	33	32	---	120	---	31	---	47	55	---
TOTAL	425.1	2014	1165	790	1091	2176	2862	3280	1806	1546	2017	1251
MEAN	13.7	67.1	37.6	25.5	39.0	70.2	95.4	106	60.2	49.9	65.1	41.7
MAX	41	246	81	39	149	185	200	359	130	144	283	145
MIN	4.7	17	23	17	14	34	50	31	16	11	18	11
CFSM	.45	2.22	1.24	.84	1.29	2.32	3.16	3.50	1.99	1.65	2.15	1.38
IN.	.52	2.48	1.44	.97	1.34	2.68	3.53	4.04	2.22	1.90	2.48	1.54

CAL YR 1988 TOTAL 18283.5 MEAN 50.0 MAX 400 MIN 2.8 CFSM 1.65 IN. 22.52
WTR YR 1989 TOTAL 20423.1 MEAN 56.0 MAX 359 MIN 4.7 CFSM 1.85 IN. 25.16

e Estimated

JONES RIVER BASIN

01105870 JONES RIVER AT KINGSTON, MASS.

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 except those for estimated daily discharges, which are poor. 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.--23 years, 31.5 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, 134 ft³/s, May 12, gage height, 3.71 ft; minimum daily, 4.2 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.6	e7.0	35	18	17	32	45	51	16	15	18	22
2	e6.4	e40	30	18	15	31	42	52	17	14	17	18
3	e7.0	e35	27	19	15	30	36	63	26	14	18	15
4	e9.0	e28	25	14	15	28	34	48	29	15	22	14
5	e13	e24	23	7.4	13	28	33	38	30	16	20	13
6	e12	e22	22	7.1	14	28	34	37	25	22	17	13
7	e9.0	e21	21	10	15	27	40	39	24	24	17	13
8	e11	20	20	12	15	24	42	36	27	20	20	12
9	e20	17	19	12	15	22	50	35	30	18	21	11
10	e15	16	19	13	13	22	50	33	47	18	21	10
11	e11	16	18	12	15	22	42	68	44	20	20	8.8
12	e9.0	16	14	12	14	24	36	131	36	19	27	7.1
13	e8.2	16	10	13	14	24	31	113	31	17	35	6.8
14	e7.5	19	14	13	15	24	29	80	29	17	45	4.2
15	e7.0	21	16	14	16	26	28	59	25	17	47	4.8
16	e6.5	23	15	15	19	29	53	45	33	17	39	13
17	e6.2	24	13	18	20	29	86	40	36	46	33	47
18	e6.0	26	14	19	20	30	66	35	32	68	30	46
19	e5.8	26	14	17	17	42	54	32	28	56	26	34
20	e5.6	34	15	15	15	43	44	30	24	44	24	30
21	e5.6	78	16	14	23	42	37	29	22	42	21	24
22	e9.0	70	16	15	42	41	33	27	20	42	19	24
23	e14	47	16	15	48	36	29	24	19	35	18	21
24	e12	37	16	14	46	34	26	22	18	28	19	18
25	e12	31	18	14	42	73	25	22	17	22	17	15
26	e10	26	18	15	36	78	23	19	17	19	15	21
27	e8.5	23	17	16	31	60	23	19	16	15	14	19
28	e7.2	32	18	17	33	46	22	23	16	18	14	15
29	e6.6	48	21	17	---	38	21	21	16	30	13	17
30	e6.3	42	21	17	---	34	37	18	16	25	19	19
31	e6.0	---	19	17	---	41	---	17	---	20	35	---
TOTAL	279.0	885.0	580	449.5	613	1088	1151	1306	766	793	721	535.7
MEAN	9.00	29.5	18.7	14.5	21.9	35.1	38.4	42.1	25.5	25.6	23.3	17.9
MAX	20	78	35	19	48	78	86	131	47	68	47	47
MIN	5.6	7.0	10	7.1	13	22	21	17	16	14	13	4.2

CAL YR 1988 TOTAL 9286.2 MEAN 25.4 MAX 124 MIN 5.6
WTR YR 1989 TOTAL 9167.2 MEAN 25.1 MAX 131 MIN 4.2

e Estimated

QUASHNET RIVER BASIN

59

011058837 QUASHNET RIVER AT WAQUOIT VILLAGE, MASS.

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 September 1989.

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 poor. Flow at times includes overflow and leakage from Johns Pond. Occasional regulation by cranberry bog upstream.

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e9.2	13	13	11	14	e11	e12	15	17	13	13	13
2	e9.0	35	12	8.9	11	e11	e12	16	17	13	13	13
3	e9.0	22	12	8.8	11	e11	e11	16	16	13	13	12
4	e9.0	12	12	8.7	9.5	e11	e10	14	16	13	13	12
5	e13	11	12	8.2	7.7	e11	e10	15	16	13	14	12
6	e11	11	12	8.1	7.5	e10	e14	16	16	14	13	12
7	e10	10	12	8.6	7.5	e10	e16	17	16	14	13	12
8	e10	10	11	9.2	7.5	e10	e15	16	17	13	15	12
9	e11	10	11	9.3	7.5	e10	e15	15	18	13	14	12
10	e15	10	11	9.2	7.3	e10	e14	16	25	13	13	12
11	e13	10	11	10	7.3	e10	e13	22	19	13	13	12
12	e12	10	11	11	7.4	e10	12	21	16	13	15	12
13	e12	10	11	12	13	e9.0	13	17	17	12	15	12
14	e12	10	12	13	26	e9.0	13	16	17	13	14	12
15	e11	9.8	12	13	16	e9.0	13	16	17	13	13	13
16	e11	9.7	11	14	13	e9.0	22	16	18	12	15	15
17	e11	10	11	14	13	e9.0	18	16	17	21	14	17
18	e11	11	11	14	12	e9.0	15	16	16	20	13	15
19	e11	9.9	11	14	12	e10	14	16	15	17	13	14
20	e12	15	11	15	12	e12	14	16	15	15	13	13
21	e11	17	11	15	e12	e15	14	16	15	14	13	12
22	e30	12	11	14	e12	e13	14	16	15	14	13	13
23	e18	11	11	16	e12	e11	13	15	15	13	13	12
24	e11	11	12	16	e12	e12	13	16	15	13	14	13
25	e8.5	11	13	16	e12	e25	13	16	15	12	13	12
26	e7.6	11	12	17	e12	e15	13	16	14	12	13	14
27	e7.1	11	12	28	e12	e12	14	18	14	12	13	14
28	7.0	28	12	38	e12	e12	14	18	14	15	13	12
29	7.0	23	12	26	---	e11	14	16	14	14	13	12
30	10	14	12	23	---	e11	18	16	14	13	15	12
31	9.3	---	12	21	---	e14	---	16	---	13	14	---
TOTAL	348.7	398.4	360	450.0	318.2	352.0	416	507	486	426	419	383
MEAN	11.2	13.3	11.6	14.5	11.4	11.4	13.9	16.4	16.2	13.7	13.5	12.8
MAX	30	35	13	38	26	25	22	22	25	21	15	17
MIN	7.0	9.7	11	8.1	7.3	9.0	10	14	14	12	13	12

WTR YR 1989 TOTAL 4864.3 MEAN 13.3 MAX 38 MIN 7.0

e Estimated

TAUNTON RIVER BASIN

01109000 WADING RIVER NEAR NORTON, MASS.

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 except those for estimated daily discharges, which are fair. 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.--64 years, 73.2 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)
May 12	1100	297	7.93	Aug. 14	1300	*428	*8.71

Minimum discharge, 1.8 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	7.2	102	36	35	68	155	147	85	26	22	48
2	2.1	37	87	33	34	62	137	174	92	24	21	39
3	2.1	62	77	31	33	59	122	258	86	21	18	30
4	2.8	37	71	28	32	55	117	211	81	19	15	25
5	4.0	24	64	e23	29	53	114	175	75	17	15	21
6	3.9	20	58	19	26	56	127	178	67	25	15	19
7	4.1	20	53	19	25	53	157	187	65	32	14	18
8	5.0	20	49	19	e23	48	172	159	70	29	15	16
9	7.0	19	45	22	e21	46	180	138	78	25	16	14
10	7.2	17	e41	22	e19	44	161	129	133	23	16	13
11	5.8	17	e35	21	17	44	144	212	145	21	20	13
12	4.9	17	e30	20	16	45	130	288	117	20	50	12
13	4.5	17	e27	26	16	46	118	270	97	17	111	11
14	4.6	20	29	27	20	45	110	233	88	18	358	11
15	4.6	24	33	33	27	48	102	199	86	20	265	32
16	4.5	23	32	41	38	50	148	173	116	20	182	70
17	4.2	22	29	39	39	49	202	154	120	64	147	69
18	3.9	25	27	35	35	52	180	139	104	103	125	68
19	4.2	27	e25	33	31	80	157	125	92	77	97	61
20	4.3	45	25	31	28	86	142	112	77	61	78	76
21	4.5	142	28	29	48	94	126	100	68	66	67	81
22	7.8	166	32	25	111	101	112	92	63	78	57	82
23	11	122	30	23	134	88	104	83	56	68	49	75
24	11	99	32	21	111	79	95	77	54	58	42	71
25	8.1	85	41	20	84	146	88	83	55	51	38	63
26	6.7	74	43	21	e80	188	83	91	48	44	32	67
27	6.3	66	37	29	e75	153	77	84	43	36	28	92
28	5.7	97	39	32	e71	130	73	79	40	42	25	81
29	5.7	133	46	31	---	120	69	71	37	36	22	66
30	5.5	123	45	34	---	114	106	63	31	29	31	54
31	5.5	---	40	36	---	141	---	61	---	25	53	---
TOTAL	163.4	1607.2	1352	859	1258	2443	3808	4545	2369	1195	2044	1398
MEAN	5.27	53.6	43.6	27.7	44.9	78.8	127	147	79.0	38.5	65.9	46.6
MAX	11	166	102	41	134	188	202	288	145	103	358	92
MIN	1.9	7.2	25	19	16	44	69	61	31	17	14	11

CAL YR 1988 TOTAL 20334.3 MEAN 55.6 MAX 351 MIN 1.7
WTR YR 1989 TOTAL 23041.6 MEAN 63.1 MAX 358 MIN 1.9

e Estimated

TAUNTON RIVER BASIN

61

01109060 THREEMILE RIVER AT NORTH DIGHTON, MASS.

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.--23 years, 169 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)
May 13	0330	*706	*4.76	No other peak greater than base discharge.			

Minimum discharge, 8.9 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	28	247	80	76	146	334	299	147	68	113	e110
2	11	86	197	73	74	133	342	381	173	61	e85	e100
3	12	81	167	70	71	122	314	482	179	51	e66	e88
4	13	79	145	61	71	115	288	562	177	49	e52	e82
5	16	60	129	58	67	109	273	474	168	51	e45	e74
6	15	50	114	59	63	116	295	438	150	57	e43	e66
7	13	47	102	52	60	113	328	421	155	52	e41	e60
8	22	45	98	52	54	105	395	406	157	51	e40	e56
9	25	44	92	54	54	98	418	355	181	49	e41	e52
10	21	42	84	55	48	94	411	319	312	50	e42	e48
11	20	44	79	54	49	92	376	418	352	51	e45	e45
12	19	43	66	53	45	92	335	607	346	48	e54	e43
13	18	42	67	61	44	94	297	694	291	48	e250	e42
14	17	49	70	62	51	94	265	629	244	55	e400	41
15	16	51	71	72	65	96	241	532	226	71	e500	154
16	15	51	72	84	84	101	325	462	296	65	e420	219
17	15	56	64	86	83	101	406	406	313	240	e320	222
18	16	58	63	82	77	108	450	352	308	329	e260	173
19	16	57	61	77	71	152	405	310	263	291	e210	155
20	19	108	61	73	66	176	356	272	216	206	e170	232
21	19	237	62	70	106	213	314	239	173	178	e130	232
22	28	276	65	59	215	229	272	210	149	176	e110	234
23	32	312	65	63	270	225	233	183	131	171	e100	196
24	32	255	68	56	286	204	207	164	116	143	e80	e170
25	30	198	80	54	241	300	182	163	110	117	e70	e140
26	26	164	85	56	180	360	166	170	106	99	e64	e190
27	23	140	83	68	187	395	154	186	92	85	e60	e210
28	22	193	79	72	162	359	146	194	86	89	e56	e170
29	22	245	90	72	---	319	136	165	81	108	e64	e130
30	20	281	93	73	---	281	221	142	75	105	e90	e110
31	20	---	87	76	---	303	---	130	---	114	e120	---
TOTAL	603	3422	2906	2037	2920	5445	8885	10765	5773	3328	4141	3844
MEAN	19.5	114	93.7	65.7	104	176	296	347	192	107	134	128
MAX	32	312	247	86	286	395	450	694	352	329	500	234
MIN	10	28	61	52	44	92	136	130	75	48	40	41

CAL YR 1988 TOTAL 41543.2 MEAN 114 MAX 647 MIN 8.8
WTR YR 1989 TOTAL 54069 MEAN 148 MAX 694 MIN 10

e Estimated

TAUNTON RIVER BASIN

01109070 SEGREGANSET RIVER NEAR DIGHTON, MASS.

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 below 1.0 ft³/s, which are fair. Occasional regulation by ponds upstream. Diversion upstream for Dighton Water District.

AVERAGE DISCHARGE.--23 years, 22.5 ft³/s, 28.82 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)
May 11	1845	182	4.07	July 18	0630	*209	*4.26

No flow Oct. 2-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	1.6	32	10	14	17	35	51	17	1.8	7.8	7.8
2	.00	17	24	9.1	12	16	22	72	20	1.5	5.8	5.5
3	.00	14	19	8.6	11	14	19	98	15	1.3	4.7	4.0
4	.00	8.8	16	7.4	9.8	14	19	61	16	1.1	3.6	3.1
5	.00	6.1	13	4.7	8.3	15	17	37	29	1.2	3.2	2.1
6	.00	4.7	11	3.3	7.1	21	36	43	19	4.8	2.7	1.6
7	.02	3.5	11	3.4	6.9	20	33	50	21	5.4	2.5	1.3
8	.12	2.9	11	4.6	6.4	16	58	36	26	3.6	5.4	1.1
9	.25	2.4	9.8	6.2	5.3	14	56	26	38	2.4	6.0	.96
10	.33	1.9	8.5	5.9	4.3	14	32	26	100	2.1	4.0	.85
11	.49	2.7	7.7	5.2	3.5	13	23	107	91	2.5	6.1	.65
12	.42	2.6	5.6	5.2	3.4	15	19	156	e46	1.9	37	.58
13	.36	2.6	4.4	10	3.3	16	17	110	e30	1.5	39	.52
14	.29	5.5	7.5	8.6	7.1	15	16	69	28	1.6	34	.48
15	.27	4.8	10	12	14	16	16	44	30	6.0	29	2.0
16	.23	4.0	9.6	16	22	16	72	33	66	6.7	22	7.1
17	.19	5.0	6.9	14	18	14	78	28	68	66	17	22
18	.19	8.5	6.2	12	12	16	41	24	45	135	13	27
19	.17	7.0	5.9	11	9.1	38	29	20	31	69	9.7	19
20	.17	15	6.1	10	8.2	37	24	17	22	30	8.0	23
21	.17	83	8.1	8.7	25	35	20	14	16	24	6.5	22
22	.46	68	8.5	6.4	72	26	18	13	12	23	6.7	17
23	.69	38	7.3	5.8	70	17	16	11	10	17	6.3	12
24	.90	24	9.6	6.0	45	19	15	10	8.4	11	5.1	10
25	.98	18	15	6.1	26	86	14	16	7.5	7.9	4.2	8.2
26	.79	14	14	6.3	26	62	14	16	6.1	5.7	2.7	13
27	.85	12	11	12	20	32	13	14	4.7	4.2	1.8	26
28	.89	31	12	13	19	23	13	22	3.6	7.2	1.2	22
29	.94	61	16	11	---	19	13	19	2.7	15	1.2	14
30	.86	48	15	13	---	22	69	13	2.5	10	6.3	9.9
31	.80	---	12	14	---	42	---	11	---	9.2	11	---
TOTAL	11.84	517.6	353.7	269.5	488.7	740	867	1267	831.5	479.6	313.5	284.74
MEAN	.38	17.3	11.4	8.69	17.5	23.9	28.9	40.9	27.7	15.5	10.1	9.49
MAX	.98	83	32	16	72	86	78	156	100	135	39	27
MIN	.00	1.6	4.4	3.3	3.3	13	13	10	2.5	1.1	1.2	.48
CFSM	.04	1.63	1.08	.82	1.65	2.25	2.73	3.86	2.61	1.46	.95	.90
IN.	.04	1.82	1.24	.95	1.72	2.60	3.04	4.45	2.92	1.68	1.10	1.00

CAL YR 1988 TOTAL 6112.65 MEAN 16.7 MAX 279 MIN .00 CFSM 1.58 IN. 21.45
WTR YR 1989 TOTAL 6424.68 MEAN 17.6 MAX 156 MIN .00 CFSM 1.66 IN. 22.55

e Estimated

TEN MILE RIVER BASIN

63

01109403 TEN MILE RIVER AT PAWTUCKET AVENUE AT EAST PROVIDENCE, R.I.

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.--No estimated daily discharges. Records good. 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, 638 ft³/s, May 24, gage height, 6.42 ft; minimum, 7.4 ft³/s, Feb. 26; minimum daily, 19 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	100	107	47	43	75	157	186	111	40	60	82
2	19	194	92	43	44	70	132	240	115	38	84	90
3	21	131	79	41	42	67	120	340	100	38	129	57
4	26	83	71	42	42	64	122	272	98	34	117	36
5	26	57	63	37	38	63	120	185	96	38	80	36
6	22	49	60	37	37	69	148	211	86	67	73	36
7	22	42	57	37	38	68	175	226	94	61	101	36
8	31	36	55	35	37	63	187	186	93	51	105	36
9	31	34	51	35	36	58	184	158	108	41	72	36
10	27	31	47	34	35	54	166	155	181	41	63	36
11	25	35	44	35	33	53	139	305	191	45	54	36
12	23	30	37	39	32	53	127	437	139	35	101	36
13	22	32	36	47	32	54	127	371	121	31	150	36
14	21	45	44	41	41	51	124	282	105	37	224	47
15	20	42	44	51	49	54	117	227	113	47	328	61
16	21	39	42	58	59	57	208	199	157	38	239	73
17	22	43	39	52	56	53	232	179	153	186	175	98
18	21	45	36	46	47	64	212	160	137	184	195	98
19	23	40	34	44	42	110	187	145	118	120	207	107
20	22	89	34	42	39	96	152	133	101	88	237	104
21	20	225	36	42	88	107	134	122	90	95	203	104
22	37	178	38	36	174	108	126	113	82	97	112	104
23	41	127	38	34	151	94	114	105	77	84	35	104
24	35	104	45	35	123	96	106	182	77	67	62	105
25	29	84	52	35	99	206	102	61	73	58	67	103
26	25	73	50	37	71	204	95	118	64	53	95	108
27	24	68	48	48	86	150	96	119	58	47	94	104
28	23	131	52	45	80	134	89	116	55	86	59	104
29	23	151	65	40	---	125	82	103	52	69	47	104
30	22	127	59	43	---	119	158	94	45	56	51	103
31	27	---	52	44	---	156	---	96	---	56	59	---
TOTAL	770	2465	1607	1282	1694	2795	4238	5826	3090	2028	3678	2220
MEAN	24.8	82.2	51.8	41.4	60.5	90.2	141	188	103	65.4	119	74.0
MAX	41	225	107	58	174	206	232	437	191	186	328	108
MIN	19	30	34	34	32	51	82	61	45	31	35	36

CAL YR 1988 TOTAL 30803 MEAN 84.2 MAX 500 MIN 16
WTR YR 1989 TOTAL 31693 MEAN 86.8 MAX 437 MIN 19

BLACKSTONE RIVER BASIN

01110000 QUINSIGAMOND RIVER AT NORTH GRAFTON, MASS.

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 Bummert 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.--50 years, 41.2 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, 147 ft³/s, May 12, Aug. 14, gage height, 2.41 ft; minimum daily, 3.3 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	14	46	25	20	33	74	54	49	26	20	20
2	3.5	65	43	24	19	30	65	84	51	24	18	19
3	7.2	66	38	23	19	27	59	115	66	22	17	17
4	6.6	50	40	22	20	26	59	99	57	20	15	15
5	6.8	40	32	10	18	25	57	81	48	20	14	14
6	7.1	38	30	20	18	25	77	105	44	33	14	13
7	6.4	35	28	18	17	23	97	115	51	33	14	12
8	9.2	29	28	18	16	22	104	104	60	30	15	12
9	11	25	26	18	16	21	98	93	60	27	12	11
10	10	21	25	17	15	20	90	85	86	26	11	11
11	9.7	22	25	17	14	19	80	126	83	27	16	11
12	8.8	19	23	16	14	20	68	145	70	23	48	11
13	8.0	20	22	19	14	20	59	138	62	20	105	9.8
14	6.7	35	22	17	15	19	57	126	59	19	145	10
15	6.1	32	23	20	18	19	55	112	56	22	129	28
16	5.7	27	23	22	23	21	97	102	77	20	106	28
17	5.1	30	20	21	21	19	113	93	80	36	86	30
18	5.3	35	20	20	20	20	103	84	77	41	70	28
19	6.6	28	19	20	18	25	94	75	69	35	56	30
20	6.3	46	18	20	17	22	85	68	60	30	48	37
21	5.3	129	19	19	37	27	73	63	54	53	42	44
22	19	112	19	17	74	28	69	63	49	54	38	44
23	28	93	18	17	69	25	63	56	46	47	34	43
24	24	77	20	16	60	25	56	55	52	38	34	43
25	22	65	29	16	50	43	51	66	47	33	30	35
26	19	51	29	17	43	49	46	63	41	29	27	38
27	17	44	26	24	40	45	45	60	36	26	24	42
28	15	55	27	22	35	43	42	58	35	29	22	35
29	14	64	32	21	---	42	39	49	34	27	20	32
30	12	53	28	21	---	50	55	42	29	23	24	29
31	11	---	27	21	---	77	---	40	---	22	23	---
TOTAL	325.7	1420	825	598	760	910	2130	2619	1688	915	1277	751.8
MEAN	10.5	47.3	26.6	19.3	27.1	29.4	71.0	84.5	56.3	29.5	41.2	25.1
MAX	28	129	46	25	74	77	113	145	86	54	145	44
MIN	3.3	14	18	10	14	19	39	40	29	19	11	9.8

CAL YR 1988 TOTAL 11926.0 MEAN 32.6 MAX 129 MIN 1.9
WTR YR 1989 TOTAL 14219.5 MEAN 39.0 MAX 145 MIN 3.3

BLACKSTONE RIVER BASIN

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01111200 WEST RIVER BELOW WEST HILL DAM, NEAR UXBRIDGE, MASS.

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 current year.

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 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.--27 years, 48.5 ft³/s, 23.61 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, 265 ft³/s, Aug. 14, gage height, 3.04 ft; minimum, 3.1 ft³/s, Sept. 23; minimum daily, 3.4 ft³/s, Oct. 1-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	9.2	74	35	28	37	e136	62	43	22	12	22
2	3.4	42	60	32	28	35	e177	e98	48	21	12	18
3	3.4	62	59	31	28	34	e205	127	e76	18	11	16
4	3.4	49	58	30	28	34	e150	128	e84	18	10	15
5	3.4	43	53	24	25	32	77	103	e76	17	9.8	13
6	3.6	43	42	21	24	31	45	e84	57	25	9.5	13
7	3.6	32	35	20	22	32	e154	e91	68	30	10	12
8	4.6	20	33	20	21	29	e209	e144	e84	27	14	12
9	6.7	18	31	22	19	28	e202	121	e92	22	14	12
10	6.7	19	30	22	18	27	e195	74	116	20	12	12
11	6.1	19	29	22	16	27	166	e59	140	20	13	11
12	5.2	16	26	20	16	27	133	e160	119	e19	33	11
13	4.6	15	24	21	16	28	104	195	95	16	e65	10
14	4.2	28	26	22	16	28	86	189	83	15	e182	10
15	4.0	36	32	23	20	28	80	198	72	17	225	21
16	4.0	30	32	29	32	32	90	e133	88	19	130	31
17	4.0	30	28	29	33	32	170	e113	112	25	94	31
18	4.0	40	23	27	27	33	180	100	111	40	65	27
19	3.8	42	21	26	24	46	150	83	97	38	44	24
20	3.8	42	21	25	22	51	123	77	77	31	33	35
21	3.8	111	22	25	30	51	106	71	63	39	29	48
22	12	178	24	21	71	56	92	65	53	51	26	36
23	26	166	24	21	e84	56	81	59	46	44	24	e84
24	18	134	26	20	e87	49	73	46	42	32	24	e77
25	12	101	39	20	e79	54	67	44	39	26	23	49
26	9.0	75	41	21	e62	66	63	44	36	22	21	39
27	8.9	53	32	28	47	e98	57	44	33	18	18	50
28	9.2	53	34	30	41	e124	54	46	30	16	18	47
29	8.3	73	48	29	---	e116	50	44	28	15	17	35
30	9.5	83	48	28	---	e83	63	39	25	14	21	28
31	9.4	---	40	28	---	e73	---	37	---	13	26	---
TOTAL	212.0	1662.2	1115	772	964	1477	3538	2878	2133	750	1245.3	849
MEAN	6.84	55.4	36.0	24.9	34.4	47.6	118	92.8	71.1	24.2	40.2	28.3
MAX	26	178	74	35	87	124	209	198	140	51	225	84
MIN	3.4	9.2	21	20	16	27	45	37	25	13	9.5	10
(†)	1.1	11.3	3.0	2.6	3.7	27.4	5.8	3.4	2.2	1.3	2.4	2.2
MEAN‡	6.95	59.3	32.9	24.7	34.9	56.5	110	91.9	70.6	23.9	40.6	28.2
CFSM‡	.25	2.13	1.18	.89	1.25	2.03	3.94	3.29	2.53	.86	1.46	1.01
IN.‡	.29	2.37	1.36	1.02	1.30	2.33	4.38	3.80	2.83	.99	1.68	1.13

CAL YR 1988 TOTAL 14300.6 MEAN 39.1 MAX 236 MIN 3.4 MEAN‡ 39.1 CFSM‡ 1.40 IN.‡ 19.09
WTR YR 1989 TOTAL 17595.5 MEAN 48.2 MAX 225 MIN 3.4 MEAN‡ 48.3 CFSM‡ 1.73 IN.‡ 23.48

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, MASS.
(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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT												
14...	0950	148	330	7.10	14.5	8.0	--	--	760	9.4	80	--
NOV												
09...	1010	373	253	7.30	14.0	9.0	--	--	760	11.2	97	--
DEC												
14...	1020	275	245	7.80	3.5	1.0	--	3.0	750	14.4	103	15
JAN												
10...	1000	262	260	7.90	0.0	1.0	--	--	770	13.1	91	--
FEB												
15...	1010	238	346	6.70	8.0	4.0	--	--	755	11.6	89	--
MAR												
22...	1030	561	308	7.30	5.0	6.0	18	2.6	765	12.4	99	20
APR												
12...	1000	1120	205	6.70	9.0	6.5	--	--	765	11.5	93	--
MAY												
03...	1000	1730	162	6.80	12.5	11.5	--	--	750	9.0	84	--
JUN												
07...	0815	517	249	7.00	17.0	18.5	--	3.8	760	6.7	72	22
JUL												
13...	1000	373	251	6.90	27.5	21.5	--	--	755	7.5	85	--
AUG												
02...	1000	181	265	7.09	25.5	20.5	--	--	760	7.5	84	--
SEP												
06...	0845	217	281	7.19	16.5	16.0	15	1.2	765	6.6	67	12

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	HARD- NESS NONCARB TOT FLD (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT												
14...	--	2100	96	K18	--	--	--	--	--	--	--	--
NOV												
09...	1.0	8600	720	24	--	--	--	--	--	--	--	--
DEC												
14...	--	23000	1600	560	42	16	13	2.2	28	57	2	3.3
JAN												
10...	2.0	3100	340	92	--	--	--	--	--	--	--	--
FEB												
15...	--	31000	2300	1600	--	--	--	--	--	--	--	--
MAR												
22...	5.0	41000	2000	140	39	12	12	2.2	39	66	3	3.5
APR												
12...	--	1300	K20	K10	--	--	--	--	--	--	--	--
MAY												
03...	3.0	33000	1100	620	--	--	--	--	--	--	--	--
JUN												
07...	--	2100	150	170	41	--	13	2.1	29	58	2	3.0
JUL												
13...	1.0	K4200	170	K20	--	--	--	--	--	--	--	--
AUG												
02...	--	880	K70	30	--	--	--	--	--	--	--	--
SEP												
06...	1.0	780	72	38	42	22	13	2.2	31	59	2	3.8

BLACKSTONE RIVER BASIN

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01111230 BLACKSTONE RIVER AT MILLVILLE, MASS.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
OCT												
14...	0	26	21	--	--	--	--	--	--	--	--	3.27
NOV												
09...	0	27	22	--	--	--	--	--	--	--	--	1.16
DEC												
14...	0	31	25	20	41	0.20	7.6	141	137	14	154	0.770
JAN												
10...	0	39	32	--	--	--	--	--	--	--	--	0.690
FEB												
15...	0	40	33	--	--	--	--	--	--	--	--	0.680
MAR												
22...	0	29	24	20	58	0.20	5.7	173	162	8	171	0.580
APR												
12...	0	18	15	--	--	--	--	--	--	--	--	0.480
MAY												
03...	0	13	10	--	--	--	--	--	--	--	--	0.450
JUN												
07...	0	24	20	17	45	0.20	5.6	142	135	10	170	1.47
JUL												
13...	0	26	21	--	--	--	--	--	--	--	--	1.29
AUG												
02...	0	23	19	--	--	--	--	--	--	--	--	1.79
SEP												
06...	0	25	20	20	45	0.30	4.8	132	143	<1	147	--

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)
OCT												
14...	0.030	--	3.30	--	0.060	--	--	0.54	0.60	3.9	17	0.770
NOV												
09...	0.040	--	1.20	--	0.370	--	--	0.63	1.0	2.2	9.7	0.400
DEC												
14...	0.030	0.020	0.800	0.840	1.20	1.20	1.5	0.50	1.7	2.5	11	0.300
JAN												
10...	0.010	--	0.700	--	2.30	--	--	0.30	2.6	3.3	15	0.370
FEB												
15...	0.020	--	0.700	--	3.70	--	--	0.60	4.3	5.0	22	0.490
MAR												
22...	0.020	0.015	0.600	0.663	2.00	2.10	2.7	0.60	2.6	3.2	14	0.480
APR												
12...	0.020	--	0.500	--	0.430	--	--	0.37	0.80	1.3	5.8	0.160
MAY												
03...	0.050	--	0.500	--	0.440	--	--	0.46	0.90	1.4	6.2	0.180
JUN												
07...	0.130	0.140	1.60	1.60	0.440	0.470	0.61	0.66	1.1	2.7	12	0.360
JUL												
13...	0.010	--	1.30	--	0.030	--	--	0.47	0.50	1.8	8.0	0.250
AUG												
02...	0.010	--	1.80	--	<0.010	--	--	--	1.7	3.5	15	0.400
SEP												
06...	<0.010	0.010	1.50	2.10	0.020	0.040	0.05	0.48	0.50	2.0	8.9	0.370

BLACKSTONE RIVER BASIN

01111230 BLACKSTONE RIVER AT MILLVILLE, MASS.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL)	ALUM- INUM, DIS- SOLVED (MG/L AS AL)	ARSENIC TOTAL (MG/L AS AS)	ARSENIC DIS- SOLVED (MG/L AS AS)	BARIUM, DIS- SOLVED (MG/L AS BA)	BERYL- LIUM, DIS- SOLVED (MG/L AS BE)	BORON, TOTAL RECOV- ERABLE (MG/L AS B)
OCT										
14...	--	0.640	--	--	--	--	--	--	--	--
NOV										
09...	--	0.290	--	--	--	--	--	--	--	--
DEC										
14...	0.230	0.250	0.200	--	30	--	2	12	<0.5	--
JAN										
10...	--	0.290	--	--	--	--	--	--	--	--
FEB										
15...	--	0.390	--	--	--	--	--	--	--	--
MAR										
22...	0.340	0.350	0.311	150	20	2	2	10	<0.5	90
APR										
12...	--	0.090	--	--	--	--	--	--	--	--
MAY										
03...	--	0.100	--	--	--	--	--	--	--	--
JUN										
07...	0.030	0.230	0.140	--	30	--	2	14	<0.5	--
JUL										
13...	--	0.220	--	--	--	--	--	--	--	--
AUG										
02...	--	0.310	--	--	--	--	--	--	--	--
SEP										
06...	0.280	0.260	0.250	80	10	2	2	10	<0.5	80

DATE	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD)	CADMIUM DIS- SOLVED (MG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR)	CHRO- MIUM, DIS- SOLVED (MG/L AS CR)	COBALT, DIS- SOLVED (MG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU)	COPPER, DIS- SOLVED (MG/L AS CU)	IRON, TOTAL RECOV- ERABLE (MG/L AS FE)	IRON, DIS- SOLVED (MG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (MG/L AS PB)	LEAD, DIS- SOLVED (MG/L AS PB)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	<1	--	2	<3	--	7	--	160	--	<5
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	1	<1	4	1	<3	16	8	550	90	13	<5
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	<1	--	1	<3	--	12	--	300	--	2
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	1	<1	1	2	<3	11	10	490	130	3	2

BLACKSTONE RIVER BASIN

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01111230 BLACKSTONE RIVER AT MILLVILLE, MASS.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LITHIUM DIS- SOLVED (µG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MANGA- NESE, DIS- SOLVED (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MERCURY DIS- SOLVED (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	NICKEL, DIS- SOLVED (µG/L AS NI)	SELE- NIUM, TOTAL (µG/L AS SE)	SELE- NIUM, DIS- SOLVED (µG/L AS SE)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	<4	--	100	--	<0.1	--	<10	--	9	--	<1
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	<4	120	93	<0.10	0.7	3	<10	41	36	<1	<1
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	<4	--	110	--	<0.1	--	<10	--	18	--	<1
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<4	50	24	<0.10	<0.1	2	10	15	13	<1	<1

DATE	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	SILVER, DIS- SOLVED (µG/L AS AG)	STRON- TIUM, DIS- SOLVED (µG/L AS SR)	VANA- DIUM, DIS- SOLVED (µG/L AS V)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	ZINC, DIS- SOLVED (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV- GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL (µG/L)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	1.0	73	<6	--	45	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	1	<1.0	70	<6	30	32	9	<1	<0.1	--	<0.010
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	<1.0	76	<6	--	21	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<1	<1.0	73	<6	30	25	2	<1	<0.1	51	<0.010

BLACKSTONE RIVER BASIN

01111230 BLACKSTONE RIVER AT MILLVILLE, MASS.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	<0.1	<0.1	8.0	<0.010	2.4	<0.010	1.3	<0.010	<0.1	<0.010	2.1

DATE	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH- OXY- CHLOR, TOTAL (µG/L)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.01
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	<0.010	<0.1	<0.010	<0.1	<0.010	<1.0	<0.010	<0.1	<0.010	<0.1	<0.01

BLACKSTONE RIVER BASIN

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01111230 BLACKSTONE RIVER AT MILLVILLE, MASS.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER- THANE TOTAL (µG/L)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG)	TOX- APHENE, TOTAL (µG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	10	45
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	--	<0.01	--	<0.10	--	<0.1	--	<1	--	12	70
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	--	--	--	--	--	--	22	82
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	<1.0	<0.01	<0.1	<0.10	<1.0	<0.1	<1.00	<1	<10	7	63

BLACKSTONE RIVER BASIN

01111300 NIPMUC RIVER NEAR HARRISVILLE, R.I.

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 30 ft³/s, and those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--25 years, 30.4 ft³/s, 25.80 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)
Nov. 21	0430	*374	*5.74	Aug. 13	2300	305	5.70

Minimum discharge, 1.1 ft³/s, Oct. 1-3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	11	47	e20	19	e24	66	49	17	9.3	11	20
2	1.1	114	39	18	18	e22	48	80	17	7.6	8.8	16
3	1.5	51	35	18	17	21	42	92	16	7.0	7.3	13
4	1.7	24	31	e17	e15	21	44	55	15	6.8	6.5	11
5	2.0	16	28	e15	e15	21	42	44	15	7.0	5.9	9.7
6	2.7	16	26	e14	15	23	91	93	13	20	5.3	9.3
7	2.8	14	25	e13	13	e22	107	81	23	18	5.0	8.7
8	5.0	12	25	e15	e11	e19	103	53	46	12	10	8.4
9	7.1	10	23	19	e11	e17	92	44	42	9.1	8.8	7.8
10	5.2	9.6	e21	16	e10	e17	65	44	118	8.4	6.4	7.2
11	4.5	10	e19	14	e10	e17	53	150	61	9.3	13	6.8
12	3.8	10	e19	16	e10	17	46	146	35	7.5	78	6.7
13	3.4	14	e19	17	e10	18	42	93	29	6.6	154	6.3
14	3.3	41	e23	15	e12	18	39	71	31	6.1	173	6.3
15	3.3	27	23	22	19	19	37	56	34	7.2	64	27
16	3.3	17	e19	26	28	21	108	50	75	7.1	44	23
17	3.3	27	e15	20	e21	20	106	47	61	32	52	34
18	3.3	47	e17	17	e18	22	66	42	47	34	35	29
19	3.1	29	22	16	e15	36	54	37	34	21	27	34
20	3.1	80	22	16	14	28	48	33	26	14	24	63
21	3.1	282	21	e14	47	36	42	30	21	83	24	56
22	14	118	17	e14	124	39	38	28	20	50	41	49
23	16	70	e15	13	72	29	35	25	18	28	28	38
24	9.8	54	18	12	e44	26	33	24	23	20	21	34
25	7.3	46	43	12	e37	82	31	24	22	14	17	27
26	6.0	39	32	14	e31	74	29	22	17	11	15	37
27	5.6	35	e23	29	e28	48	28	22	14	9.1	13	45
28	5.1	80	24	e24	e25	40	27	25	12	12	12	30
29	4.9	91	45	19	---	35	25	21	11	12	11	25
30	4.7	57	32	18	---	37	55	18	10	11	42	22
31	4.7	---	24	19	---	77	---	17	---	14	30	---
TOTAL	145.8	1451.6	792	532	709	946	1642	1616	923	514.1	993.0	710.2
MEAN	4.70	48.4	25.5	17.2	25.3	30.5	54.7	52.1	30.8	16.6	32.0	23.7
MAX	16	282	47	29	124	82	108	150	118	83	173	63
MIN	1.1	9.6	15	12	10	17	25	17	10	6.1	5.0	6.3
CFSM	.29	3.02	1.60	1.07	1.58	1.91	3.42	3.26	1.92	1.04	2.00	1.48
IN.	.34	3.37	1.84	1.24	1.65	2.20	3.82	3.76	2.15	1.20	2.31	1.65

CAL YR 1988 TOTAL 9368.3 MEAN 25.6 MAX 313 MIN 1.1 CFSM 1.60 IN. 21.78
WTR YR 1989 TOTAL 10974.7 MEAN 30.1 MAX 282 MIN 1.1 CFSM 1.88 IN. 25.52

e Estimated

01111500 BRANCH RIVER AT FORESTDALE, R.I.

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.--49 years, 173 ft³/s, 25.76 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)
Nov. 21	1145	*999	*5.41	Aug. 14	0830	978	5.24
May 12	0345	933	5.13				

Minimum daily discharge, 21 ft³/s, Oct. 1, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	100	254	106	123	145	340	319	115	66	90	115
2	23	331	199	100	119	133	279	396	118	61	78	89
3	21	248	159	97	116	128	217	586	114	54	69	78
4	23	147	143	91	110	124	226	424	110	52	63	70
5	23	125	131	73	102	123	232	315	116	56	58	63
6	23	131	125	69	85	134	356	425	102	89	54	59
7	22	127	122	68	77	125	579	540	159	100	52	57
8	33	110	120	74	72	112	580	403	294	79	67	56
9	35	96	115	79	69	103	595	327	352	66	60	55
10	35	92	108	77	61	99	535	308	750	64	55	54
11	59	95	104	73	60	113	395	669	655	60	85	52
12	89	92	90	73	57	120	329	897	363	56	423	49
13	88	104	86	90	57	101	261	678	244	51	623	48
14	87	155	98	89	71	94	217	576	222	52	882	52
15	86	127	108	115	101	98	206	444	238	57	547	133
16	86	97	105	146	143	103	413	360	399	58	351	146
17	91	109	93	129	130	99	592	328	459	156	340	151
18	96	154	88	115	109	102	442	274	399	243	281	165
19	93	127	86	109	96	147	349	217	291	170	221	166
20	71	222	90	106	88	153	297	190	216	126	168	327
21	37	881	95	100	164	166	257	174	168	286	143	314
22	95	568	98	86	525	207	230	158	145	365	165	369
23	85	338	93	83	413	167	209	144	124	265	147	341
24	70	254	102	94	284	149	190	135	138	192	112	188
25	65	234	147	94	216	372	172	131	145	120	92	136
26	59	212	144	99	181	417	159	124	120	92	83	175
27	55	206	114	146	176	287	160	125	101	78	78	257
28	53	281	115	143	154	224	166	148	86	83	75	199
29	48	377	154	124	---	195	164	137	77	87	76	163
30	51	303	143	123	---	189	272	119	69	78	139	141
31	64	---	120	130	---	311	---	111	---	92	153	---
TOTAL	1787	6443	3749	3101	3959	5040	9419	10182	6889	3454	5830	4268
MEAN	57.6	215	121	100	141	163	314	328	230	111	188	142
MAX	96	881	254	146	525	417	595	897	750	365	882	369
MIN	21	92	86	68	57	94	159	111	69	51	52	48
CFSM	.63	2.35	1.33	1.10	1.55	1.78	3.44	3.60	2.52	1.22	2.06	1.56
IN.	.73	2.63	1.53	1.26	1.61	2.06	3.84	4.15	2.81	1.41	2.38	1.74

CAL YR 1988	TOTAL 51232	MEAN 140	MAX 1150	MIN 17	CFSM 1.53	IN. 20.90
WTR YR 1989	TOTAL 64121	MEAN 176	MAX 897	MIN 21	CFSM 1.93	IN. 26.15

BLACKSTONE RIVER BASIN

01111500 BRANCH RIVER AT FORESTDALE, R.I.--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT											
14...	0830	87	146	7.15	6.0	10.0	--	--	760	10.8	96
NOV											
09...	1115	96	106	7.10	15.5	8.0	--	--	760	11.6	98
DEC											
14...	1245	98	100	7.50	3.5	3.0	--	2.1	750	14.8	111
JAN											
10...	1120	77	109	7.80	0.0	2.0	--	--	770	12.4	89
FEB											
15...	1100	98	110	7.10	6.0	4.0	--	--	755	13.1	100
MAR											
22...	1300	207	107	7.80	6.0	7.0	15	--	765	12.4	102
APR											
12...	1145	329	80	6.60	11.0	7.5	--	--	765	12.5	104
MAY											
03...	1100	610	82	6.50	16.5	12.0	--	--	750	10.5	99
JUN											
07...	1015	140	102	7.30	16.0	20.0	--	1.1	760	8.4	93
JUL											
13...	1130	51	105	6.90	26.5	23.0	--	--	755	8.4	99
AUG											
02...	1115	78	86	7.01	27.5	23.0	--	--	760	8.6	101
SEP											
06...	1215	58	96	7.18	22.5	19.5	40	1.1	765	6.3	68

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT										
14...	--	1600	440	53	--	--	--	--	--	--
NOV										
09...	1.0	1800	960	22	--	--	--	--	--	--
DEC										
14...	--	1600	73	32	--	--	--	--	--	--
JAN										
10...	1.0	1300	150	24	--	--	--	--	--	--
FEB										
15...	--	1100	240	59	--	--	--	--	--	--
MAR										
22...	1.0	530	K12	K8	15	4.6	0.94	12	61	1.2
APR										
12...	--	1000	59	K6	--	--	--	--	--	--
MAY										
03...	1.0	2900	>1100	21	--	--	--	--	--	--
JUN										
07...	--	1500	1000	40	--	--	--	--	--	--
JUL										
13...	1.0	1700	360	370	--	--	--	--	--	--
AUG										
02...	--	1100	80	280	--	--	--	--	--	--
SEP										
06...	1.0	1000	320	32	14	4.3	0.82	11	60	1.2

BLACKSTONE RIVER BASIN

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01111500 BRANCH RIVER AT FORESTDALE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT												
14...	0	14	11	--	--	--	--	--	--	<0.010	<0.100	0.060
NOV												
09...	0	9	7	--	--	--	--	--	0.290	0.010	0.300	0.190
DEC												
14...	0	4	3	--	--	--	12	86	--	<0.010	0.400	0.140
JAN												
10...	0	6	5	--	--	--	--	--	--	<0.010	0.500	0.110
FEB												
15...	0	6	5	--	--	--	--	--	--	<0.010	0.400	0.120
MAR												
22...	0	6	5	11	18	51	<1	65	0.390	0.010	0.400	0.120
APR												
12...	0	4	3	--	--	--	--	--	--	<0.010	0.200	0.060
MAY												
03...	0	5	4	--	--	--	--	--	--	<0.010	0.200	0.050
JUN												
07...	0	8	6	--	--	--	<1	78	--	<0.010	0.300	0.120
JUL												
13...	0	11	9	--	--	--	--	--	0.290	0.010	0.300	0.120
AUG												
02...	0	7	6	--	--	--	--	--	--	<0.010	0.100	0.150
SEP												
06...	0	9	8	7.0	17	46	<1	64	--	<0.010	0.200	0.140

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	ALUM- NUM, TOTAL RECOV- ERABLE (MG/L AS AL)	ARSENIC TOTAL (MG/L AS AS)	BORON, TOTAL RECOV- ERABLE (MG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU)
OCT												
14...	0.54	0.60	--	--	0.030	0.020	--	--	--	--	--	--
NOV												
09...	0.41	0.60	0.90	4.0	0.030	0.010	--	--	--	--	--	--
DEC												
14...	0.36	0.50	0.90	4.0	0.010	0.010	--	--	--	--	--	--
JAN												
10...	0.39	0.50	1.0	4.4	0.020	0.010	--	--	--	--	--	--
FEB												
15...	0.58	0.70	1.1	4.9	0.020	0.010	--	--	--	--	--	--
MAR												
22...	0.28	0.40	0.80	3.5	0.020	<0.010	100	<1	10	<1	<1	4
APR												
12...	0.34	0.40	0.60	2.7	<0.010	<0.010	--	--	--	--	--	--
MAY												
03...	--	<0.20	--	--	0.020	<0.010	--	--	--	--	--	--
JUN												
07...	--	<0.90	--	--	0.030	0.010	--	--	--	--	--	--
JUL												
13...	0.58	0.70	1.0	4.4	0.020	0.020	--	--	--	--	--	--
AUG												
02...	0.25	0.40	0.50	2.2	0.050	0.010	--	--	--	--	--	--
SEP												
06...	0.56	0.70	0.90	4.0	0.030	<0.010	100	<1	40	1	<1	3

BLACKSTONE RIVER BASIN

01111500 BRANCH RIVER AT FORESTDALE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	260	<5	50	<0.10	2	1	<1	<1	<10	--	<1	<0.1
APR 12...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	680	2	70	<0.10	<1	<1	<1	<1	<10	<1	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL ALDRIN, TOTAL (µG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL CHLOR- DANE, TOTAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL DDD, TOTAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL DDE, TOTAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL DDT, TOTAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	18	<0.010	<0.1	<0.1	8.0	<0.010	6.3	<0.010	5.0	<0.010	2.1

BLACKSTONE RIVER BASIN

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01111500 BRANCH RIVER AT FORESTDALE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DI-ELDRIN TOTAL (µG/L)	DI-ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDO-SULFAN, TOTAL (µG/L)	ENDO-SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR, TOTAL (µG/L)	HEPTA-CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (µG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL (µG/L)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<0.010	0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH- OXY- CHLOR, TOTAL (µG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER- THANE TOTAL (µG/L)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG)	TOX- APHENE, TOTAL (µG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	<0.1	<0.01	<1.0	<0.01	<0.1	<0.10	<1.0	<0.1	<1.00	<1	<10

BLACKSTONE RIVER BASIN

01112500 BLACKSTONE RIVER AT WOONSOCKET, R.I.

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.--No estimated daily discharges. Records good except those below 300 ft³/s July to September, 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.--60 years, 768 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, 4,800 ft³/s, Nov. 21, gage height, 7.48 ft; minimum daily, 110 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	352	1130	483	425	565	1630	1310	679	367	323	464
2	110	1380	979	444	420	511	1440	1440	685	351	283	396
3	154	1380	923	512	407	487	1230	2240	917	315	275	357
4	175	942	834	463	395	467	1220	1880	905	289	256	326
5	159	718	758	349	365	470	1150	1540	754	283	239	223
6	155	668	640	418	340	502	1450	1750	671	524	228	190
7	150	625	614	345	321	467	2160	2230	844	556	252	296
8	175	521	580	347	312	415	2270	1820	1220	443	314	235
9	250	474	612	392	304	392	2330	1560	1450	392	296	248
10	218	450	564	363	284	390	2040	1390	2300	369	245	256
11	217	458	529	344	272	383	1740	2370	2290	399	356	262
12	222	422	461	347	265	412	1540	3320	1540	351	1220	232
13	225	426	418	411	266	418	1290	2770	1230	310	2140	208
14	219	754	457	375	291	390	1100	2310	1120	313	3440	231
15	207	693	510	447	393	409	1010	1970	1100	394	2460	624
16	209	560	487	582	593	406	1630	1750	1500	352	1840	730
17	219	556	437	470	517	443	2390	1530	1740	655	1580	628
18	219	744	409	424	412	451	2110	1370	1650	976	1270	615
19	214	663	400	404	364	644	1770	1170	1370	719	1010	620
20	193	936	392	424	348	640	1540	997	1130	558	843	1110
21	164	3200	384	394	600	682	1340	949	889	1110	665	1340
22	410	2740	452	358	1940	818	1220	924	742	1290	739	1450
23	649	1930	405	353	1730	689	1090	812	672	935	630	1320
24	454	1560	424	343	1270	614	998	755	666	697	588	1070
25	362	1340	694	344	964	1220	921	841	645	520	634	804
26	342	1150	669	343	796	1500	830	832	580	430	483	835
27	315	1060	537	559	698	1200	788	768	515	368	393	1000
28	302	1280	521	490	618	1030	753	818	482	412	360	841
29	244	1570	731	445	---	917	719	738	466	416	317	690
30	259	1430	600	437	---	874	1130	653	427	379	627	601
31	256	---	559	464	---	1440	---	597	---	339	599	---
TOTAL	7589	30982	18110	12874	15910	20246	42829	45404	31179	15812	24905	18202
MEAN	245	1033	584	415	568	653	1428	1465	1039	510	803	607
MAX	649	3200	1130	582	1940	1500	2390	3320	2300	1290	3440	1450
MIN	110	352	384	343	265	383	719	597	427	283	228	190

CAL YR 1988 TOTAL 241326 MEAN 659 MAX 3420 MIN 71
WTR YR 1989 TOTAL 284042 MEAN 778 MAX 3440 MIN 110

BLACKSTONE RIVER BASIN

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01112900 BLACKSTONE RIVER AT MANVILLE, R.I.

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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT												
14...	1315	220	276	7.05	15.0	10.5	--	--	760	10.2	92	--
NOV												
09...	1345	496	221	7.10	13.5	9.0	--	--	760	12.2	106	--
DEC												
14...	1445	498	244	7.50	6.0	1.0	--	2.6	760	14.9	105	21
JAN												
10...	1300	323	258	8.20	0.0	1.0	--	--	770	11.6	81	--
FEB												
15...	1240	172	300	7.20	6.0	3.0	--	--	755	13.1	98	--
MAR												
22...	1500	841	225	7.50	8.0	7.0	26	--	770	12.5	102	19
APR												
12...	1325	1560	190	6.90	10.0	8.0	--	--	770	12.0	100	--
MAY												
03...	1300	2370	164	6.70	15.0	12.0	--	--	755	10.3	96	--
JUN												
07...	1200	1060	206	7.40	18.5	19.0	--	2.7	760	7.7	83	24
JUL												
13...	1330	345	270	6.80	27.5	23.0	--	--	755	8.1	95	--
AUG												
02...	1315	256	236	7.05	29.0	22.0	--	--	760	8.4	97	--
SEP												
06...	1500	254	254	7.24	21.0	19.0	30	2.2	765	6.4	69	16

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT											
14...	--	9000	210	K24	--	--	--	--	--	--	--
NOV											
09...	1.0	36500	>2100	200	--	--	--	--	--	--	--
DEC											
14...	--	9500	800	56	--	--	--	--	--	--	--
JAN											
10...	3.0	30000	2300	510	--	--	--	--	--	--	--
FEB											
15...	--	12000	410	200	--	--	--	--	--	--	--
MAR											
22...	3.0	10000	170	K14	29	8.7	1.7	27	65	2	2.7
APR											
12...	--	2800	76	K15	--	--	--	--	--	--	--
MAY											
03...	3.0	38000	140	680	--	--	--	--	--	--	--
JUN											
07...	--	7800	1100	1300	--	--	--	--	--	--	--
JUL											
13...	1.0	30000	>8400	K60	--	--	--	--	--	--	--
AUG											
02...	--	6200	680	40	--	--	--	--	--	--	--
SEP											
06...	1.0	2400	170	28	36	11	2.0	30	62	2	3.7

BLACKSTONE RIVER BASIN

01112900 BLACKSTONE RIVER AT MANVILLE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT												
14...	0	29	24	--	--	--	--	--	1.47	0.030	1.50	0.460
NOV												
09...	0	19	16	--	--	--	--	--	0.770	0.030	0.800	0.330
DEC												
14...	0	27	22	--	--	--	11	156	0.770	0.030	0.800	0.990
JAN												
10...	0	29	24	--	--	--	--	--	0.590	0.010	0.600	2.30
FEB												
15...	0	32	26	--	--	--	--	--	0.780	0.020	0.800	2.60
MAR												
22...	0	18	15	16	41	106	5	135	0.570	0.030	0.600	0.890
APR												
12...	0	13	11	--	--	--	--	--	0.470	0.030	0.500	0.350
MAY												
03...	0	13	11	--	--	--	--	--	0.440	0.060	0.500	0.340
JUN												
07...	0	19	16	--	--	--	<1	156	1.05	0.050	1.10	0.120
JUL												
13...	0	26	21	--	--	--	--	--	1.78	0.020	1.80	0.110
AUG												
02...	0	23	19	--	--	--	--	--	0.990	0.010	1.00	0.040
SEP												
06...	0	25	21	21	44	124	1	156	1.68	0.020	1.70	0.110

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE TOTAL (MG/L AS AL)	ARSENIC TOTAL (MG/L AS AS)	BORON, TOTAL RECOV- ERABLE TOTAL (MG/L AS B)	CADMIUM TOTAL RECOV- ERABLE TOTAL (MG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE TOTAL (MG/L AS CR)	COPPER, TOTAL RECOV- ERABLE TOTAL (MG/L AS CU)
OCT												
14...	0.74	1.2	2.7	12	0.780	0.690	--	--	--	--	--	--
NOV												
09...	0.77	1.1	1.9	8.4	0.340	0.240	--	--	--	--	--	--
DEC												
14...	0.71	1.7	2.5	11	0.310	0.250	--	--	--	--	--	--
JAN												
10...	0.70	3.0	3.6	16	0.380	0.310	--	--	--	--	--	--
FEB												
15...	1.3	3.9	4.7	21	0.420	0.300	--	--	--	--	--	--
MAR												
22...	0.41	1.3	1.9	8.4	0.320	0.220	100	1	50	2	1	10
APR												
12...	0.35	0.70	1.2	5.3	0.190	0.100	--	--	--	--	--	--
MAY												
03...	0.66	1.0	1.5	6.6	0.150	0.100	--	--	--	--	--	--
JUN												
07...	0.68	0.80	1.9	8.4	0.210	0.200	--	--	--	--	--	--
JUL												
13...	0.69	0.80	2.6	12	0.400	0.350	--	--	--	--	--	--
AUG												
02...	0.26	0.30	1.3	5.8	0.470	0.340	--	--	--	--	--	--
SEP												
06...	0.89	1.0	2.7	12	0.540	0.490	110	2	80	1	<1	14

BLACKSTONE RIVER BASIN

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01112900 BLACKSTONE RIVER AT MANVILLE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	390	<5	80	<0.10	2	13	<1	<1	20	6	<1	<0.1
APR 12...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	700	5	100	<0.10	1	10	<1	<1	20	2	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 14...	--	--	--	--	--	--	--	--	--	--	--
NOV 09...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 12...	--	--	--	--	--	--	--	--	--	--	--
MAY 03...	--	--	--	--	--	--	--	--	--	--	--
JUN 07...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 02...	--	--	--	--	--	--	--	--	--	--	--
SEP 06...	150	<0.010	<1.0	<0.1	50	<0.010	10	<0.010	7.3	<0.010	<1.0

BLACKSTONE RIVER BASIN

01112900 BLACKSTONE RIVER AT MANVILLE, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DI-ELDRIN TOTAL (µG/L)	DI-ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDO-SULFAN, TOTAL (µG/L)	ENDO-SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR, TOTAL (µG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (µG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL (µG/L)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	<0.010	1.4	<0.010	<10	<0.010	<0.1	<0.010	<1.0	<0.010	<0.1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH- OXY- CHLOR, TOTAL (µG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER- THANE TOTAL (µG/L)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG)	TOX- APHENE, TOTAL (µG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT											
14...	--	--	--	--	--	--	--	--	--	--	--
NOV											
09...	--	--	--	--	--	--	--	--	--	--	--
DEC											
14...	--	--	--	--	--	--	--	--	--	--	--
JAN											
10...	--	--	--	--	--	--	--	--	--	--	--
FEB											
15...	--	--	--	--	--	--	--	--	--	--	--
MAR											
22...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR											
12...	--	--	--	--	--	--	--	--	--	--	--
MAY											
03...	--	--	--	--	--	--	--	--	--	--	--
JUN											
07...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
AUG											
02...	--	--	--	--	--	--	--	--	--	--	--
SEP											
06...	<10	<0.01	<1.0	<0.01	<1.0	<0.10	<1.0	<0.1	<100.0	<1	<10

MOSHASSUCK RIVER BASIN

83

01114000 MOSHASSUCK RIVER AT PROVIDENCE, R.I.

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.--No estimated daily discharges. Records good. Occasional regulation at low flow.

AVERAGE DISCHARGE.--26 years, 40.8 ft³/s, 23.99 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)
May 2	1215	608	4.10	July 28	0500	662	4.22
July 17	0745	764	4.43	Aug. 13	0600	*852	*4.60

Minimum discharge, 5.1 ft³/s, Oct. 1, 16, 17; minimum daily, 5.5 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	93	31	17	17	26	66	68	41	13	16	15
2	5.5	101	28	17	18	25	51	185	36	11	14	13
3	8.0	30	25	17	17	24	50	110	33	14	12	11
4	13	21	21	17	19	21	52	68	42	14	9.5	11
5	9.0	15	23	19	13	25	47	57	32	23	11	13
6	7.3	14	18	10	15	28	115	108	24	27	14	10
7	6.4	14	22	15	15	25	84	69	36	18	12	11
8	20	13	18	11	17	24	105	58	35	15	35	10
9	8.8	12	19	16	11	22	78	52	91	12	14	11
10	7.4	12	16	15	17	19	66	82	127	20	12	9.6
11	10	14	16	15	11	21	56	260	59	15	114	10
12	7.2	12	17	21	12	20	50	202	38	12	123	12
13	6.6	34	17	20	16	24	46	122	45	12	314	10
14	6.6	29	23	20	27	23	42	98	37	17	109	35
15	7.9	19	22	33	26	21	54	81	64	15	69	101
16	6.1	16	20	28	30	25	156	71	101	11	52	53
17	7.6	32	16	23	22	20	87	66	52	206	54	30
18	6.2	24	19	17	19	56	65	59	49	44	35	27
19	6.1	15	15	20	13	49	56	55	36	27	29	68
20	6.6	182	12	15	17	33	52	50	30	20	28	45
21	7.6	157	15	17	150	56	46	46	23	44	24	31
22	46	56	17	17	94	40	44	41	29	24	19	27
23	12	38	20	11	52	31	38	37	29	17	19	28
24	12	31	26	16	36	56	37	32	23	19	19	17
25	8.9	26	25	14	29	206	36	35	24	12	16	17
26	7.9	22	23	24	26	81	34	31	20	14	13	87
27	9.0	22	18	29	29	57	34	40	19	13	12	40
28	7.0	112	28	22	27	47	33	36	19	76	15	24
29	7.8	55	30	16	---	43	34	35	15	17	14	21
30	6.7	36	24	22	---	64	133	32	15	40	60	19
31	6.3	---	19	21	---	94	---	45	---	17	21	---
TOTAL	293.4	1257	643	575	795	1306	1847	2331	1224	839	1308.5	816.6
MEAN	9.46	41.9	20.7	18.5	28.4	42.1	61.6	75.2	40.8	27.1	42.2	27.2
MAX	46	182	31	33	150	206	156	260	127	206	314	101
MIN	5.5	12	12	10	11	19	33	31	15	11	9.5	9.6
CFSM	.41	1.81	.90	.80	1.23	1.82	2.67	3.26	1.77	1.17	1.83	1.18
IN.	.47	2.02	1.04	.93	1.28	2.10	2.97	3.75	1.97	1.35	2.11	1.32

CAL YR 1988 TOTAL 11820.7 MEAN 32.3 MAX 315 MIN 5.5 CFSM 1.40 IN. 19.04
WTR YR 1989 TOTAL 13235.5 MEAN 36.3 MAX 314 MIN 5.5 CFSM 1.57 IN. 21.31

WOONASQUATUCKET RIVER BASIN

01114500 WOONASQUATUCKET RIVER AT CENTERDALE, R.I.

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 fair. 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.--48 years, 73.2 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, 494 ft³/s, Aug. 13, gage height, 4.61 ft; minimum daily, 7.5 ft³/s, Oct. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	45	80	67	39	49	154	101	57	51	24	30
2	16	71	72	62	40	47	148	148	54	50	23	28
3	17	41	69	60	40	47	140	164	52	50	23	26
4	18	34	65	59	40	46	137	141	54	49	21	23
5	18	32	58	58	39	47	130	125	52	50	21	21
6	16	33	55	55	39	49	180	151	51	52	22	20
7	15	31	53	41	39	46	182	139	59	50	23	20
8	27	31	52	19	38	45	199	120	61	48	37	20
9	31	29	50	18	37	44	188	107	70	46	28	19
10	22	29	49	21	37	44	170	113	120	48	24	19
11	21	29	48	34	37	43	152	264	85	46	65	18
12	20	28	47	54	37	44	138	301	79	38	206	18
13	20	34	46	54	36	44	122	255	81	33	362	17
14	20	35	49	51	40	43	103	219	78	16	228	20
15	16	32	50	58	42	43	96	190	88	15	155	42
16	8.6	31	50	56	45	43	169	169	116	14	125	41
17	9.1	35	51	55	43	42	154	157	103	47	117	49
18	8.1	38	52	54	40	48	130	135	98	35	92	43
19	7.6	36	52	52	39	54	116	114	86	27	76	51
20	7.5	101	52	51	38	50	105	102	77	23	66	72
21	7.6	210	53	49	84	62	96	93	68	30	58	87
22	16	126	55	48	96	58	88	83	63	26	51	113
23	15	98	59	47	73	52	79	75	59	22	45	140
24	17	82	68	47	61	57	74	71	61	19	40	99
25	17	70	80	46	56	168	69	68	57	18	36	61
26	15	62	73	48	53	135	63	64	56	17	33	78
27	15	59	67	40	53	135	60	64	54	19	30	67
28	15	120	71	30	50	128	57	62	53	28	28	52
29	20	116	82	30	---	116	56	56	53	27	28	46
30	26	92	69	34	---	112	116	53	51	26	43	40
31	23	---	62	36	---	156	---	55	---	25	34	---
TOTAL	520.5	1810	1839	1434	1311	2097	3671	3959	2096	1045	2164	1380
MEAN	16.8	60.3	59.3	46.3	46.8	67.6	122	128	69.9	33.7	69.8	46.0
MAX	31	210	82	67	96	168	199	301	120	52	362	140
MIN	7.5	28	46	18	36	42	56	53	51	14	21	17

CAL YR 1988 TOTAL 21690.5 MEAN 59.3 MAX 357 MIN 7.5

WTR YR 1989 TOTAL 23326.5 MEAN 63.9 MAX 362 MIN 7.5

PAWTUXET RIVER BASIN

85

01116000 SOUTH BRANCH PAWTUXET RIVER AT WASHINGTON, R.I.

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 Tioque 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.--No estimated daily discharges. Records good. 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.--49 years, 130 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, 529 ft³/s, May 12, gage height, 2.88 ft; minimum daily, 36 ft³/s, Oct. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	101	199	58	107	152	212	79	127	87	55	107
2	37	137	196	58	106	152	208	99	129	81	54	94
3	37	110	194	58	89	149	208	134	139	73	53	77
4	37	99	192	58	84	148	210	237	130	68	53	69
5	37	96	189	56	84	148	207	242	120	69	52	65
6	36	98	189	56	84	143	221	270	113	86	54	62
7	36	97	186	57	84	141	219	294	132	102	54	63
8	41	95	185	59	84	139	231	264	138	102	60	162
9	40	95	182	58	83	138	234	236	158	96	55	179
10	38	96	178	58	82	116	233	226	251	90	54	184
11	38	97	177	58	82	112	244	356	289	88	79	194
12	37	95	175	59	82	113	239	507	226	81	195	74
13	37	99	173	61	80	112	236	433	191	73	351	46
14	78	102	181	59	85	112	232	348	194	79	339	44
15	92	98	178	67	86	112	232	286	192	85	279	58
16	92	97	174	84	90	111	275	249	223	76	225	53
17	90	101	172	87	112	94	262	238	235	147	214	62
18	92	100	170	87	113	91	253	230	217	232	196	130
19	90	98	168	90	112	68	249	218	191	215	165	194
20	90	121	165	89	111	99	246	193	168	172	142	202
21	90	145	164	87	133	117	245	177	149	152	129	199
22	106	124	163	88	136	112	244	167	137	142	124	195
23	94	114	165	106	129	109	241	156	142	126	115	181
24	92	110	169	107	143	114	238	151	140	110	103	89
25	90	109	179	107	143	145	220	154	133	95	88	74
26	90	116	145	109	141	155	127	149	124	81	77	96
27	92	159	50	113	154	186	121	150	115	72	74	95
28	91	188	58	109	152	208	120	161	109	70	69	144
29	90	180	62	107	---	206	71	150	101	66	69	149
30	90	201	58	109	---	206	101	137	92	63	104	147
31	89	---	58	108	---	216	---	129	---	59	115	---
TOTAL	2127	3478	4894	2467	2971	4224	6379	6820	4805	3138	3796	3488
MEAN	68.6	116	158	79.6	106	136	213	220	160	101	122	116
MAX	106	201	199	113	154	216	275	507	289	232	351	202
MIN	36	95	50	56	80	68	71	79	92	59	52	44
(†)	94	194.5	84.5	112.5	124	141.5	200.5	268.5	257.5	250	261	219.5

CAL YR 1988 TOTAL 40521 MEAN 111 MAX 298 MIN 35
WTR YR 1989 TOTAL 48587 MEAN 133 MAX 507 MIN 36

† 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, R.I.

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.--49 years (water years 1941-89), 342 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, 1,340 ft³/s, Aug. 13, gage height, 7.59 ft, minimum daily, 87 ft³/s, Oct. 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	326	419	152	203	272	418	350	308	209	146	229
2	93	774	391	153	199	270	380	595	301	200	139	206
3	97	305	372	153	191	265	380	526	301	189	138	183
4	106	211	355	149	176	263	388	440	281	179	135	171
5	105	187	344	137	170	268	378	445	273	195	133	167
6	100	186	334	134	171	279	532	580	259	241	138	162
7	91	170	330	136	170	261	477	522	327	211	142	160
8	122	162	323	144	168	254	539	476	307	209	214	207
9	112	161	315	150	166	251	471	430	420	197	155	278
10	92	159	309	144	163	240	435	440	703	192	148	276
11	91	174	300	141	163	227	428	1020	609	188	359	301
12	87	154	286	150	163	229	413	1110	483	177	725	221
13	87	190	288	166	162	230	401	898	473	168	1120	150
14	99	222	375	148	193	227	394	680	433	244	1040	149
15	147	174	338	195	197	231	407	551	451	247	755	295
16	151	162	310	193	212	231	965	474	637	184	611	219
17	151	201	291	186	203	214	659	452	528	928	643	271
18	154	189	283	187	205	238	509	427	507	681	511	224
19	150	174	275	191	200	272	463	409	429	516	414	384
20	145	550	273	188	200	228	440	387	381	383	346	405
21	140	849	273	185	438	308	424	359	344	355	323	376
22	330	397	268	177	490	279	415	347	370	294	312	356
23	198	279	276	187	330	251	403	326	378	254	262	325
24	169	242	286	193	285	275	397	313	335	226	236	247
25	158	223	324	191	276	728	389	323	304	203	212	197
26	149	211	296	209	264	404	314	306	281	185	196	405
27	148	279	174	239	277	377	278	328	265	168	184	285
28	145	766	165	213	273	375	271	331	249	189	178	260
29	146	588	194	203	---	368	251	306	238	166	201	271
30	139	449	168	209	---	374	513	289	222	156	325	257
31	140	---	161	208	---	476	---	293	---	151	241	---
TOTAL	4137	9114	9096	5411	6308	9165	13132	14733	11397	8085	10682	7637
MEAN	133	304	293	175	225	296	438	475	380	261	345	255
MAX	330	849	419	239	490	728	965	1110	703	928	1120	405
MIN	87	154	161	134	162	214	251	289	222	151	133	149
(†)	3975	3684	4041	4075	4057	4165	4447	4970	5459	5450	5445	5444
(‡)	111	105	105	105	102	102	104	114	121	130	122	115

CAL YR 1988 TOTAL 88431 MEAN 242 MAX 1210 MIN 86
WTR YR 1989 TOTAL 108897 MEAN 298 MAX 1120 MIN 87

† 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

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01116500 PAWTUXET RIVER AT CRANSTON, R.I.--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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT												
13...	1045	86	431	6.35	9.0	10.5	--	--	760	4.7	42	--
NOV												
08...	1030	156	326	6.90	12.0	9.5	--	--	760	9.0	79	--
DEC												
13...	1035	286	245	7.60	5.0	1.0	--	2.3	760	15.8	111	26
JAN												
11...	0915	137	358	8.10	3.5	2.0	--	--	775	11.6	83	--
FEB												
14...	1000	214	390	6.80	11.0	3.0	--	--	755	11.8	89	--
MAR												
21...	1050	334	276	7.30	8.0	7.5	28	--	755	11.0	93	18
APR												
11...	1030	431	219	7.20	4.0	8.0	--	--	770	11.0	92	--
MAY												
02...	0950	367	229	6.80	12.0	12.0	--	--	755	9.0	85	--
JUN												
06...	1350	259	248	6.98	24.5	21.0	--	2.3	760	6.7	75	25
JUL												
12...	1200	174	284	6.80	26.5	23.0	--	--	760	6.1	71	--
AUG												
01...	1015	145	235	6.63	23.5	22.0	--	--	765	4.7	54	--
SEP												
05...	1015	162	329	7.10	22.0	19.0	50	1.5	760	3.8	41	21

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR PER (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT											
13...	--	740	23	K8	--	--	--	--	--	--	--
NOV											
08...	5.0	1300	36	29	--	--	--	--	--	--	--
DEC											
13...	--	600	K6	22	--	--	--	--	--	--	--
JAN											
11...	5.0	55	K3	K1	--	--	--	--	--	--	--
FEB											
14...	--	300	73	41	--	--	--	--	--	--	--
MAR											
21...	3.0	1200	35	21	39	13	1.5	35	64	2	3.3
APR											
11...	--	710	K10	K5	--	--	--	--	--	--	--
MAY											
02...	2.0	6400	140	120	--	--	--	--	--	--	--
JUN											
06...	--	4300	850	K6	--	--	--	--	--	--	--
JUL											
12...	5.0	2200	230	20	--	--	--	--	--	--	--
AUG											
01...	--	6200	230	33	--	--	--	--	--	--	--
SEP											
05...	3.0	1400	180	28	44	15	1.6	41	65	3	3.6

PAWTUXET RIVER BASIN

01116500 PAWTUXET RIVER AT CRANSTON, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT												
13...	0	35	29	--	--	--	--	--	1.59	0.110	1.70	0.510
NOV												
08...	0	27	22	--	--	--	--	--	0.750	0.050	0.800	0.880
DEC												
13...	0	19	16	--	--	--	15	155	0.480	0.020	0.500	0.780
JAN												
11...	0	35	29	--	--	--	--	--	0.690	0.010	0.700	1.00
FEB												
14...	0	38	31	--	--	--	--	--	0.880	0.020	0.900	1.30
MAR												
21...	0	21	17	34	49	146	21	192	0.580	0.020	0.600	0.900
APR												
11...	0	19	15	--	--	--	--	--	0.580	0.020	0.600	0.680
MAY												
02...	0	23	19	--	--	--	--	--	0.680	0.020	0.700	0.790
JUN												
06...	0	26	21	--	--	--	11	164	0.550	0.050	0.600	0.790
JUL												
12...	0	30	25	--	--	--	--	--	0.810	0.190	1.00	1.20
AUG												
01...	0	27	22	--	--	--	--	--	0.730	0.270	1.00	0.700
SEP												
05...	0	29	24	31	49	155	<1	197	0.830	0.170	1.00	0.720

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (µG/L AS AL)	ARSENIC TOTAL (µG/L AS AS)	BORON, TOTAL RECOV- ERABLE (µG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (µG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (µG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (µG/L AS CU)
OCT												
13...	0.49	1.0	2.7	12	0.740	0.660	--	--	--	--	--	--
NOV												
08...	0.82	1.7	2.5	11	0.470	0.330	--	--	--	--	--	--
DEC												
13...	0.62	1.4	1.9	8.4	0.310	0.240	--	--	--	--	--	--
JAN												
11...	0.70	1.7	2.4	11	0.371	0.270	--	--	--	--	--	--
FEB												
14...	1.5	2.8	3.7	16	0.480	0.330	--	--	--	--	--	--
MAR												
21...	0.50	1.4	2.0	8.9	0.300	0.180	560	<1	100	1	<1	10
APR												
11...	0.42	1.1	1.7	7.5	0.160	0.100	--	--	--	--	--	--
MAY												
02...	0.71	1.5	2.2	9.7	0.190	0.150	--	--	--	--	--	--
JUN												
06...	0.81	1.6	2.2	9.7	0.230	0.210	--	--	--	--	--	--
JUL												
12...	0.80	2.0	3.0	13	0.380	0.310	--	--	--	--	--	--
AUG												
01...	0.90	1.6	2.6	12	0.250	0.170	--	--	--	--	--	--
SEP												
05...	2.1	2.8	3.8	17	0.150	0.180	100	<1	40	1	<1	9

PAWTUXET RIVER BASIN

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01116500 PAWTUXET RIVER AT CRANSTON, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
14...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
21...	910	<5	140	0.10	3	2	<1	2	20	9	<1	<0.1
APR												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
02...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
06...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
12...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
01...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
05...	640	2	160	<0.10	<1	5	<1	<1	20	5	2	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT											
13...	--	--	--	--	--	--	--	--	--	--	--
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	--	--	--	--	--	--	--	--	--	--	--
JAN											
11...	--	--	--	--	--	--	--	--	--	--	--
FEB											
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR											
11...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	--	--	--	--	--	--	--	--	--	--	--
JUL											
12...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	--	--	--	--	--	--	--	--	--	--	--
SEP											
05...	10	<0.010	<0.1	<0.1	4.0	<0.010	1.1	<0.010	0.7	<0.010	0.2

PAWTUXET RIVER BASIN

01116500 PAWTUXET RIVER AT CRANSTON, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DI-ELDRIN TOTAL (µG/L)	DI-ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDO-SULFAN, TOTAL (µG/L)	ENDO-SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR, TOTAL (µG/L)	HEPTA-CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR, TOTAL (µG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL (µG/L)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 21...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 01...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.010	0.3	<0.010	<0.1	<0.010	<0.1	<0.010	<0.2	<0.010	<0.1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH-OXY-CHLOR, TOTAL (µG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER-THANE TOTAL (µG/L)	PER-THANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	TOX-APHENE, TOTAL (µG/L)	TOXA-PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 21...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 01...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.1	<0.01	<0.1	<0.01	<0.1	<0.10	<1.0	<0.1	<1.00	<1	<10

PAWTUXET RIVER BASIN

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01116617 PAWTUXET RIVER AT PAWTUXET, R.I.

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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT												
13...	1150	239	482	6.95	10.0	12.0	--	--	760	2.4	22	--
NOV												
08...	1145	301	346	6.90	15.0	9.5	--	--	760	6.9	61	--
DEC												
13...	1215	405	265	7.30	2.5	1.0	--	2.2	760	14.6	103	28
JAN												
11...	1015	212	406	7.50	4.0	2.5	--	--	775	10.2	74	--
FEB												
14...	1050	312	475	7.10	10.0	4.0	--	--	755	8.9	69	--
MAR												
21...	1245	431	303	7.30	9.5	8.0	29	--	755	9.8	84	19
APR												
11...	1115	531	237	6.80	13.0	8.0	--	--	770	9.9	83	--
MAY												
02...	1115	380	228	6.70	17.0	12.0	--	--	750	7.9	75	--
JUN												
06...	1500	267	279	7.10	26.5	20.5	--	3.4	760	4.9	55	28
JUL												
12...	1315	232	292	6.80	31.5	22.5	--	--	760	4.0	46	--
AUG												
01...	1145	182	271	6.81	26.0	21.0	--	--	765	3.3	37	--
SEP												
05...	1200	193	338	7.08	23.5	18.0	40	2.3	760	2.2	23	20

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)
OCT											
13...	--	260	46	K8	--	--	--	--	--	--	--
NOV											
08...	4.0	1600	27	27	--	--	--	--	--	--	--
DEC											
13...	--	300	150	K8	--	--	--	--	--	--	--
JAN											
11...	6.0	42	K14	23	--	--	--	--	--	--	--
FEB											
14...	--	950	35	63	--	--	--	--	--	--	--
MAR											
21...	4.0	110	K3	23	42	14	1.8	36	63	2	3.5
APR											
11...	--	72	K1	K2	--	--	--	--	--	--	--
MAY											
02...	3.0	730	53	57	--	--	--	--	--	--	--
JUN											
06...	--	1000	96	130	--	--	--	--	--	--	--
JUL											
12...	5.0	520	170	K60	--	--	--	--	--	--	--
AUG											
01...	--	650	90	80	--	--	--	--	--	--	--
SEP											
05...	4.0	630	130	54	50	17	1.9	41	62	3	3.8

PAWTUXET RIVER BASIN

01116617 PAWTUXET RIVER AT PAWTUXET, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT												
13...	0	46	38	--	--	--	--	--	2.02	0.180	2.20	3.30
NOV												
08...	0	38	31	--	--	--	--	--	1.01	0.090	1.10	1.40
DEC												
13...	0	27	22	--	--	--	13	173	0.580	0.020	0.600	1.20
JAN												
11...	0	44	36	--	--	--	--	--	0.880	0.020	0.900	3.00
FEB												
14...	0	38	31	--	--	--	--	--	0.870	0.030	0.900	2.50
MAR												
21...	0	37	30	31	52	156	29	202	0.670	0.030	0.700	2.10
APR												
11...	0	26	21	--	--	--	--	--	0.680	0.020	0.700	1.30
MAY												
02...	0	28	23	--	--	--	--	--	0.660	0.040	0.700	1.30
JUN												
06...	0	39	32	--	--	--	1	179	0.700	0.100	0.800	1.80
JUL												
12...	0	31	26	--	--	--	--	--	0.990	0.310	1.30	1.00
AUG												
01...	0	35	29	--	--	--	--	--	0.950	0.350	1.30	1.40
SEP												
05...	0	32	26	29	59	167	<1	194	1.45	0.250	1.70	0.750

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL)	ARSENIC TOTAL (MG/L AS AS)	BORON, TOTAL RECOV- ERABLE (MG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU)
OCT												
13...	1.0	4.3	6.5	29	0.680	0.550	--	--	--	--	--	--
NOV												
08...	0.90	2.3	3.4	15	0.720	0.590	--	--	--	--	--	--
DEC												
13...	0.80	2.0	2.6	12	0.320	0.210	--	--	--	--	--	--
JAN												
11...	1.1	4.1	5.0	22	0.860	0.610	--	--	--	--	--	--
FEB												
14...	1.0	3.5	4.4	19	0.690	0.470	--	--	--	--	--	--
MAR												
21...	0.90	3.0	3.7	16	0.510	0.340	840	<1	60	1	2	21
APR												
11...	0.60	1.9	2.6	12	0.320	0.220	--	--	--	--	--	--
MAY												
02...	1.1	2.4	3.1	14	0.280	0.230	--	--	--	--	--	--
JUN												
06...	0.80	2.6	3.4	15	0.540	0.510	--	--	--	--	--	--
JUL												
12...	0.70	1.7	3.0	13	0.460	0.410	--	--	--	--	--	--
AUG												
01...	0.30	1.7	3.0	13	0.610	0.510	--	--	--	--	--	--
SEP												
05...	0.75	1.5	3.2	14	0.280	0.250	160	<1	50	1	<1	18

PAWTUXET RIVER BASIN

93

01116617 PAWTUXET RIVER AT PAWTUXET, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)
OCT												
13...	--	--	--	--	--	--	--	--	--	--	--	--
NOV												
08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JAN												
11...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
14...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
21...	1400	18	170	<0.10	3	7	<1	<1	30	10	<1	<0.1
APR												
11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
02...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
06...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
12...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
01...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
05...	1200	4	190	<0.10	1	10	<1	<1	20	6	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT											
13...	--	--	--	--	--	--	--	--	--	--	--
NOV											
08...	--	--	--	--	--	--	--	--	--	--	--
DEC											
13...	--	--	--	--	--	--	--	--	--	--	--
JAN											
11...	--	--	--	--	--	--	--	--	--	--	--
FEB											
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
21...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR											
11...	--	--	--	--	--	--	--	--	--	--	--
MAY											
02...	--	--	--	--	--	--	--	--	--	--	--
JUN											
06...	--	--	--	--	--	--	--	--	--	--	--
JUL											
12...	--	--	--	--	--	--	--	--	--	--	--
AUG											
01...	--	--	--	--	--	--	--	--	--	--	--
SEP											
05...	180	<0.010	<10	<0.1	22	<0.010	<10	<0.010	<10	<0.010	<0.1

PAWTUXET RIVER BASIN

01116617 PAWTUXET RIVER AT PAWTUXET, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	DI-ELDRIN TOTAL (µG/L)	DI-ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDO-SULFAN, TOTAL (µG/L)	ENDO-SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR, TOTAL (µG/L)	HEPTA-CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (µG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL (µG/L)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 21...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 01...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<10	<0.010	<0.1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH-OXY-CHLOR, TOTAL (µG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER-THANE TOTAL (µG/L)	PER-THANE IN BOT- TOM MA- TERIAL (µG/KG)	TOX-APHENE, TOTAL (µG/L)	TOXA-PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 13...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 13...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 21...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 02...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 12...	--	--	--	--	--	--	--	--	--	--	--
AUG 01...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.1	<0.01	<0.1	<0.01	<0.1	<0.10	<1.0	<0.1	<1.00	<1	<10

POTOWOMUT RIVER BASIN

95

01117000 HUNT RIVER NEAR EAST GREENWICH, R.I.

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 except those for estimated daily discharges, which are poor. Flow affected by diversions for supply of East Greenwich, North Kingstown, Warwick, and Quonset Point (formerly U.S. Naval establishments).

AVERAGE DISCHARGE.--49 years 46.4 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)
Nov. 21	0530	256	2.21	May 11	1400	323	2.40
Apr. 16	1230	266	2.24	July 17	1600	*330	*2.42

Minimum discharge, unknown; minimum daily, 5.5 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.6	e50	56	31	30	41	110	136	57	24	17	27
2	e5.5	e100	48	30	28	39	86	168	54	23	17	24
3	e8.1	e72	43	30	28	36	76	187	55	21	16	20
4	e13	e50	41	27	27	36	88	132	49	21	15	18
5	e11	e34	37	21	25	41	79	104	46	25	14	16
6	e8.6	e24	36	21	25	48	102	129	42	60	17	15
7	e7.2	e17	34	22	25	44	115	119	48	58	22	15
8	e8.8	e16	34	25	23	42	119	98	53	43	55	14
9	e15	e16	33	29	23	38	112	88	71	32	35	14
10	e14	e17	32	26	20	30	93	92	151	28	24	14
11	e12	e16	31	24	20	29	82	257	109	27	54	13
12	e11	19	26	26	20	33	73	254	72	21	175	13
13	e9.2	21	26	41	20	36	68	182	72	19	140	12
14	e8.1	34	58	33	38	32	67	143	75	25	113	14
15	e7.6	26	58	50	50	31	67	122	71	43	94	41
16	e7.2	20	47	54	53	31	216	112	134	30	66	44
17	e6.8	25	35	40	41	29	201	112	104	200	68	87
18	e6.6	32	31	33	31	35	140	104	93	182	50	57
19	e6.4	26	29	31	27	68	111	93	73	105	44	53
20	e6.3	76	29	29	26	51	97	87	59	71	40	61
21	e7.0	214	32	27	72	72	88	82	53	64	35	56
22	e11	131	32	24	119	68	84	76	48	53	30	54
23	e35	82	31	23	89	51	77	69	55	45	27	40
24	e30	59	37	25	63	51	72	67	47	35	24	34
25	e25	46	45	24	50	183	69	83	44	29	22	27
26	e21	39	38	27	46	140	67	75	37	26	21	66
27	e17	38	32	47	45	96	64	83	32	24	19	76
28	e13	92	33	38	43	75	61	95	30	31	19	50
29	e12	104	49	32	---	67	59	73	28	25	22	35
30	e11	73	40	32	---	66	141	61	25	21	44	29
31	e10	---	34	33	---	124	---	59	---	19	33	---
TOTAL	370.0	1569	1167	955	1107	1763	2884	3542	1887	1430	1372	1039
MEAN	11.9	52.3	37.6	30.8	39.5	56.9	96.1	114	62.9	46.1	44.3	34.6
MAX	35	214	58	54	119	183	216	257	151	200	175	87
MIN	5.5	16	26	21	20	29	59	59	25	19	14	12

CAL YR 1988 TOTAL 15338.1 MEAN 41.9 MAX 289 MIN 5.5
WTR YR 1989 TOTAL 19085.0 MEAN 52.3 MAX 257 MIN 5.5

e Estimated

PAWCATUCK RIVER BASIN

01117350 CHIPUXET RIVER AT WEST KINGSTON, R.I.

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.--17 years (water years 1959, 1974-89), 21.7 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, 77 ft³/s, May 12, gage height, 6.21 ft; minimum, 4.4 ft³/s, Oct. 1-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	6.8	34	17	15	18	36	42	27	20	16	20
2	4.4	13	30	16	15	17	35	49	26	19	15	19
3	4.4	19	26	15	15	16	32	58	26	18	15	17
4	4.5	21	23	15	15	16	32	58	26	17	14	16
5	4.6	18	20	14	14	16	32	50	25	18	13	15
6	4.7	15	18	13	13	17	34	46	23	21	13	14
7	4.6	13	17	13	13	17	36	44	23	25	13	13
8	5.2	11	16	13	13	16	40	42	23	28	16	12
9	5.7	9.7	16	13	12	16	41	38	26	27	17	11
10	5.6	8.9	15	13	12	15	40	36	37	25	17	11
11	5.6	8.9	15	13	12	15	36	49	44	23	20	11
12	5.5	8.6	14	13	11	15	33	73	41	21	29	10
13	5.3	9.1	14	15	11	15	30	73	37	19	37	9.6
14	5.1	10	17	16	12	15	27	63	34	20	36	9.2
15	4.9	11	21	19	15	15	26	54	32	21	32	11
16	4.9	11	22	23	17	15	42	48	35	23	29	14
17	4.8	12	20	24	17	15	65	45	39	35	26	28
18	4.8	13	18	22	16	15	64	43	40	58	24	35
19	4.9	13	16	19	15	17	54	41	38	57	22	34
20	5.0	17	15	18	14	17	46	38	35	47	20	31
21	5.0	36	15	16	16	20	41	36	32	41	19	30
22	6.0	51	16	15	26	24	37	34	30	36	18	27
23	6.3	45	16	14	34	24	34	32	28	32	17	24
24	6.7	37	17	14	32	24	32	31	27	28	17	22
25	6.8	30	19	13	28	39	30	30	26	25	15	20
26	6.6	25	19	13	24	58	27	30	25	23	14	22
27	6.4	22	18	14	21	54	26	31	24	21	14	24
28	6.1	26	18	15	19	45	25	32	23	20	13	24
29	6.1	34	18	15	---	38	24	32	22	19	14	23
30	5.9	38	18	15	---	34	32	30	22	18	17	21
31	5.7	---	18	15	---	34	---	28	---	17	19	---
TOTAL	166.5	593.0	579	483	477	712	1089	1336	896	822	601	577.8
MEAN	5.37	19.8	18.7	15.6	17.0	23.0	36.3	43.1	29.9	26.5	19.4	19.3
MAX	6.8	51	34	24	34	58	65	73	44	58	37	35
MIN	4.4	6.8	14	13	11	15	24	28	22	17	13	9.2

CAL YR 1988 TOTAL 6838.7 MEAN 18.7 MAX 90 MIN 4.4
WTR YR 1989 TOTAL 8332.3 MEAN 22.8 MAX 73 MIN 4.4

PAWCATUCK RIVER BASIN

97

01117420 USQUEPAUG RIVER NEAR USQUEPAUG, R.I.

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.--No estimated daily discharges. Records good. Flow affected at times by irrigation upstream.

AVERAGE DISCHARGE.--15 years, (water years 1959, 1976-89), 77.8 ft³/s, 29.27 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, 290 ft³/s, May 12, gage height, 5.90 ft; minimum, 14 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	29	108	57	50	58	131	176	88	52	38	49
2	15	85	89	54	49	57	127	177	88	51	37	41
3	16	96	79	54	46	54	114	224	91	49	36	36
4	17	73	75	52	48	55	114	214	82	48	35	33
5	18	46	70	45	46	56	115	172	77	49	34	32
6	18	40	66	45	45	61	119	158	72	64	37	31
7	18	37	65	45	45	60	147	165	75	69	40	30
8	22	34	64	46	44	54	156	156	79	66	43	28
9	28	33	61	48	43	52	161	139	87	57	45	27
10	26	32	59	47	40	52	149	129	145	52	39	27
11	24	35	58	46	40	52	133	181	181	51	50	26
12	22	35	52	46	41	53	120	281	141	48	112	25
13	22	34	53	61	40	52	110	269	106	45	142	25
14	22	44	80	55	50	51	104	215	102	46	137	24
15	23	41	94	66	62	53	99	179	98	68	109	39
16	23	37	86	82	65	54	156	160	122	57	82	50
17	23	39	68	69	57	51	270	154	138	99	70	82
18	23	46	64	57	49	50	252	152	130	173	63	75
19	22	42	59	54	47	70	195	142	115	163	55	61
20	21	59	58	53	46	69	161	131	95	110	52	67
21	22	141	60	52	65	82	144	122	82	83	48	61
22	35	177	60	45	108	95	133	116	77	73	45	51
23	40	143	55	46	113	78	124	110	73	65	43	47
24	34	108	64	46	92	68	116	104	70	57	39	43
25	30	84	70	45	70	120	110	107	68	52	37	39
26	28	71	66	45	61	157	105	113	64	49	35	52
27	27	66	58	56	63	143	100	108	60	46	33	76
28	27	91	55	56	60	115	96	117	58	44	32	65
29	27	126	69	52	---	99	92	112	55	43	35	50
30	26	128	69	50	---	90	123	98	53	41	57	44
31	26	---	61	51	---	108	---	91	---	39	63	---
TOTAL	739	2052	2095	1626	1585	2269	4076	4772	2772	2009	1723	1336
MEAN	23.8	68.4	67.6	52.5	56.6	73.2	136	154	92.4	64.8	55.6	44.5
MAX	40	177	108	82	113	157	270	281	181	173	142	82
MIN	14	29	52	45	40	50	92	91	53	39	32	24
CFSM	.66	1.89	1.87	1.45	1.57	2.03	3.76	4.26	2.56	1.80	1.54	1.23
IN.	.76	2.11	2.16	1.68	1.63	2.34	4.20	4.92	2.86	2.07	1.78	1.38

CAL YR 1988 TOTAL 22651 MEAN 61.9 MAX 290 MIN 12 CFSM 1.71 IN. 23.34
WTR YR 1989 TOTAL 27054 MEAN 74.1 MAX 281 MIN 14 CFSM 2.05 IN. 27.88

PAWCATUCK RIVER BASIN

01117468 BEAVER RIVER NEAR USQUEPAUG, R.I.

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.--No estimated daily discharges. Records good.

AVERAGE DISCHARGE.--14 years (water years 1976-89), 22.2 ft³/s, 33.99 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)
Apr. 16	1630	*83	*2.30	May 11	1445	81	2.28
May 3	0100	75	2.22				

Minimum discharge, 3.1 ft³/s, Oct. 1-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	9.2	28	16	16	21	43	52	28	15	8.6	15
2	3.1	31	25	16	15	21	36	57	28	14	8.3	13
3	3.1	24	23	16	15	20	33	68	28	14	7.7	11
4	3.2	16	23	15	15	20	38	53	25	14	7.4	9.7
5	3.5	12	21	15	14	20	36	45	24	15	7.4	9.0
6	3.5	11	21	14	14	22	44	51	23	19	9.0	8.7
7	3.5	9.9	20	14	14	21	50	50	22	18	8.7	8.1
8	5.0	8.8	20	14	13	19	50	43	23	17	12	7.7
9	6.4	8.1	19	14	13	19	47	41	29	16	9.8	7.4
10	6.2	7.7	18	14	13	18	42	40	53	14	7.9	7.3
11	5.4	8.2	17	13	13	19	39	72	38	13	21	7.0
12	4.8	8.2	18	14	12	19	36	73	28	12	53	6.4
13	4.6	9.1	16	18	12	19	35	58	26	11	46	6.0
14	4.4	12	27	17	17	19	34	50	27	12	37	6.0
15	4.4	12	27	23	21	19	34	46	27	15	26	13
16	3.9	9.8	22	24	21	19	71	45	40	13	22	17
17	3.5	10	24	19	18	18	73	46	34	46	20	24
18	3.5	11	17	17	16	19	55	44	31	44	19	17
19	3.5	11	16	17	15	25	47	41	28	25	16	14
20	3.5	23	15	17	15	23	43	38	24	18	15	16
21	3.5	60	15	16	26	32	42	36	23	18	15	14
22	10	44	15	15	40	31	39	35	22	17	13	11
23	11	31	16	14	32	25	37	33	20	15	12	10
24	9.4	25	19	14	26	25	36	32	20	13	11	9.4
25	7.4	22	20	14	23	50	35	38	20	12	11	8.0
26	6.1	21	19	14	25	42	33	34	19	11	9.7	16
27	5.8	20	17	19	22	34	32	33	18	9.4	9.2	20
28	5.4	37	17	18	21	31	32	37	17	9.3	9.0	14
29	5.2	43	21	16	---	29	31	32	17	9.3	11	10
30	5.1	33	19	16	---	29	54	28	16	9.2	24	9.0
31	4.9	---	16	16	---	44	---	28	---	8.8	23	---
TOTAL	155.9	588.0	611	499	517	772	1257	1379	778	497.0	509.7	344.7
MEAN	5.03	19.6	19.7	16.1	18.5	24.9	41.9	44.5	25.9	16.0	16.4	11.5
MAX	11	60	28	24	40	50	73	73	53	46	53	24
MIN	3.1	7.7	15	13	12	18	31	28	16	8.8	7.4	6.0
CFSM	.57	2.21	2.22	1.81	2.08	2.81	4.72	5.02	2.92	1.81	1.85	1.30
IN.	.65	2.47	2.56	2.09	2.17	3.24	5.27	5.78	3.26	2.08	2.14	1.45

CAL YR 1988 TOTAL 6440.9 MEAN 17.6 MAX 87 MIN 3.1 CFSM 1.98 IN. 27.01
WTR YR 1989 TOTAL 7908.3 MEAN 21.7 MAX 73 MIN 3.1 CFSM 2.44 IN. 33.17

PAWCATUCK RIVER BASIN

99

01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, R.I.

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.--No estimated daily discharges. Records good except those 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.--49 years, 195 ft³/s, 26.48 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, 700 ft³/s, May 13, gage height, 4.40 ft; minimum, 39 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	60	287	159	151	173	331	396	230	144	118	149
2	42	142	261	155	148	171	331	487	226	138	113	133
3	42	157	235	151	145	167	321	574	230	133	108	119
4	44	161	216	145	144	165	324	585	223	130	104	108
5	44	141	202	121	138	166	317	541	217	131	100	102
6	44	115	192	123	133	172	346	497	204	150	100	98
7	43	99	186	124	132	171	378	458	199	154	104	95
8	51	88	180	129	130	160	417	423	202	155	111	93
9	58	81	174	136	126	157	432	387	214	150	112	90
10	56	77	166	133	118	155	417	357	329	140	108	88
11	52	83	160	129	116	153	381	456	397	133	126	86
12	48	82	146	132	117	155	339	610	384	125	206	83
13	46	83	142	159	115	154	310	689	338	117	261	80
14	44	109	174	156	137	152	290	675	303	115	296	79
15	43	109	200	173	162	153	277	600	281	124	272	97
16	43	102	200	193	176	154	440	518	315	135	230	117
17	43	108	178	192	167	152	586	475	338	205	195	194
18	43	122	162	177	151	151	659	443	343	290	175	222
19	42	118	154	164	139	167	632	405	324	324	162	213
20	41	152	152	158	136	177	541	370	288	314	153	202
21	40	268	158	153	161	209	456	339	253	274	145	193
22	65	309	161	137	223	227	399	315	228	235	137	184
23	81	302	157	137	247	222	350	294	213	208	131	171
24	77	259	171	138	236	210	319	280	202	187	125	159
25	69	222	182	136	200	305	297	271	192	171	116	150
26	60	195	179	137	190	358	280	266	183	156	111	151
27	56	182	168	153	182	368	268	269	173	145	106	175
28	53	229	164	156	178	343	254	285	165	142	102	189
29	54	285	171	153	---	308	241	277	159	137	106	187
30	51	299	173	152	---	286	323	264	151	130	143	173
31	49	---	168	154	---	310	---	244	---	123	153	---
TOTAL	1566	4739	5619	4615	4398	6371	11256	13050	7504	5215	4529	4180
MEAN	50.5	158	181	149	157	206	375	421	250	168	146	139
MAX	81	309	287	193	247	368	659	689	397	324	296	222
MIN	40	60	142	121	115	151	241	244	151	115	100	79
CFSM	.51	1.58	1.81	1.49	1.57	2.06	3.75	4.21	2.50	1.68	1.46	1.39
IN.	.58	1.76	2.09	1.72	1.64	2.37	4.19	4.85	2.79	1.94	1.68	1.55

CAL YR 1988 TOTAL 60302 MEAN 165 MAX 575 MIN 40 CFSM 1.65 IN. 22.43
WTR YR 1989 TOTAL 73042 MEAN 200 MAX 689 MIN 40 CFSM 2.00 IN. 27.17

PAWCATUCK RIVER BASIN

01117800 WOOD RIVER NEAR ARCADIA, R.I.

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.--24 years (water years 1965-81, 1983-89), 76.9 ft³/s, 29.67 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)
May 12	1100	*267	*5.03				

Minimum discharge, 9.2 ft³/s, Oct. 2; minimum daily, 9.8 ft³/s, Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	e30	136	61	55	74	121	176	68	48	31	39
2	10	e110	113	58	53	70	113	203	70	45	28	33
3	9.8	e90	96	52	52	68	106	223	72	40	27	31
4	11	e60	86	49	52	67	107	189	67	41	27	29
5	12	e52	78	44	47	68	103	158	66	46	25	31
6	14	e48	73	43	46	74	128	180	63	53	25	28
7	13	e44	71	44	45	71	151	176	82	53	26	22
8	19	e40	68	45	43	66	174	160	81	45	36	21
9	22	e39	65	49	41	62	168	141	104	42	31	21
10	20	36	62	47	40	60	150	135	183	42	30	24
11	18	39	59	44	39	58	130	233	178	38	63	21
12	16	34	54	46	38	60	115	260	139	34	193	18
13	14	36	53	57	37	60	106	230	121	33	163	19
14	13	46	77	54	50	58	103	194	115	37	123	20
15	13	42	80	68	61	59	105	165	112	40	103	50
16	12	40	72	71	70	60	221	144	137	36	85	46
17	12	43	64	65	64	57	222	138	128	119	90	58
18	11	47	59	60	56	61	190	125	125	110	71	40
19	11	44	55	56	50	84	159	115	110	89	60	50
20	10	87	55	54	47	81	136	108	96	72	58	65
21	10	219	55	50	86	100	122	102	85	70	55	61
22	31	200	55	47	152	99	114	97	77	61	49	64
23	36	151	54	45	163	91	106	91	71	54	43	58
24	28	115	60	46	136	88	97	89	69	44	38	49
25	26	93	69	46	112	151	93	87	63	41	33	43
26	22	87	66	47	96	147	89	82	59	38	31	77
27	20	79	61	64	86	129	87	82	55	33	29	84
28	e19	160	62	60	79	111	84	92	51	30	28	68
29	e18	190	73	56	---	99	82	85	55	30	32	58
30	e17	168	66	58	---	93	167	82	52	29	56	50
31	e18	---	63	58	---	118	---	79	---	29	49	---
TOTAL	515.8	2469	2160	1644	1896	2544	3849	4421	2754	1522	1738	1278
MEAN	16.6	82.3	69.7	53.0	67.7	82.1	128	143	91.8	49.1	56.1	42.6
MAX	36	219	136	71	163	151	222	260	183	119	193	84
MIN	9.8	30	53	43	37	57	82	79	51	29	25	18
CFSM	.47	2.34	1.98	1.51	1.92	2.33	3.64	4.05	2.61	1.39	1.59	1.21
IN.	.55	2.61	2.28	1.74	2.00	2.69	4.07	4.67	2.91	1.61	1.84	1.35

CAL YR 1988 TOTAL 22253.5 MEAN 60.8 MAX 320 MIN 9.2 CFSM 1.73 IN. 23.52
WTR YR 1989 TOTAL 26790.8 MEAN 73.4 MAX 260 MIN 9.8 CFSM 2.09 IN. 28.31

e Estimated

PAWCATUCK RIVER BASIN

101

01118000 WOOD RIVER AT HOPE VALLEY, R.I.

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.--48 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)
Apr. 16	2300	608	4.63	May 12	0230	*616	*4.66

Minimum discharge, 25 ft³/s, Oct. 2, 20, 21; minimum daily, 25 ft³/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	55	275	115	113	149	276	395	144	87	58	109
2	26	245	234	111	107	142	242	416	143	84	55	87
3	27	193	205	108	104	137	230	538	145	74	52	76
4	28	127	184	101	104	136	246	409	143	72	51	68
5	29	105	164	85	97	138	233	332	130	81	50	64
6	29	100	151	86	93	152	285	359	124	105	52	65
7	29	92	145	87	91	144	349	377	149	108	54	58
8	37	80	139	90	86	130	361	329	164	100	72	54
9	44	71	130	98	84	122	353	292	201	87	63	52
10	40	66	123	94	76	119	309	277	408	80	57	53
11	36	73	119	89	76	116	273	499	354	76	113	51
12	33	70	105	92	76	118	245	580	265	67	522	47
13	31	70	105	121	75	119	225	485	227	62	435	46
14	29	99	155	112	105	115	213	397	223	69	299	48
15	28	92	171	146	139	116	213	337	212	98	241	106
16	28	78	149	164	152	117	481	301	282	82	192	111
17	27	82	126	136	132	113	534	296	265	225	208	147
18	27	96	116	123	112	119	408	272	249	308	184	116
19	26	86	107	118	102	171	338	246	220	194	142	111
20	26	154	106	115	96	161	289	226	186	141	133	165
21	25	494	110	107	163	212	260	211	162	157	126	145
22	53	396	111	94	325	219	241	199	150	137	112	127
23	72	295	108	95	299	183	222	185	144	119	100	116
24	60	237	125	94	251	179	202	183	138	97	89	102
25	51	202	140	93	208	349	192	183	128	87	78	92
26	44	179	132	95	179	325	189	169	117	80	71	146
27	40	166	117	130	176	273	184	171	107	72	66	217
28	37	328	118	125	158	238	176	202	100	64	64	161
29	37	437	149	113	---	215	168	174	96	64	79	126
30	35	336	135	115	---	203	324	159	93	59	153	110
31	36	---	122	120	---	279	---	153	---	57	157	---
TOTAL	1097	5104	4376	3372	3779	5309	8261	9352	5469	3193	4128	2976
MEAN	35.4	170	141	109	135	171	275	302	182	103	133	99.2
MAX	72	494	275	164	325	349	534	580	408	308	522	217
MIN	25	55	105	85	75	113	168	153	93	57	50	46
CFSM	.49	2.35	1.95	1.50	1.86	2.37	3.80	4.17	2.52	1.42	1.84	1.37
IN.	.56	2.62	2.25	1.73	1.94	2.73	4.24	4.81	2.81	1.64	2.12	1.53

CAL YR 1988 TOTAL 44801 MEAN 122 MAX 734 MIN 18 CFSM 1.69 IN. 23.02
WTR YR 1989 TOTAL 56416 MEAN 155 MAX 580 MIN 25 CFSM 2.13 IN. 28.99

PAWCATUCK RIVER BASIN

01118000 WOOD RIVER AT HOPE VALLEY, R.I.--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, 189 microsiemens, May 7; minimum recorded, 53 microsiemens, May 13, 14.

WATER TEMPERATURES: Maximum recorded, 29.5°C, July 26, 27, 28; minimum recorded, 0.5°C, Dec. 12.

SPECIFIC CONDUCTANCE, $\mu\text{S}/\text{CM}$ @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	95	92	93	99	94	98	61	58	60	81	80	80
2	95	92	94	98	77	82	64	61	62	81	80	80
3	95	91	93	87	80	85	66	63	65	81	80	81
4	95	94	94	87	84	86	68	65	66	83	80	81
5	96	94	95	85	82	83	70	67	68	87	82	85
6	96	94	95	84	81	82	71	69	70	91	87	89
7	94	92	93	83	82	82	72	71	71	96	91	93
8	95	90	92	85	83	84	73	72	72	103	89	92
9	99	89	94	86	84	85	74	72	73	100	85	89
10	89	84	86	88	85	87	75	73	74	86	84	85
11	89	85	86	89	86	87	77	75	76	88	85	86
12	93	89	91	88	86	87	81	77	79	129	87	94
13	94	92	93	90	87	89	130	81	93	126	87	94
14	95	94	94	91	86	88	118	88	99	87	85	86
15	95	94	95	89	86	87	96	88	93	99	83	89
16	95	92	94	92	89	90	88	87	87	84	81	82
17	94	92	93	93	89	91	88	87	87	83	82	82
18	95	92	93	91	86	88	88	86	87	83	81	82
19	96	93	95	96	87	90	90	86	87	82	80	81
20	99	96	97	95	79	91	90	88	88	81	79	80
21	100	97	99	81	71	74	98	86	89	81	80	80
22	109	96	101	71	65	68	93	84	86	83	80	82
23	98	86	89	72	66	70	118	84	91	85	83	84
24	95	88	91	73	66	70	105	85	90	84	83	84
25	100	96	99	78	67	72	92	84	87	83	82	83
26	102	99	100	80	70	74	84	83	83	96	82	86
27	103	101	102	77	70	74	83	82	83	91	80	84
28	104	101	102	78	70	73	86	82	83	82	80	81
29	103	101	102	70	61	63	86	79	81	83	81	82
30	103	100	101	61	58	59	81	79	80	87	81	84
31	102	99	101	---	---	---	82	80	81	82	80	80
MONTH	109	84	95	99	58	81	130	58	80	129	79	85

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WATER-QUALITY RECORDS

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	81	79	80	81	75	76	73	70	72	63	60	62
2	81	79	80	78	76	77	72	70	71	64	57	60
3	86	80	82	81	77	78	73	70	71	60	56	58
4	81	79	79	78	77	77	73	71	72	59	54	56
5	98	79	86	84	77	80	74	73	73	58	55	56
6	104	84	96	89	79	82	76	72	74	61	58	59
7	104	85	93	80	79	79	73	68	70	189	56	76
8	100	85	89	81	79	80	69	66	67	94	57	60
9	87	85	86	82	80	81	65	63	64	60	58	59
10	89	87	88	83	80	82	66	64	65	64	61	61
11	91	89	90	83	81	82	66	65	66	63	57	60
12	93	91	92	99	82	87	69	66	67	57	55	56
13	93	91	93	89	82	85	70	68	69	54	53	54
14	127	88	102	84	82	83	72	70	71	57	53	55
15	89	86	87	83	82	83	71	70	71	65	56	58
16	88	84	86	83	81	82	72	63	68	173	59	84
17	85	83	84	83	81	81	66	60	62	113	61	77
18	86	83	85	100	80	84	60	58	59	71	61	63
19	87	84	85	94	79	82	62	59	60	66	64	64
20	86	84	85	79	78	79	65	62	63	68	66	66
21	98	81	86	85	76	79	67	65	66	68	66	67
22	80	69	73	77	74	75	70	67	68	69	67	68
23	69	63	66	76	75	76	71	69	70	149	68	74
24	65	62	63	79	75	76	74	71	73	72	68	70
25	108	64	78	81	68	73	75	73	74	79	70	73
26	89	68	72	70	68	69	75	73	74	73	71	72
27	119	76	92	69	66	67	76	74	75	80	70	73
28	75	74	75	69	67	68	77	75	76	76	70	73
29	---	---	---	71	69	70	78	75	77	74	71	72
30	---	---	---	73	71	72	79	63	72	76	71	72
31	---	---	---	76	71	73	---	---	---	74	70	71
MONTH	127	62	84	100	66	78	79	58	69	189	53	65

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	75	70	73	80	74	76	91	84	88	80	76	78
2	77	73	75	81	75	78	88	83	86	84	79	81
3	79	74	76	85	77	81	90	85	87	84	80	82
4	82	72	75	86	80	82	91	84	88	90	82	85
5	76	73	74	87	80	83	91	85	88	91	87	89
6	76	73	75	85	77	80	90	84	87	88	82	84
7	76	71	73	83	78	80	90	84	88	87	81	83
8	73	68	70	87	80	83	89	81	85	88	83	84
9	75	65	70	88	82	84						

PAWCATUCK RIVER BASIN

01118000 WOOD RIVER AT HOPE VALLEY, R.I.--Continued

WATER-QUALITY RECORDS

WATER TEMPERATURE, DEGREES CENTIGRADE, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	16.0	17.0	8.0	5.0	6.0	7.0	6.0	6.0	2.5	2.0	2.5
2	18.0	16.0	17.0	8.0	7.0	7.5	6.0	4.5	5.5	3.0	2.5	3.0
3	18.0	17.0	17.5	8.5	7.0	7.5	5.5	4.5	5.0	3.5	3.0	3.0
4	17.0	15.5	16.5	8.0	6.5	7.5	5.0	4.0	4.5	3.5	1.5	2.5
5	16.0	15.0	15.5	9.5	7.0	8.0	4.0	2.5	3.5	1.5	1.0	1.0
6	15.0	13.5	14.5	11.0	9.5	10.5	3.0	2.0	2.5	1.5	1.0	1.5
7	14.0	13.0	13.5	11.5	9.5	10.5	3.5	2.0	3.0	2.0	1.5	1.5
8	13.0	11.0	12.5	10.0	8.5	9.5	4.0	3.0	3.5	2.5	1.5	2.0
9	11.5	9.5	10.5	10.0	8.0	9.0	3.5	2.5	3.0	2.5	2.0	2.0
10	11.5	9.5	10.5	9.5	7.5	8.5	2.5	2.0	2.5	3.0	2.0	2.5
11	12.0	11.0	11.5	9.5	8.0	9.0	2.0	1.0	2.0	3.0	2.5	2.5
12	11.5	10.0	11.0	8.5	7.0	8.0	1.5	.5	1.0	3.0	2.0	2.5
13	10.5	9.0	10.0	8.0	6.5	7.5	1.5	1.0	1.0	3.0	2.5	3.0
14	10.0	8.0	9.5	8.0	6.0	7.0	1.5	1.0	1.5	3.5	2.0	2.5
15	10.0	8.5	9.5	8.0	6.5	7.0	3.0	1.5	2.5	4.5	3.0	4.0
16	11.0	9.0	10.0	8.0	6.0	7.0	2.5	1.5	2.0	5.0	4.0	4.0
17	11.5	10.0	11.0	9.0	7.5	8.5	1.5	1.0	1.5	4.0	3.0	3.5
18	12.5	11.5	12.0	8.5	7.0	7.5	1.5	1.0	1.0	4.0	3.0	3.5
19	12.0	10.5	11.0	7.0	6.0	6.5	1.5	1.0	1.0	4.5	3.5	4.0
20	10.5	9.5	10.0	8.0	6.0	6.5	2.0	1.0	1.5	5.0	3.5	4.0
21	9.5	8.5	9.0	8.5	7.0	8.0	3.0	2.0	2.5	4.0	2.0	3.0
22	10.5	9.0	10.0	7.0	6.0	6.5	3.5	2.5	3.0	2.5	1.5	2.0
23	9.5	8.5	9.0	6.0	5.0	5.5	3.0	2.5	3.0	3.0	1.5	2.5
24	9.5	8.5	9.0	5.0	4.0	4.5	3.5	2.5	3.0	3.5	2.0	2.5
25	9.5	8.0	9.0	4.0	3.5	4.0	4.5	3.5	4.0	3.5	2.5	3.0
26	9.0	7.5	8.5	4.0	3.0	3.5	4.0	3.0	3.5	4.0	3.0	3.5
27	9.0	7.0	8.0	5.5	3.0	4.0	3.0	2.0	2.5	4.0	3.0	3.5
28	8.5	6.5	7.5	8.5	6.0	7.5	4.5	2.5	3.5	4.0	3.0	3.5
29	8.0	7.0	7.5	8.5	7.0	8.0	4.5	3.5	4.0	4.5	3.5	4.0
30	7.5	6.0	7.0	7.0	6.0	6.5	4.0	3.0	3.5	5.0	4.0	4.5
31	7.0	5.5	6.5	---	---	---	3.0	2.5	3.0	5.5	4.5	5.0
MONTH	18.0	5.5	11.0	11.5	3.0	7.5	7.0	.5	3.0	5.5	1.0	3.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.5	5.0	5.5	3.5	2.0	3.0	9.5	8.0	8.5	13.0	12.5	13.0
2	6.0	5.5	5.5	4.5	2.5	3.5	10.5	8.0	9.0	13.0	12.5	13.0
3	5.5	4.5	5.0	5.0	3.0	4.0	9.0	8.5	9.0	14.5	12.0	13.5
4	4.5	3.5	4.0	5.0	3.5	4.5	10.0	8.5	9.0	15.0	12.5	14.0
5	3.5	1.5	2.5	5.0	4.5	5.0	12.0	10.0	11.0	14.0	13.0	13.5
6	2.0	1.5	2.0	5.0	4.0	4.5	12.5	11.5	12.0	15.0	13.0	14.0
7	2.5	1.5	2.0	4.0	1.5	3.0	12.0	10.5	11.5	17.0	15.0	16.0
8	3.0	1.0	2.0	2.5	1.0	2.0	11.5	9.5	10.5	16.0	13.0	14.5
9	2.5	1.5	2.0	4.0	1.5	2.5	9.5	8.0	9.0	14.5	12.5	13.5
10	2.5	1.0	1.5	5.0	2.5	3.5	9.0	7.5	8.0	13.5	12.0	13.0
11	3.0	1.0	2.0	6.0	3.0	4.5	9.5	7.5	8.5	11.5	11.0	11.0
12	3.0	1.5	2.5	5.5	4.5	5.0	10.0	8.0	9.0	14.0	11.0	12.0
13	3.0	1.5	2.5	6.0	4.0	5.0	10.5	8.0	9.0	15.5	13.5	14.5
14	3.5	3.0	3.5	7.0	4.5	5.5	11.5	9.0	10.0	16.0	14.0	15.0
15	3.5	3.0	3.5	7.0	6.0	6.5	10.0	9.0	9.5	17.0	15.0	16.0
16	4.0	3.5	4.0	9.0	6.5	7.5	9.0	8.5	9.0	16.5	15.5	16.5
17	3.5	2.5	3.0	10.0	7.5	8.5	11.0	8.0	9.5	17.5	15.0	16.0
18	3.5	2.0	2.5	11.5	9.0	10.0	14.0	11.0	12.5	19.5	16.0	17.5
19	3.5	2.0	2.5	10.5	9.0	10.0	14.0	12.5	13.5	20.0	17.5	18.5
20	3.5	2.0	3.0	8.5	6.5	7.5	13.5	11.0	12.5	19.5	17.0	18.5
21	5.0	3.0	3.5	8.0	6.5	7.0	13.0	11.0	12.0	19.5	17.0	18.0
22	5.5	4.5	5.0	8.5	6.5	7.5	13.0	10.5	12.0	20.0	17.0	18.5
23	4.5	3.5	4.0	8.0	6.5	7.0	12.0	9.5	10.5	20.5	17.5	18.5
24	3.5	1.0	2.5	7.0	6.0	6.5	12.0	9.0	10.5	18.0	16.5	17.5
25	2.0	1.0	1.0	7.5	5.5	6.5	12.5	9.5	11.0	19.0	16.0	17.0
26	2.0	1.0	1.5	9.5	7.0	8.0	13.5	10.0	11.5	19.5	17.0	18.0
27	2.5	1.5	2.0	10.5	8.0	9.5	14.5	11.0	12.5	19.5	17.5	18.5
28	3.0	1.5	2.5	12.5	9.5	11.0	15.0	11.5	13.5	18.0	16.0	17.0
29	---	---	---	15.0	12.5	13.5	14.0	12.0	13.0	18.5	15.0	16.5
30	---	---	---	13.5	10.5	12.0	13.5	11.5	12.5	17.5	15.5	16.5
31	---	---	---	10.5	8.5	9.5	---	---	---	17.5	16.0	16.5
MONTH	6.5	1.0	3.0	15.0	1.0	6.5	15.0	7.5	10.5	20.5	11.0	15.5

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, R.I.
(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.--48 years (water years 1942-89), 578 ft³/s, 26.61 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, 1,770 ft³/s, May 12, gage height, 6.52 ft; minimum daily, 78 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	e180	1250	492	464	e551	e1040	e1200	e620	e380	e280	411
2	84	e600	1100	464	443	e535	e980	e1400	e590	e355	e270	346
3	92	e750	974	443	430	e520	e942	e1640	e620	e330	e255	289
4	e106	e660	874	430	430	e515	e975	e1500	e600	e315	e240	254
5	e115	e500	789	341	411	e520	e940	e1330	e580	e335	e230	237
6	e123	e383	717	330	392	e554	e1080	e1320	e525	e370	e240	230
7	e131	e330	661	335	e381	e539	e1240	e1270	e540	e430	e255	218
8	e151	e290	630	341	e369	e496	e1330	e1140	e620	e400	e270	214
9	e181	e255	592	375	e359	e477	e1340	e1030	e800	e365	e250	207
10	e200	230	559	375	e332	e469	e1240	e965	e1140	e335	241	200
11	e178	241	521	357	e325	e460	e1120	e1480	e1400	e310	369	197
12	e160	246	470	357	e310	e467	e999	e1750	e1300	e290	1160	197
13	e140	246	411	477	e325	e467	e942	e1680	e1080	e270	1360	190
14	e129	294	536	513	e414	e457	e900	e1560	e950	e310	1210	194
15	e119	352	693	552	e515	e460	e874	e1350	e880	e380	1000	276
16	e111	309	701	726	e600	e455	e1300	e1240	e1080	e371	851	380
17	e105	299	615	677	e511	e440	e1740	e1170	e1200	e735	726	583
18	e98	352	536	583	e450	e472	e1700	e1120	e1000	e1020	630	607
19	e94	346	470	536	e412	e578	e1500	e1040	e930	e886	552	567
20	e90	380	443	499	e397	e578	e1360	e950	e811	e778	492	645
21	e91	1200	443	464	e700	e720	e1220	e890	e710	e737	443	615
22	e200	1530	464	411	e1070	e763	e1090	e810	e646	e636	424	536
23	e290	1390	464	386	e980	e693	e978	e760	e610	e559	375	464
24	e270	1160	536	386	e833	e665	e891	e710	e581	e486	341	424
25	e225	991	607	386	e698	e1120	e836	e690	e547	e441	299	375
26	e200	859	607	386	e631	e1170	e780	e660	e513	e404	271	477
27	e170	767	544	464	e612	e1100	e730	e720	e479	e371	254	717
28	e157	835	506	484	e575	e1020	e685	e780	e453	e352	246	701
29	e154	1340	544	470	---	e960	e661	e760	e420	e330	267	600
30	e150	1400	567	457	---	e920	e1000	e700	e400	e315	399	499
31	e153	---	528	470	---	e970	---	e650	---	e295	484	---
TOTAL	4545	18715	19352	13967	14369	20111	32413	34265	22625	13891	14684	11850
MEAN	147	624	624	451	513	649	1080	1105	754	448	474	395
MAX	290	1530	1250	726	1070	1170	1740	1750	1400	1020	1360	717
MIN	78	180	411	330	310	440	661	650	400	270	230	190
CFSM	.50	2.11	2.12	1.53	1.74	2.20	3.66	3.75	2.56	1.52	1.61	1.34
IN.	.57	2.36	2.44	1.76	1.81	2.54	4.09	4.32	2.85	1.75	1.85	1.49

CAL YR 1988 TOTAL 173891 MEAN 475 MAX 1940 MIN 75 CFSM 1.61 IN. 21.93
WTR YR 1989 TOTAL 220787 MEAN 605 MAX 1750 MIN 78 CFSM 2.05 IN. 27.84

e Estimated

01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--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, 158 microsiemens, Oct. 24; minimum, 61 microsiemens, Feb. 26.

WATER TEMPERATURES: Maximum, 20.0°C, Oct. 1, 2; minimum, 0.5°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)
OCT												
19...	0930	E94	125	7.00	12.0	13.0	--	0.80	760	9.6	91	--
NOV												
10...	1100	230	107	6.78	14.0	9.0	--	1.5	770	11.0	94	--
DEC												
14...	1040	536	101	6.70	5.0	3.0	--	1.0	770	13.0	96	24
JAN												
11...	1047	357	102	6.68	6.0	3.0	--	1.5	780	14.0	102	--
FEB												
22...	1318	E1070	87	6.27	7.0	3.5	--	--	760	13.2	100	--
MAR												
15...	1410	E460	94	6.59	9.0	6.0	28	1.0	760	12.9	104	11
APR												
11...	0950	E1120	72	6.41	14.0	8.0	--	1.0	780	11.8	97	--
MAY												
18...	0900	E1120	69	6.47	26.0	17.0	--	0.60	770	9.1	94	--
JUN												
14...	0950	E950	60	6.44	20.0	17.0	--	1.2	770	8.7	89	32
JUL												
13...	1230	E270	93	6.76	22.5	22.5	--	1.2	760	8.9	103	--
AUG												
08...	0950	E270	96	6.96	22.0	24.0	--	0.85	760	8.4	100	--
SEP												
01...	0900	411	85	6.55	26.0	20.0	70	1.2	766	8.2	90	19
DATE		OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	
OCT												
19...	--	500	--	84	23	5.9	1.9	--	--	--	--	
NOV												
10...	1.0	2400	32	46	20	5.3	1.7	13	56	1	1.6	
DEC												
14...	--	5100	--	1500	18	4.7	1.4	--	--	--	--	
JAN												
11...	1.0	970	K3	800	18	4.8	1.5	11	54	1	2.0	
FEB												
22...	--	5400	300	13000	--	--	--	--	--	--	--	
MAR												
15...	--	530	--	400	17	4.6	1.4	11	56	1	1.1	
APR												
11...	--	1500	--	31	15	3.7	1.4	--	--	--	--	
MAY												
18...	1.0	1300	230	50	13	3.6	1.0	8.9	57	1	1.1	
JUN												
14...	--	550	--	110	14	3.6	1.1	--	--	--	--	
JUL												
13...	<1.0	540	110	150	18	4.7	1.4	9.9	53	1	1.0	
AUG												
08...	--	700	--	410	20	5.4	1.5	--	--	--	--	
SEP												
01...	<1.0	2800	--	320	16	4.3	1.2	10	56	1	1.2	

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
OCT												
19...	--	--	--	16	14	--	--	89	--	--	92	--
NOV												
10...	0	--	--	16	13	0.10	9.6	89	68	--	103	0.290
DEC												
14...	--	--	--	19	14	--	--	67	--	<1	80	--
JAN												
11...	--	--	--	17	13	0.10	9.3	68	67	--	81	--
FEB												
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
15...	--	--	--	--	13	--	--	59	--	5	--	0.360
APR												
11...	--	--	--	8.8	11	--	--	60	--	--	60	--
MAY												
18...	--	--	--	10	10	0.10	3.7	54	42	--	116	--
JUN												
14...	--	--	--	9.0	11	--	--	62	--	<1	70	--
JUL												
13...	--	--	--	10	14	0.10	7.7	71	59	--	66	--
AUG												
08...	--	--	--	11	12	--	--	66	--	--	66	0.490
SEP												
01...	--	--	--	8.0	12	--	--	66	42	<1	--	0.280

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS NO3)	PHOS- PHOROUS TOTAL (MG/L AS P)
OCT												
19...	<0.010	--	0.600	--	<0.010	--	--	--	0.40	1.0	4.4	0.030
NOV												
10...	0.010	0.010	0.300	0.290	0.050	0.050	0.06	0.45	0.50	0.80	3.5	0.030
DEC												
14...	<0.010	--	0.400	--	0.060	--	--	0.44	0.50	0.90	4.0	0.020
JAN												
11...	<0.010	<0.010	0.500	0.490	0.050	0.060	0.08	0.45	0.50	1.0	4.4	0.020
FEB												
22...	<0.010	--	0.400	--	0.050	--	--	0.55	0.60	1.0	4.4	0.050
MAR												
15...	0.040	--	0.400	--	0.030	--	--	0.17	0.20	0.60	2.7	0.020
APR												
11...	<0.010	--	0.200	--	0.030	--	--	0.27	0.30	0.50	2.2	0.010
MAY												
18...	<0.010	<0.010	0.100	0.150	0.030	0.060	0.08	0.37	0.40	0.50	2.2	0.020
JUN												
14...	<0.010	--	0.200	--	0.040	--	--	0.46	0.50	0.70	3.1	0.040
JUL												
13...	<0.010	<0.010	0.400	0.430	0.040	0.020	0.03	0.26	0.30	0.70	3.1	0.030
AUG												
08...	0.010	--	0.500	--	0.020	--	--	0.88	0.90	1.4	6.2	0.040
SEP												
01...	0.020	--	0.300	--	0.020	--	--	0.38	0.40	0.70	3.1	0.040

PAWCATUCK RIVER BASIN

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01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL)	ALUM- INUM, DIS- SOLVED (MG/L AS AL)	ARSENIC TOTAL (MG/L AS AS)	ARSENIC DIS- SOLVED (MG/L AS AS)	BARIUM, DIS- SOLVED (MG/L AS BA)	BERYL- LIUM, DIS- SOLVED (MG/L AS BE)	BORON, TOTAL RECOV- ERABLE (MG/L AS B)
OCT 19...	0.010	0.030	--	--	--	--	--	--	--	--
NOV 10...	0.030	0.010	<0.010	--	130	--	<1	13	<0.5	--
DEC 14...	0.020	0.030	--	--	--	--	--	--	--	--
JAN 11...	0.010	0.020	0.010	--	70	--	<1	12	<0.5	--
FEB 22...	--	0.030	--	--	--	--	--	--	--	--
MAR 15...	0.010	0.020	--	80	--	<1	--	--	--	40
APR 11...	0.010	0.020	--	--	--	--	--	--	--	--
MAY 18...	0.020	<0.010	<0.010	--	130	--	<1	10	<0.5	--
JUN 14...	0.010	0.020	--	--	--	--	--	--	--	--
JUL 13...	0.010	0.030	0.020	--	70	--	<1	10	<0.5	--
AUG 08...	0.030	0.020	--	--	--	--	--	--	--	--
SEP 01...	0.030	0.030	--	110	--	<1	--	--	--	<10

DATE	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD)	CADMIUM DIS- SOLVED (MG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR)	CHRO- MIUM, DIS- SOLVED (MG/L AS CR)	COBALT, DIS- SOLVED (MG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU)	COPPER, DIS- SOLVED (MG/L AS CU)	IRON, TOTAL RECOV- ERABLE (MG/L AS FE)	IRON, DIS- SOLVED (MG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (MG/L AS PB)	LEAD, DIS- SOLVED (MG/L AS PB)
OCT 19...	--	<1	--	<1	--	--	<1	--	--	--	<5
NOV 10...	--	<1	--	<1	<3	--	2	--	290	--	<5
DEC 14...	--	<1	--	<1	--	--	<1	--	--	--	<5
JAN 11...	--	<1	--	<1	<3	--	<1	--	160	--	<5
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	1	<1	1	<1	--	6	1	170	--	<5	<5
APR 11...	--	<1	--	2	--	--	1	--	--	--	<5
MAY 18...	--	<1	--	1	<3	--	3	--	290	--	1
JUN 14...	--	1	--	<1	--	--	1	--	--	--	1
JUL 13...	--	<1	--	<1	<3	--	1	--	380	--	<1
AUG 08...	--	<1	--	<1	--	--	1	--	--	--	1
SEP 01...	<1	<1	<1	<1	--	3	<1	570	--	2	1

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	LITHIUM DIS- SOLVED (µG/L AS LI)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN)	MANGA- NESE, DIS- SOLVED (µG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG)	MERCURY DIS- SOLVED (µG/L AS HG)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	NICKEL, DIS- SOLVED (µG/L AS NI)	SELE- NIUM, TOTAL (µG/L AS SE)	SELE- NIUM, DIS- SOLVED (µG/L AS SE)
OCT 19...	--	--	--	--	--	--	--	--	<1	--	--
NOV 10...	<4	--	36	--	<0.1	--	<10	--	3	--	<1
DEC 14...	--	--	--	--	--	--	--	--	<1	--	--
JAN 11...	<4	--	39	--	0.1	--	<10	--	<1	--	<1
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	--	30	--	0.10	--	2	--	3	1	<1	--
APR 11...	--	--	--	--	--	--	--	--	<1	--	--
MAY 18...	<4	--	37	--	0.3	--	<10	--	1	--	<1
JUN 14...	--	--	--	--	--	--	--	--	1	--	--
JUL 13...	<4	--	27	--	0.3	--	<10	--	<1	--	<1
AUG 08...	--	--	--	--	--	--	--	--	<1	--	--
SEP 01...	--	40	--	0.20	--	<1	--	<1	<1	<1	--

DATE	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG)	SILVER, DIS- SOLVED (µG/L AS AG)	STRON- TIUM, DIS- SOLVED (µG/L AS SR)	VANA- DIUM, DIS- SOLVED (µG/L AS V)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	ZINC, DIS- SOLVED (µG/L AS ZN)	PHENOLS TOTAL (µG/L)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L)	PCB, TOTAL (µG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ALDRIN, TOTAL (µG/L)
OCT 19...	--	--	--	--	--	<3	--	--	--	--	--
NOV 10...	--	<1.0	38	<6	--	8	--	--	--	--	--
DEC 14...	--	--	--	--	--	9	--	--	--	--	--
JAN 11...	--	<1.0	35	<6	--	7	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	2	--	--	--	20	12	<1	<1	<0.1	--	<0.010
APR 11...	--	--	--	--	--	7	--	--	--	--	--
MAY 18...	--	<1.0	27	<6	--	12	--	--	--	--	--
JUN 14...	--	--	--	--	--	8	--	--	--	--	--
JUL 13...	--	<1.0	34	<6	--	13	--	--	--	--	--
AUG 08...	--	--	--	--	--	5	--	--	--	--	--
SEP 01...	<1	--	--	--	<10	14	1	<1	<0.1	<1	<0.010

PAWCATUCK RIVER BASIN

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01118500 PAWCATUCK RIVER AT WESTERLY, R.I--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	CHLOR- DANE, TOTAL (µG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDD, TOTAL (µG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDE, TOTAL (µG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DDT, TOTAL (µG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	DI- ELDRIN TOTAL (µG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<0.1	<0.1	<1.0	<0.010	0.1	<0.010	0.2	<0.010	<0.1	<0.010	0.1

DATE	ENDO- SULFAN, TOTAL (µG/L)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	ENDRIN, TOTAL (µG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR, TOTAL (µG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (µG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG)	LINDANE TOTAL (µG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	METH- OXY- CHLOR, TOTAL (µG/L)
OCT 19...	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	--	--	--	--	--	--	--	--	--	--
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	--	--
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.01
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.01

DATE	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG)	MIREX, TOTAL (µG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	PER- THANE TOTAL (µG/L)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG)	TOX- APHENE, TOTAL (µG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 19...	--	--	--	--	--	--	--	--	--	--	--
NOV 10...	--	--	--	--	--	--	--	--	--	2	75
DEC 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 11...	--	--	--	--	--	--	--	--	--	1	100
FEB 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 15...	--	<0.01	--	<0.10	--	<0.1	--	<1	--	--	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	--	--	7	68
JUN 14...	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	--	--	--	--	--	--	--	--	--	3	89
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<0.1	<0.01	<0.1	<0.10	<1.0	<0.1	<1.00	<1	<10	--	--

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	122	118	120	135	115	128	76	74	75	93	92	92
2	124	119	121	145	108	122	78	76	77	93	91	92
3	124	120	122	139	118	125	80	78	79	92	91	91
4	127	124	125	118	111	114	82	80	81	93	91	92
5	126	121	123	111	105	108	83	81	82	99	93	96
6	124	121	123	109	108	109	85	83	84	104	98	102
7	128	123	125	107	105	106	87	85	86	108	102	105
8	129	124	126	106	105	105	87	86	86	108	106	107
9	129	126	127	108	105	107	88	86	87	108	101	105
10	149	128	138	111	108	110	89	86	87	101	99	100
11	147	128	137	113	110	112	90	87	88	102	100	100
12	129	123	125	115	112	113	94	89	92	106	101	102
13	122	119	121	113	107	111	100	94	95	104	99	102
14	120	116	118	111	107	108	104	98	101	102	98	100
15	122	118	119	108	104	106	102	98	100	104	97	100
16	124	120	122	106	104	105	100	94	98	97	90	93
17	126	123	124	109	104	106	95	91	94	92	89	91
18	129	126	127	113	105	108	98	95	96	91	87	89
19	128	124	126	113	109	111	99	97	98	90	88	89
20	124	121	123	110	91	104	99	92	97	89	87	88
21	128	124	125	95	88	90	100	98	99	90	89	89
22	135	117	123	89	81	86	101	98	100	95	90	92
23	153	123	130	82	79	80	100	97	99	97	95	96
24	158	134	147	79	77	78	100	96	98	97	96	97
25	133	126	129	80	78	79	99	94	96	98	96	97
26	130	126	127	82	79	80	95	91	92	102	97	99
27	133	129	131	84	81	82	91	89	90	102	96	98
28	133	129	131	84	76	80	95	88	90	98	96	97
29	134	129	132	78	76	77	93	90	92	97	94	96
30	136	133	135	76	75	76	94	92	93	94	87	90
31	138	135	137	---	---	---	93	92	93	91	86	89
MONTH	158	116	127	145	75	101	104	74	91	108	86	96

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	92	90	91	99	96	98	82	81	82	79	75	77
2	94	91	93	98	95	96	81	80	81	78	71	74
3	97	94	95	95	93	94	81	80	81	70	64	67
4	95	94	95	97	94	95	82	79	81	70	64	67
5	98	94	95	98	95	97	81	80	80	75	70	73
6	103	97	99	96	93	95	81	80	80	73	71	72
7	103	98	100	98	93	95	79	77	78	84	71	73
8	106	101	104	98	97	97	78	76	78	75	71	72
9	107	94	104	99	97	98	76	75	76	72	71	71
10	108	107	107	100	98	99	75	74	75	74	72	73
11	110	107	109	99	97	98	76	74	75	74	69	72
12	110	105	108	99	97	98	77	75	76	69	63	66
13	108	106	107	98	96	97	79	76	78	66	63	64
14	111	103	107	98	95	96	81	78	79	69	65	67
15	106	101	103	97	96	96	82	79	80	72	68	70
16	101	100	101	97	96	97	81	71	77	72	71	71
17	100	95	97	97	96	97	71	66	68	74	71	72
18	99	97	98	97	94	95	69	66	67	73	71	72
19	99	98	98	100	97	98	73	69	71	80	73	74
20	99	98	98	100	97	98	74	72	73	76	74	75
21	102	94	97	98	94	96	75	72	73	77	76	76
22	92	86	88	94	92	93	76	73	75	78	75	76
23	89	85	87	94	91	92	80	75	77	79	76	77
24	85	83	84	91	90	90	79	76	77	80	78	79
25	86	82	84	90	85	88	80	78	79	81	79	80
26	88	61	85	85	82	83	84	79	81	81	80	81
27	95	87	93	82	79	81	84	81	82	83	79	81
28	97	92	94	79	78	79	85	83	83	83	80	81
29	---	---	---	81	78	80	85	83	84	-	-	-
30	---	---	---	84	80	82	85	78	82	-	-	-
31	---	---	---	84	82	83	---	---	---	-	-	-
MONTH	111	61	97	100	78	93	85	66	78	84	63	73

PAWCATUCK RIVER BASIN

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01118500 PAWCATUCK RIVER AT WESTERLY, R.I.--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	-	-	-	93	87	89	92	89	91	88	85	87
2	-	-	-	91	89	90	91	89	90	86	84	85
3	84	82	83	92	89	90	93	90	91	88	85	86
4	85	82	83	96	89	91	101	92	94	90	87	88
5	84	82	83	95	87	92	97	94	95	90	89	90
6	84	82	83	94	90	92	105	95	97	91	90	90
7	86	84	85	94	89	91	102	94	96	94	91	92
8	87	85	86	91	88	89	96	94	94	96	93	95
9	88	80	84	88	87	88	94	92	93	99	96	97
10	80	71	74	89	86	87	93	90	91	101	98	99
11	71	68	69	90	87	88	94	84	89	102	99	101
12	69	67	68	92	89	90	-	-	-	104	100	102
13	69	67	68	93	90	91	-	-	-	102	97	100
14	72	69	70	93	89	92	-	-	-	97	83	89
15	73	71	72	94	92	93	-	-	-	92	85	89
16	78	71	73	96	92	94	-	-	-	103	90	97
17	71	69	70	92	82	87	-	-	-	103	96	99
18	70	69	70	88	78	82	-	-	-	98	90	94
19	71	69	70	81	76	77	-	-	-	89	88	89
20	72	70	71	75	71	73	-	-	-	93	88	90
21	75	72	73	76	72	73	-	-	-	89	86	88
22	77	75	76	75	74	75	-	-	-	90	87	89
23	79	77	78	77	75	76	-	-	-	88	84	86
24	84	78	80	78	76	77	-	-	-	86	84	85
25	82	80	81	80	77	78	-	-	-	86	85	86
26	83	81	82	88	79	82	-	-	-	86	82	84
27	84	82	82	91	82	85	-	-	-	84	81	82
28	86	83	84	101	85	90	-	-	-	83	81	82
29	88	85	86	90	87	88	-	-	-	81	78	80
30	89	86	87	93	89	90	-	-	-	82	79	81
31	---	---	---	92	89	90	-	-	-	---	---	---
MONTH	89	67	78	101	71	86	105	84	93	104	78	90
YEAR	158	61	92									

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20.0	16.5	18.0	8.5	6.5	7.5	-	-	-	2.5	2.0	2.0
2	20.0	17.0	18.5	8.5	8.0	8.0	-	-	-	2.5	2.0	2.5
3	19.0	17.5	18.5	8.5	7.5	8.0	-	-	-	2.5	2.5	2.5
4	17.5	16.0	17.0	8.5	7.5	8.0	-	-	-	2.5	1.0	1.5
5	17.5	15.5	16.0	9.0	8.0	8.5	-	-	-	1.0	.5	1.0
6	17.0	14.0	15.5	10.5	9.0	9.5	-	-	-	1.0	.5	.5
7	15.0	13.5	14.5	10.5	9.5	10.0	-	-	-	1.0	.5	1.0
8	13.5	12.0	13.0	10.0	8.5	9.5	-	-	-	1.5	1.0	1.0
9	13.5	11.0	12.5	10.0	8.5	9.0	-	-	-	1.5	1.0	1.0
10	14.5	12.0	13.0	9.0	7.5	8.0	-	-	-	1.5	1.0	1.5
11	15.0	12.5	13.5	8.0	7.0	7.5	-	-	-	2.0	1.0	1.5
12	13.5	11.5	12.5	7.5	6.0	6.5	-	-	-	2.0	1.0	1.5
13	13.5	11.0	11.5	-	-	-	-	-	-	2.0	1.5	2.0
14	13.0	10.0	11.5	-	-	-	-	-	-	2.0	1.5	1.5
15	13.0	10.5	11.5	-	-	-	2.0	1.0	1.5	3.0	2.0	2.5
16	13.5	11.0	12.0	-	-	-	1.5	1.0	1.0	3.0	2.5	2.5
17	13.5	11.5	12.5	-	-	-	1.0	1.0	1.0	3.0	2.0	2.5
18	14.5	12.5	13.5	-	-	-	1.0	1.0	1.0	3.0	2.0	2.5
19	13.5	12.0	13.0	-	-	-	1.0	.5	1.0	3.0	2.5	2.5
20	13.5	10.5	11.5	-	-	-	1.5	.5	1.0	3.5	2.5	3.0
21	11.0	9.5	10.5	-	-	-	2.0	1.5	2.0	2.5	1.5	2.0
22	12.0	10.5	11.5	-	-	-	2.5	2.0	2.0	1.5	1.0	1.0
23	11.0	10.0	10.5	-	-	-	2.5	1.5	2.0	1.5	.5	1.0
24	10.5	10.0	10.5	-	-	-	3.0	2.0	2.5	2.5	1.0	1.5
25	11.0	9.5	10.0	-	-	-	3.5	3.0	3.5	2.5	1.5	2.0
26	10.5	8.5	9.5	-	-	-	3.5	2.5	3.0	2.5	2.0	2.5
27	10.0	8.0	9.0	-	-	-	2.5	2.0	2.5	3.0	2.5	2.5
28	9.5	7.5	8.5	-	-	-	3.5	2.5	3.0	3.0	2.0	2.5
29	9.5	8.0	8.5	-	-	-	3.5	3.0	3.0	3.0	2.5	2.5
30	9.0	7.5	8.0	-	-	-	3.0	2.5	3.0	3.5	2.5	3.0
31	8.5	6.5	7.0	---	---	---	2.5	2.0	2.5	4.0	3.0	3.5
MONTH	20.0	6.5	12.5	10.5	6.0	8.5	3.5	.5	2.0	4.0	.5	2.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989--Continued

[illegible]

01123360 QUINEBAUG RIVER BELOW EAST BRIMFIELD DAM, AT FISKDALE, MASS.

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 current year.

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. Flow regulated by East Brimfield Lake (Reservoirs in Thames River basin).

AVERAGE DISCHARGE.--17 years, 129 ft³/s, 25.99 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, 627 ft³/s, May 14, gage height, 5.52 ft; minimum daily, 13 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	24	234	78	92	102	328	161	210	115	45	64
2	13	84	205	71	92	89	386	215	e206	103	42	62
3	15	104	179	66	90	80	384	354	e228	90	39	51
4	15	99	157	e60	90	74	295	394	e216	81	35	42
5	14	83	e136	e53	85	72	213	341	e195	77	33	37
6	15	77	e122	e47	79	72	121	335	174	90	31	34
7	14	68	113	41	73	69	293	355	167	98	34	31
8	14	58	107	41	65	e64	375	413	177	106	33	30
9	15	49	e102	45	56	e58	373	352	203	91	28	28
10	15	42	e94	48	50	55	503	245	303	83	27	26
11	16	45	e86	e48	45	53	411	83	383	86	37	26
12	33	46	e76	e46	42	56	283	493	357	94	120	25
13	68	52	e70	50	40	58	235	588	278	87	238	23
14	87	81	67	52	42	58	187	598	228	75	262	24
15	76	99	72	65	56	61	154	464	218	66	348	71
16	50	100	e70	83	83	68	157	363	265	59	429	93
17	36	100	e69	86	87	70	226	292	311	81	505	113
18	28	104	e65	78	e76	77	197	243	323	104	546	111
19	26	102	e63	72	64	94	258	e228	291	117	324	104
20	22	125	61	68	56	100	256	e201	245	108	218	109
21	20	295	61	e63	80	105	217	e181	209	121	181	139
22	47	e402	e62	e57	196	109	184	e175	182	132	170	98
23	73	e384	e61	e49	241	107	262	e168	170	137	162	159
24	77	e317	63	46	242	101	214	234	195	120	149	246
25	77	e234	88	45	195	119	161	e463	229	98	132	226
26	71	e189	102	48	145	153	145	e542	230	80	113	165
27	62	e181	97	67	129	172	138	e455	201	65	91	134
28	47	189	92	80	116	177	132	e369	174	60	72	115
29	34	230	98	82	---	176	127	e310	153	54	60	103
30	25	250	99	85	---	152	147	258	132	49	61	89
31	20	---	91	90	---	153	---	232	---	46	65	---
TOTAL	1139	4213	3062	1910	2707	2954	7362	10105	6853	2773	4630	2578
MEAN	36.7	140	98.8	61.6	96.7	95.3	245	326	228	89.5	149	85.9
MAX	87	402	234	90	242	177	503	598	383	137	546	246
MIN	13	24	61	41	40	53	121	83	132	46	27	23
MEAN†	36.7	146	95.7	61.6	97.4	105	237	327	226	87.6	150	85.9
CFSM†	.54	2.17	1.42	.91	1.45	1.56	3.52	4.85	3.35	1.30	2.23	1.27
IN.†	.63	2.42	1.64	1.05	1.51	1.79	3.93	5.59	3.75	1.50	2.57	1.42

CAL YR 1988 TOTAL 34095.4 MEAN 93.2 MAX 402 MIN 3.5 MEAN† 93.2 CFSM† 1.38 IN.† 18.83
WTR YR 1989 TOTAL 50286 MEAN 138 MAX 598 MIN 13 MEAN† 138 CFSM† 2.05 IN.† 27.79

e Estimated

† Adjusted for change in contents in East Brimfield Lake.

THAMES RIVER BASIN

01123600 QUINEBAUG RIVER BELOW WESTVILLE DAM, NEAR SOUTHBRIDGE, MASS.

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 current year.

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 except those for estimated daily discharges, which are fair. Flow regulated by mills, by East Brimfield and Westville Lakes (Reservoirs in Thames River basin), and by other reservoirs upstream.

AVERAGE DISCHARGE.--27 years, 171 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, 1,200 ft³/s, May 8, gage height, 6.14 ft; minimum daily, 31 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	53	297	111	122	144	344	195	268	153	57	100
2	37	185	261	101	123	128	514	e284	263	137	55	98
3	39	168	232	96	121	114	567	506	e296	111	51	86
4	38	156	207	86	123	105	570	e604	269	100	48	74
5	32	134	181	76	114	102	338	e417	240	95	46	64
6	31	130	164	67	108	103	181	e334	220	145	43	61
7	32	114	154	63	101	98	434	e379	223	132	46	56
8	33	96	145	65	94	91	557	e846	e265	132	47	54
9	34	83	138	70	82	84	552	e524	237	114	41	51
10	33	73	130	72	74	81	e687	324	e429	105	39	49
11	33	73	123	72	68	79	e558	210	595	118	60	47
12	38	72	105	70	65	81	e366	e742	556	112	e202	44
13	72	83	96	79	62	83	313	e858	485	104	e376	42
14	97	131	94	79	66	83	266	e837	355	96	e511	40
15	105	147	100	105	87	88	239	e750	323	89	e635	126
16	78	149	98	118	119	96	322	e532	447	79	e867	138
17	60	157	93	116	120	97	355	e416	493	140	e870	165
18	49	165	90	109	106	114	332	358	500	157	e652	162
19	46	152	86	96	93	146	354	332	450	154	e422	162
20	41	194	83	94	82	140	342	285	366	141	e279	181
21	38	508	86	88	140	147	308	261	301	208	e242	239
22	92	580	88	79	234	153	244	255	268	192	e252	175
23	121	483	88	72	e262	146	296	230	260	183	e206	213
24	116	414	91	68	e294	137	276	292	349	156	183	317
25	112	323	129	67	318	193	210	e637	338	128	163	306
26	111	257	139	73	249	233	187	e785	328	106	147	265
27	92	225	136	107	174	237	190	e651	283	86	122	213
28	78	270	129	108	159	240	175	e526	240	80	103	176
29	65	314	141	109	---	239	171	e386	210	75	88	156
30	53	316	132	114	---	205	212	e342	173	66	106	138
31	43	---	121	120	---	214	---	e286	---	61	107	---
TOTAL	1886	6205	4157	2750	3760	4201	10460	14384	10030	3755	7066	3998
MEAN	60.8	207	134	88.7	134	136	349	464	334	121	228	133
MAX	121	580	297	120	318	240	687	858	595	208	870	317
MIN	31	53	83	63	62	79	171	195	173	61	39	40

CAL YR 1988 TOTAL 47390 MEAN 129 MAX 580 MIN 13
WTR YR 1989 TOTAL 72652 MEAN 199 MAX 870 MIN 31

e Estimated

01124000 QUINEBAUG RIVER AT QUINEBAUG, CONN.

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.--58 years, 272 ft³/s, 23.85 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, 3,200 ft³/s, Aug. 13, gage height, 6.90 ft; minimum, 3.5 ft³/s, Oct. 1, gage height, 1.81 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	88	478	179	189	e200	649	342	329	175	108	131
2	5.4	420	e420	e165	192	e190	745	657	345	181	74	143
3	32	329	e360	e150	188	e180	759	842	399	169	106	109
4	44	267	e320	e140	186	e165	775	834	363	153	52	124
5	39	237	e290	e130	e160	e150	585	655	329	150	57	70
6	38	260	e270	e125	e140	e140	487	745	303	253	90	82
7	36	168	e255	e120	e125	e120	716	731	364	238	46	73
8	94	202	e235	e115	e115	e115	887	963	444	209	97	67
9	81	148	e220	107	e105	e110	835	751	470	183	30	61
10	20	135	e210	139	e95	e105	896	557	711	165	46	16
11	4.5	131	e200	112	e87	93	829	682	767	179	134	52
12	6.3	108	e185	98	77	149	585	1160	670	164	1050	55
13	68	147	e175	118	e74	146	508	1170	619	151	2400	52
14	104	248	161	148	e72	136	454	1020	454	143	1880	53
15	130	239	164	173	e70	139	359	907	454	147	1290	205
16	124	215	e155	197	230	154	636	701	698	131	1240	211
17	77	263	e150	186	166	159	614	597	747	237	1160	226
18	6.3	272	e145	172	e140	176	552	506	679	305	876	217
19	35	247	e140	131	e125	253	538	456	600	268	661	225
20	48	512	e130	183	e110	273	525	356	478	187	443	297
21	43	1110	142	159	365	225	491	375	373	415	454	454
22	142	953	148	e125	598	276	397	346	392	334	465	421
23	161	766	140	e95	505	250	439	288	439	301	360	343
24	149	643	148	73	454	237	444	418	545	256	298	451
25	142	537	225	102	e380	411	371	769	526	211	258	411
26	138	446	229	130	e320	454	259	860	442	135	223	411
27	133	387	211	209	e260	401	249	763	308	172	192	349
28	96	513	206	186	e230	418	265	614	348	110	164	284
29	84	581	251	175	---	419	252	502	300	122	129	261
30	99	539	202	179	---	427	366	444	254	109	202	186
31	6.5	---	198	189	---	623	---	394	---	107	186	---
TOTAL	2192.3	11111	6763	4510	5758	7294	16467	20405	14150	6060	14771	6040
MEAN	70.7	370	218	145	206	235	549	658	472	195	476	201
MAX	161	1110	478	209	598	623	896	1170	767	415	2400	454
MIN	4.5	88	130	73	70	93	249	288	254	107	30	16
MEAN†	70.6	376	214	145	207	250	535	659	470	193	477	201
CFSM†	.46	2.43	1.38	.94	1.34	1.61	3.45	4.25	3.03	1.25	3.08	1.30
IN.†	.53	2.71	1.59	1.08	1.40	1.86	3.85	4.90	3.38	1.44	3.55	1.45

CAL YR 1988 TOTAL 77836.3 MEAN 213 MAX 1110 MIN 4.2 MEAN† 213 CFSM† 1.37 IN.† 18.69
WTR YR 1989 TOTAL 115521.3 MEAN 316 MAX 2400 MIN 4.5 MEAN† 316 CFSM† 2.04 IN.† 27.74

e Estimated

† Adjusted for change in contents in East Brimfield and Westville Lakes.

THAMES RIVER BASIN

01124000 QUINEBAUG RIVER AT QUINEBAUG, CONN.--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 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
OCT										
21...	0950	41	153	7.14	10.0	10.5	1.0	11.4	102	2200
NOV										
14...	1030	250	125	7.76	14.5	8.0	5.6	12.0	102	2600
DEC										
12...	1015	185	136	6.99	<-5.0	2.0	1.3	14.0	100	1400
JAN										
17...	1130	185	140	6.94	7.0	3.0	1.8	14.1	105	2000
MAR										
16...	1030	154	129	7.14	8.0	6.0	0.90	13.9	112	170
APR										
13...	0930	515	111	6.89	9.5	7.5	1.1	12.4	102	120
MAY										
10...	0905	576	100	6.71	13.5	14.0	1.6	10.0	97	68
JUN										
16...	1232	714	93	6.90	18.5	16.0	3.6	9.9	101	300
JUL										
14...	0855	138	118	6.90	23.0	22.5	2.9	7.8	92	1000
AUG										
11...	1020	154	146	7.09	15.5	20.5	1.5	7.6	84	1300
SEP										
05...	1545	83	122	7.52	19.5	19.5	1.5	9.6	104	120

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)
OCT										
21...	240	28	7.2	2.4	--	13	25	--	91	0.12
NOV										
14...	3900	26	7.1	2.1	10	18	22	6.1	86	0.12
DEC										
12...	750	25	6.6	2.1	--	15	21	--	72	0.10
JAN										
17...	1400	26	6.9	2.1	10	15	27	7.9	93	0.13
MAR										
16...	150	25	6.7	2.0	--	13	22	--	75	0.10
APR										
13...	56	21	5.4	1.8	--	10	19	--	74	0.10
MAY										
10...	59	19	4.9	1.6	8.0	10	16	4.5	63	0.08
JUN										
16...	1300	19	5.4	1.4	--	9.0	14	--	59	0.08
JUL										
14...	190	25	6.7	1.9	14	8.0	19	5.3	73	0.10
AUG										
11...	2000	29	8.2	2.1	--	8.0	22	--	97	0.13
SEP										
05...	50	25	7.0	1.9	--	8.0	20	--	71	0.10

01124000 QUINEBAUG RIVER AT QUINEBAUG, CONN.--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)
OCT 21...	10.1	92	--	<0.010	0.500	0.010	0.49	0.50	1.0	0.260
NOV 14...	58.0	99	0.280	0.020	0.300	0.030	0.77	0.80	1.1	0.090
DEC 12...	36.0	78	0.290	0.010	0.300	0.050	0.35	0.40	0.70	0.070
JAN 17...	46.4	87	--	<0.010	0.200	0.150	0.35	0.50	0.70	0.070
MAR 16...	31.2	81	0.280	0.020	0.300	0.030	0.27	0.30	0.60	0.080
APR 13...	103	74	--	<0.010	0.200	0.020	0.18	0.20	0.40	0.030
MAY 10...	98.0	67	--	<0.010	0.100	0.020	0.38	0.40	0.50	0.050
JUN 16...	114	67	--	<0.010	0.300	0.030	0.37	0.40	0.70	0.040
JUL 14...	27.2	74	0.380	0.020	0.400	0.020	0.48	0.50	0.90	0.110
AUG 11...	40.3	--	0.650	0.050	0.700	0.170	1.0	1.2	1.9	0.320
SEP 05...	15.9	72	--	<0.010	0.500	0.040	0.36	0.40	0.90	0.110

DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	CADMIUM DIS- SOLVED (µG/L AS CD)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR)	COPPER, DIS- SOLVED (µG/L AS CU)	IRON, DIS- SOLVED (µG/L AS FE)	LEAD, DIS- SOLVED (µG/L AS PB)	MANGA- NESE, DIS- SOLVED (µG/L AS MN)	NICKEL, DIS- SOLVED (µG/L AS NI)	ZINC, DIS- SOLVED (µG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 21...	0.230	<1	<1	1	--	<5	--	<1	5	4.5
NOV 14...	0.080	<1	<1	3	180	<5	35	4	8	7.1
DEC 12...	0.050	<1	1	2	--	<5	--	<1	11	4.7
JAN 17...	0.060	<1	<1	1	160	<5	46	1	11	4.7
MAR 16...	0.070	<1	<1	1	--	<5	--	1	8	2.9
APR 13...	0.020	<1	<1	<1	--	<5	--	1	4	3.9
MAY 10...	0.030	<1	1	1	150	1	35	3	7	4.4
JUN 16...	0.010	<1	1	1	--	1	--	1	<3	6.4
JUL 14...	0.100	<1	2	2	830	2	52	1	8	5.8
AUG 11...	0.240	<1	<1	1	--	2	--	1	5	5.8
SEP 05...	0.090	<1	<1	<1	--	<1	--	<1	9	5.6

THAMES RIVER BASIN

01124350 FRENCH RIVER BELOW HODGES VILLAGE DAM, AT HODGES VILLAGE, MASS.

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 current year.
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 fair. Flow regulated by Hodges Village Reservoir (Reservoirs in Thames River basin).

AVERAGE DISCHARGE.--27 years, 55.8 ft³/s, 24.29 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, 399 ft³/s, May 12, gage height, 2.97 ft; minimum, 1.8 ft³/s, Oct. 1, 2; minimum daily, 1.8 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	6.8	92	27	25	48	165	31	42	42	16	e20
2	1.8	50	76	25	25	44	155	29	44	28	15	e19
3	2.9	75	68	24	25	42	97	128	55	22	13	e17
4	3.3	59	67	e21	24	41	89	159	60	19	12	e16
5	3.0	38	61	e17	22	40	77	126	51	19	11	e15
6	2.9	30	50	15	20	40	83	140	45	37	10	e14
7	2.7	31	46	15	19	38	199	134	50	38	9.9	e13
8	3.2	39	48	16	17	35	192	231	59	32	9.9	e12
9	4.7	33	55	18	16	35	177	211	68	26	9.3	e11
10	4.5	25	65	17	14	35	142	137	111	24	8.1	e11
11	3.9	24	65	16	13	35	109	109	171	23	12	e11
12	3.6	22	59	15	13	31	95	306	117	20	38	e10
13	3.4	21	58	18	12	25	84	329	76	17	115	e10
14	3.2	41	65	17	14	23	69	275	61	17	262	e10
15	3.1	47	69	23	21	25	60	243	59	24	340	e35
16	3.0	43	66	29	38	29	99	138	90	20	304	47
17	2.7	41	62	24	30	30	177	104	127	35	242	42
18	2.6	50	51	22	23	32	206	89	124	51	161	37
19	3.0	52	42	21	20	47	192	75	94	43	69	33
20	3.4	54	22	22	18	42	162	58	69	31	43	39
21	3.3	197	34	21	31	39	117	51	54	45	40	54
22	11	269	37	18	95	47	81	49	46	53	30	49
23	26	226	35	17	109	42	69	44	39	42	29	69
24	34	160	36	17	135	33	60	45	45	31	29	78
25	20	101	50	16	132	48	52	85	53	25	28	55
26	13	76	40	18	62	81	49	103	49	21	24	44
27	10	63	31	32	59	110	46	98	48	18	20	53
28	8.5	70	29	28	55	79	29	93	51	18	21	54
29	7.9	107	40	24	---	68	22	86	55	24	20	47
30	7.6	109	37	24	---	63	26	71	52	22	21	39
31	7.0	---	31	25	---	100	---	51	---	18	e21	---
TOTAL	211.2	2159.8	1587	642	1087	1427	3180	3828	2065	885	1983.2	964
MEAN	6.81	72.0	51.2	20.7	38.8	46.0	106	123	68.8	28.5	64.0	32.1
MAX	34	269	92	32	135	110	206	329	171	53	340	78
MIN	1.8	6.8	22	15	12	23	22	29	39	17	8.1	10
MEAN†	6.89	72.7	50.6	20.7	39.0	49.3	105	121	69.0	28.3	64.0	32.4
CFSM†	.22	2.33	1.62	.66	1.25	1.58	3.37	3.88	2.21	.91	2.05	1.04
IN.†	.25	2.60	1.87	.76	1.30	1.82	3.77	4.47	2.47	1.04	2.37	1.16

CAL YR 1988 TOTAL 16095.8 MEAN 44.0 MAX 274 MIN 1.8 MEAN† 44.0 CFSM† 1.41 IN.† 19.19
WTR YR 1989 TOTAL 20019.2 MEAN 54.8 MAX 340 MIN 1.8 MEAN† 54.9 CFSM† 1.76 IN.† 23.88

e Estimated

† Adjusted for change in contents in Hodges Village Reservoir.

01124500 LITTLE RIVER NEAR OXFORD, MASS.

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 1989 (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.--No estimated daily discharges. Records good. 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.--50 years, 49.5 ft³/s, 25.85 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, 316 ft³/s, Aug. 17, gage height, 4.80 ft; minimum, 1.5 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	18	83	30	26	49	116	63	38	27	14	25
2	1.6	49	72	28	27	41	159	90	38	23	12	21
3	2.4	61	63	27	26	36	152	131	42	21	11	19
4	2.9	59	55	25	26	33	123	159	40	18	9.7	17
5	3.5	51	50	22	25	31	99	141	37	19	8.9	15
6	3.9	50	45	20	24	31	70	123	35	30	7.8	13
7	4.3	46	42	19	23	29	122	123	42	32	6.6	11
8	6.4	42	40	19	21	27	171	159	58	30	6.0	10
9	7.0	39	39	19	20	26	169	159	67	26	4.9	9.4
10	8.5	38	37	19	18	24	179	110	100	24	4.1	8.7
11	10	38	35	18	17	23	137	81	129	22	8.8	7.9
12	11	36	33	18	16	24	109	215	109	19	31	7.1
13	11	40	31	19	15	24	92	171	90	17	111	6.2
14	10	54	32	19	17	24	80	168	76	18	186	6.0
15	10	53	28	23	21	25	72	167	70	22	303	18
16	9.4	46	24	26	28	26	97	147	89	21	296	25
17	10	48	20	26	28	27	119	114	107	35	297	29
18	11	52	18	25	26	30	120	95	116	48	211	31
19	13	50	17	25	24	41	119	82	105	44	131	33
20	15	63	16	24	22	43	117	70	87	38	65	40
21	15	141	16	24	37	46	112	61	70	54	43	65
22	22	162	17	22	65	51	90	55	57	56	51	73
23	21	132	17	20	64	51	74	48	49	50	48	63
24	23	110	18	19	79	48	64	48	53	41	43	98
25	22	89	23	18	113	63	56	57	55	33	37	69
26	20	75	25	20	110	89	51	63	52	27	31	59
27	18	64	23	24	88	97	47	65	47	23	27	60
28	17	71	23	26	62	90	43	62	40	22	24	58
29	16	87	29	25	---	82	40	55	34	21	21	53
30	15	91	32	26	---	76	53	47	27	18	29	45
31	14	---	32	26	---	94	---	41	---	16	28	---
TOTAL	355.5	1955	1035	701	1068	1401	3052	3170	1959	895	2106.8	995.3
MEAN	11.5	65.2	33.4	22.6	38.1	45.2	102	102	65.3	28.9	68.0	33.2
MAX	23	162	83	30	113	97	179	215	129	56	303	98
MIN	1.6	18	16	18	15	23	40	41	27	16	4.1	6.0
MEAN†	12.1	68.6	31.4	22.3	39.2	50.5	96.3	102	65.0	28.5	68.3	33.8
CFSM†	.47	2.64	1.21	.86	1.51	1.94	3.70	3.92	2.50	1.10	2.63	1.30
IN.†	.54	2.94	1.39	.99	1.57	2.24	4.13	4.51	2.79	1.27	3.03	1.45

CAL YR 1988 TOTAL 13761.0 MEAN 37.6 MAX 243 MIN 1.2 MEAN† 37.7 CFSM† 1.45 IN.† 19.72

WTR YR 1989 TOTAL 18693.6 MEAN 51.2 MAX 303 MIN 1.6 MEAN† 51.4 CFSM† 1.98 IN.† 26.85

† 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 1988 TO SEPTEMBER 1989

	East Brimfield Lake	Westville Lake	Hodges Village Reservoir	Buffumville Lake
Sept. 30, 1988.....	102.7	5.0	0.4	62.7
Oct. 31.....	102.7	4.8	.6	64.5
Nov. 30.....	117.6	6.8	2.4	73.4
Dec. 31.....	109.3	5.4	.8	68.0
Jan. 31, 1989.....	109.3	5.4	.7	67.1
Feb. 28.....	111.0	5.6	1.2	69.7
Mar. 31.....	135.7	20.4	9.8	83.9
Apr. 30.....	114.3	6.2	7.9	69.7
May 31.....	116.0	6.3	1.0	68.0
June 30.....	111.0	5.7	1.5	67.1
July 31.....	106.0	4.9	.7	66.2
Aug. 31.....	107.7	5.2	.8	67.1
Sept. 30.....	107.7	5.3	1.4	68.8

CONNECTICUT RIVER BASIN

123

01162000 MILLERS RIVER NEAR WINCHENDON, MASS.

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.--No estimated daily discharges. Records good. Flow regulated by powerplant and by Lake Monomonac and other reservoirs upstream.

AVERAGE DISCHARGE.--73 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, 661 ft³/s, Apr. 8, gage height, 7.47 ft; minimum daily, 13 ft³/s, Oct. 1, 2, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	143	215	101	40	81	256	153	127	48	40	24
2	13	288	200	97	46	77	234	341	158	36	39	24
3	14	244	187	92	47	72	217	566	229	33	36	21
4	13	217	174	88	45	68	229	549	198	30	38	19
5	21	200	160	73	40	70	241	436	167	33	51	17
6	32	217	146	43	35	69	495	527	172	43	51	16
7	29	271	125	39	32	68	648	589	203	44	66	15
8	33	268	115	42	30	63	655	510	272	51	64	15
9	42	221	109	41	50	59	549	411	305	49	52	15
10	42	191	103	38	60	56	440	351	397	53	44	15
11	46	183	98	35	58	55	383	441	404	66	78	14
12	75	176	95	34	56	57	329	474	346	65	182	14
13	101	206	90	37	55	55	227	467	280	62	355	14
14	94	222	90	35	63	56	187	415	245	56	401	16
15	91	194	93	52	84	68	178	354	223	82	344	56
16	95	175	91	51	87	81	284	303	309	51	252	54
17	96	180	83	47	76	84	343	261	314	61	185	60
18	95	182	78	43	67	93	342	226	279	86	140	56
19	94	164	76	39	61	98	321	176	230	76	117	57
20	88	201	79	37	57	85	282	137	179	59	106	64
21	84	372	78	34	172	83	246	130	153	59	94	74
22	146	328	78	31	257	78	222	129	131	54	67	81
23	164	286	78	29	201	77	194	118	138	46	54	112
24	148	255	83	27	144	77	169	194	151	41	41	130
25	140	228	109	26	118	104	150	283	119	40	36	111
26	125	209	104	29	106	139	136	260	104	36	34	168
27	115	183	101	36	93	159	126	227	91	30	28	196
28	107	234	112	34	87	184	119	192	83	67	27	133
29	101	249	131	33	---	227	115	158	72	65	25	140
30	91	228	118	36	---	263	143	133	61	53	29	120
31	87	---	109	37	---	255	---	123	---	45	27	---
TOTAL	2435	6715	3508	1416	2267	3061	8460	9634	6140	1620	3103	1851
MEAN	78.5	224	113	45.7	81.0	98.7	282	311	205	52.3	100	61.7
MAX	164	372	215	101	257	263	655	589	404	86	401	196
MIN	13	143	76	26	30	55	115	118	61	30	25	14

CAL YR 1988 TOTAL 46006 MEAN 126 MAX 810 MIN 13
WTR YR 1989 TOTAL 50210 MEAN 138 MAX 655 MIN 13

CONNECTICUT RIVER BASIN

01162500 PRIEST BROOK NEAR WINCHENDON, MASS.

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 except those for estimated daily discharges, which are poor. 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.--73 years, 32.6 ft³/s, 22.82 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)
Apr. 7	0745	*281	*4.61	May 7	0800	200	4.21
May 3	0415	198	4.20				

Minimum discharge, 2.3 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	11	54	25	16	16	e64	41	34	10	11	7.8
2	2.8	34	47	21	19	15	e56	84	39	8.3	10	7.7
3	3.1	56	42	20	19	14	e65	193	71	6.5	9.6	7.0
4	3.2	51	38	17	17	13	72	165	74	6.0	9.6	5.9
5	3.4	43	34	15	15	13	84	126	61	6.7	15	5.6
6	4.0	41	30	13	13	13	193	141	49	9.6	14	5.3
7	3.9	39	28	12	12	12	259	192	64	11	20	4.9
8	4.5	34	28	12	11	10	201	156	74	13	20	4.4
9	5.6	30	26	13	11	9.2	158	122	83	11	17	4.2
10	5.5	26	24	12	11	8.4	120	103	110	13	13	4.0
11	5.3	26	23	11	9.7	e8.8	99	117	133	21	14	3.8
12	6.6	25	20	11	9.2	e9.0	79	144	111	18	56	3.6
13	7.7	25	18	12	8.9	e8.8	55	135	90	20	129	3.5
14	7.0	34	19	11	9.8	e8.6	43	143	80	18	131	3.7
15	6.4	37	20	16	15	e10	40	119	70	14	107	8.0
16	6.0	33	19	19	22	e12	e70	93	85	18	84	8.9
17	6.0	33	18	18	18	e14	e100	77	101	16	63	11
18	6.2	36	16	16	15	e16	e110	65	89	15	46	11
19	6.2	34	15	16	12	e20	e90	54	73	13	34	10
20	5.8	36	15	16	10	e19	e75	44	58	12	25	11
21	5.9	91	16	16	24	e20	e66	40	45	12	22	14
22	12	99	16	14	94	e18	e58	38	36	11	22	23
23	17	83	15	13	92	e17	e50	34	26	8.7	22	27
24	17	68	16	12	e67	e17	e45	45	30	7.3	20	22
25	17	54	24	11	e38	e23	e38	95	30	7.0	17	23
26	16	46	26	12	e24	e30	e36	88	25	7.0	14	31
27	14	40	23	14	22	e48	36	70	21	6.4	12	54
28	13	48	24	13	19	e47	31	58	18	13	11	52
29	12	69	32	13	---	e45	28	51	15	17	9.5	41
30	11	63	37	13	---	e50	33	42	12	14	10	33
31	9.7	---	32	14	---	e58	---	35	---	13	9.0	---
TOTAL	246.6	1345	795	451	653.6	622.8	2454	2910	1807	376.5	996.7	451.3
MEAN	7.95	44.8	25.6	14.5	23.3	20.1	81.8	93.9	60.2	12.1	32.2	15.0
MAX	17	99	54	25	94	58	259	193	133	21	131	54
MIN	2.8	11	15	11	8.9	8.4	28	34	12	6.0	9.0	3.5
CFSM	.41	2.31	1.32	.75	1.20	1.04	4.22	4.84	3.10	.63	1.66	.78
IN.	.47	2.58	1.52	.86	1.25	1.19	4.71	5.58	3.46	.72	1.91	.87

CAL YR 1988 TOTAL 9934.0 MEAN 27.1 MAX 247 MIN 1.6 CFSM 1.40 IN. 19.05
WTR YR 1989 TOTAL 13109.5 MEAN 35.9 MAX 259 MIN 2.8 CFSM 1.85 IN. 25.14

e Estimated

CONNECTICUT RIVER BASIN

125

01163200 OTTER RIVER AT OTTER RIVER, MASS.

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.--24 years (water years 1966-89), 61.4 ft³/s, 24.45 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, 280 ft³/s, May 12; minimum, 7.1 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	30	90	35	32	31	e110	e80	e55	24	24	16
2	10	e140	72	33	35	30	e100	e150	e58	22	21	15
3	11	e170	60	32	34	28	e92	e210	e105	19	20	14
4	10	e135	54	27	32	26	e85	e170	e88	19	18	13
5	10	96	48	25	28	26	e85	e130	e70	18	20	12
6	12	81	42	24	25	27	e150	e155	e58	27	20	12
7	12	68	42	20	23	24	e230	e185	e66	28	24	11
8	14	52	42	23	21	21	e190	e140	e120	32	27	11
9	23	44	39	26	20	18	e160	e105	e150	30	23	11
10	23	41	36	23	21	19	e130	e100	e180	45	19	11
11	21	50	32	22	18	18	e105	e190	e170	126	28	9.6
12	20	45	26	22	17	19	e95	e265	e110	93	116	10
13	17	46	27	32	18	19	e80	e200	e95	53	209	10
14	17	76	29	27	23	20	e75	e150	e88	37	233	9.6
15	17	70	32	47	36	24	e70	e125	e86	38	179	51
16	16	58	33	44	e47	28	e120	e105	e140	30	120	73
17	15	60	30	35	e37	32	e150	e90	e150	42	78	68
18	15	71	28	33	e31	e39	e125	e75	e100	54	51	62
19	17	63	27	32	e25	e37	e105	e65	81	44	39	53
20	21	75	26	33	21	e36	e90	e58	70	35	36	58
21	21	e165	30	28	42	e36	e80	e52	57	38	32	74
22	65	e185	31	27	e160	e32	e70	e54	50	36	27	82
23	119	e150	29	24	e140	29	e65	e50	46	32	26	81
24	98	112	32	22	e90	e35	e55	e140	51	25	23	69
25	69	83	60	22	e65	e45	e50	e260	49	22	20	51
26	50	67	52	23	e50	e64	e46	e160	43	20	18	71
27	40	62	37	36	35	e82	e43	e120	38	19	16	127
28	38	91	43	30	32	e86	e40	e90	32	38	15	119
29	33	123	64	28	---	e90	e38	e75	29	65	15	81
30	27	112	49	30	---	e100	e50	e62	27	43	17	55
31	22	---	40	32	---	e105	---	e56	---	29	17	---
TOTAL	894	2621	1282	897	1158	1226	2884	3867	2462	1183	1531	1340.2
MEAN	28.8	87.4	41.4	28.9	41.4	39.5	96.1	125	82.1	38.2	49.4	44.7
MAX	119	185	90	47	160	105	230	265	180	126	233	127
MIN	10	30	26	20	17	18	38	50	27	18	15	9.6
CFSM	.85	2.56	1.21	.85	1.21	1.16	2.82	3.66	2.41	1.12	1.45	1.31
IN.	.98	2.86	1.40	.98	1.26	1.34	3.15	4.22	2.69	1.29	1.67	1.46

CAL YR 1988 TOTAL 18619.2 MEAN 50.9 MAX 320 MIN 8.9 CFSM 1.49 IN. 20.31
WTR YR 1989 TOTAL 21345.2 MEAN 58.5 MAX 265 MIN 9.6 CFSM 1.71 IN. 23.29

e Estimated

CONNECTICUT RIVER BASIN

01164000 MILLERS RIVER AT SOUTH ROYALSTON, MASS.

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 current year. 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.--50 years, 328 ft³/s, 23.57 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, 1,520 ft³/s, Apr. 8, gage height, 6.75 ft; minimum daily, 53 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	172	583	e255	e100	e190	1110	448	359	165	151	99
2	54	467	501	257	e105	e170	986	636	390	143	133	95
3	57	626	436	237	e110	e175	817	1160	540	125	126	92
4	55	588	394	e200	e110	180	665	1330	554	118	115	87
5	56	497	359	e180	e105	178	627	1200	481	117	139	83
6	67	465	323	e140	e100	182	812	1090	432	144	149	93
7	69	464	301	e105	e90	168	1180	1180	505	161	176	101
8	70	465	275	e105	e82	e160	1480	1330	588	172	191	99
9	95	406	259	e100	e100	e140	1450	1260	697	171	167	96
10	104	350	236	e100	e140	140	1320	957	830	192	139	89
11	100	340	246	e95	e135	134	1030	905	938	375	151	72
12	110	320	e225	e85	e125	137	820	1140	927	349	436	63
13	138	336	e220	e88	e120	138	660	1220	764	263	756	61
14	138	422	e215	e90	140	138	536	1170	663	209	1010	61
15	133	426	e210	e120	214	164	478	1080	591	204	995	156
16	130	378	e215	e125	e250	213	583	881	668	190	795	236
17	132	361	e220	e120	e220	219	776	727	767	189	592	243
18	130	394	e205	e110	e180	244	825	624	743	250	434	243
19	133	372	e190	e105	e160	278	784	536	643	238	335	219
20	129	384	e185	e95	e145	251	714	442	528	196	285	224
21	128	707	e185	e90	267	232	638	390	434	198	259	261
22	192	856	e180	e85	673	223	571	384	371	190	219	266
23	347	791	e185	e82	714	213	511	347	335	168	192	336
24	345	674	207	e80	597	206	458	456	389	144	170	342
25	300	533	298	e76	e400	252	413	780	357	128	143	301
26	252	485	e300	e72	e305	367	379	849	310	119	131	342
27	216	417	e280	e80	e245	423	357	742	270	110	116	531
28	194	452	287	e88	e205	364	341	608	238	206	107	519
29	185	559	354	e85	---	312	323	500	220	266	101	431
30	165	602	340	e85	---	334	382	413	192	239	109	359
31	148	---	e250	e90	---	609	---	361	---	184	106	---
TOTAL	4425	14309	8664	3625	6137	7134	22026	25146	15724	5923	8928	6200
MEAN	143	477	279	117	219	230	734	811	524	191	288	207
MAX	347	856	583	257	714	609	1480	1330	938	375	1010	531
MIN	53	172	180	72	82	134	323	347	192	110	101	61
MEAN†	143	483	274	116	219	263	702	811	523	191	288	208
CFSM†	.76	2.56	1.45	.61	1.16	1.39	3.71	4.29	2.77	1.01	1.52	1.10
IN.†	.87	2.85	1.67	.71	1.21	1.60	4.14	4.95	3.09	1.17	1.76	1.23

CAL YR 1988 TOTAL 105445 MEAN 288 MAX 1240 MIN 44 MEAN† 288 CFSM† 1.52 IN.† 20.76
WTR YR 1989 TOTAL 128241 MEAN 351 MAX 1480 MIN 53 MEAN† 351 CFSM† 1.86 IN.† 25.25

e Estimated

† Adjusted for change in contents in Birch Hill Reservoir.

CONNECTICUT RIVER BASIN

127

01165000 EAST BRANCH TULLY RIVER NEAR ATHOL, MASS.

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 current year. 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.--No estimated daily discharges. Records fair. Flow regulated by Tully Lake since 1948 (Reservoirs in Connecticut River basin).

AVERAGE DISCHARGE.--74 years, 81.9 ft³/s, 22.02 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, 660 ft³/s, May 9, gage height, 4.79 ft; minimum, 1.9 ft³/s, Apr. 13; minimum daily, 13 ft³/s, Mar. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	23	143	51	38	84	308	83	71	36	31	22
2	25	84	137	43	38	61	241	116	71	25	31	22
3	25	162	95	40	38	35	238	326	105	20	31	22
4	25	110	82	40	38	28	221	515	153	20	30	22
5	24	85	82	33	27	28	228	461	165	20	30	22
6	24	63	61	19	23	28	234	247	135	19	30	21
7	24	76	52	15	23	28	441	226	154	20	30	21
8	24	84	53	15	23	18	541	447	201	19	30	19
9	24	74	53	41	23	14	559	564	213	19	30	18
10	24	47	52	30	23	14	510	429	240	29	30	18
11	24	59	52	21	23	14	364	237	283	61	30	18
12	24	58	43	21	18	14	257	399	292	98	79	17
13	24	52	23	21	15	14	182	471	278	93	178	17
14	24	52	16	21	15	14	164	459	224	46	432	17
15	24	74	41	21	15	13	118	442	174	29	564	17
16	23	83	51	21	26	14	139	280	163	21	350	17
17	23	82	35	38	45	14	249	213	197	26	214	18
18	23	82	29	40	37	14	251	212	239	21	129	18
19	23	81	29	38	31	15	216	168	219	18	52	18
20	23	81	29	27	30	15	175	120	136	27	30	18
21	23	195	29	23	30	15	164	95	82	31	30	41
22	23	354	29	23	32	15	136	90	71	30	30	52
23	23	223	39	23	35	15	113	76	71	30	30	53
24	23	163	42	23	100	15	96	157	71	30	30	53
25	23	134	42	23	163	15	91	362	71	30	30	53
26	23	121	43	23	146	15	78	278	47	30	30	53
27	23	92	43	23	141	20	73	211	37	24	24	91
28	23	82	62	23	101	57	73	209	37	22	22	112
29	23	188	68	23	---	176	73	137	37	28	22	228
30	23	128	68	34	---	225	74	108	37	31	22	275
31	23	---	56	38	---	224	---	81	---	31	22	---
TOTAL	732	3192	1679	875	1297	1271	6607	8219	4274	984	2653	1393
MEAN	23.6	106	54.2	28.2	46.3	41.0	220	265	142	31.7	85.6	46.4
MAX	25	354	143	51	163	225	559	564	292	98	564	275
MIN	23	23	16	15	15	13	73	76	37	18	22	17
MEAN†	17.6	106	53.3	28.5	49.6	63.9	211	264	143	31.7	84.6	36.8
CFSM†	.35	2.10	1.06	.56	.98	1.27	4.18	5.23	2.83	.63	1.68	.73
IN.†	.40	2.34	1.22	.65	1.02	1.46	4.66	6.02	3.17	.72	1.93	.81

CAL YR 1988 TOTAL 26602 MEAN 72.7 MAX 547 MIN 13 MEAN† 72.9 CFSM† 1.44 IN.† 19.61
WTR YR 1989 TOTAL 33176 MEAN 90.9 MAX 564 MIN 13 MEAN† 90.8 CFSM† 1.80 IN.† 24.40

† Adjusted for change in contents in Tully Lake.

CONNECTICUT RIVER BASIN

01166105 WHETSTONE BROOK AT DEPOT ROAD AT WENDELL DEPOT, MASS.

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, 430 ft³/s, Mar. 31, 1987, from rating curve extended above 110 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)
Apr. 6	unknown	161	a4.66	June 10	0345	153	4.60
May 24	unknown	155	a4.62	Aug. 12	1915	*173	*4.75

a From crest-stage gage.

Minimum discharge, 1.5 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	5.6	11	6.4	6.2	e4.3	e25	e10	e12	5.4	4.7	3.3
2	1.8	31	10	e5.6	6.9	e3.9	e18	e62	e13	5.1	4.0	3.4
3	2.2	12	9.3	e5.0	6.2	e3.7	e17	e31	e12	4.5	3.4	3.1
4	1.9	7.5	8.7	e4.1	e5.0	e3.5	e18	e21	e9.5	4.3	3.2	3.1
5	2.2	5.8	8.1	e3.9	4.5	e3.4	e23	e18	e7.7	4.7	3.2	3.1
6	3.1	19	e7.7	e3.7	e4.2	e3.3	e80	e64	e10	7.0	6.9	2.9
7	2.8	13	e7.5	e3.8	e3.9	e3.3	e47	e30	e11	6.5	12	2.7
8	3.3	9.6	e7.0	e4.7	e3.7	e3.2	e30	e21	e12	6.4	7.3	2.7
9	4.2	7.6	e6.5	e5.0	e3.5	e3.2	e21	e18	19	5.3	4.9	2.7
10	4.0	6.6	e5.8	e4.7	e3.4	e3.3	e17	e20	79	7.9	4.1	2.7
11	3.9	7.1	e5.2	e4.4	e3.3	e3.3	e15	e66	28	8.2	33	2.6
12	3.4	6.2	e4.8	e4.5	3.3	e3.4	e13	e60	18	5.7	73	2.5
13	3.3	11	e4.9	e4.8	3.3	e3.5	e12	e35	20	4.7	48	2.4
14	3.1	17	e5.1	e5.2	4.4	e3.8	e11	e25	21	4.3	27	2.7
15	3.0	11	e5.3	e5.7	11	e4.4	e13	e19	20	3.9	17	15
16	2.7	8.8	e5.2	e5.0	12	e5.4	e37	e16	39	3.3	12	8.5
17	2.7	11	e5.1	e4.5	6.2	e4.6	e22	e14	24	6.1	9.1	9.9
18	2.8	12	e5.2	e4.3	5.3	e6.4	e17	e13	18	5.9	7.4	11
19	3.3	8.9	e5.3	e4.2	4.0	e5.8	e14	10	14	4.9	6.3	11
20	2.6	24	e5.6	e4.1	3.7	e5.0	e12	8.8	12	7.4	5.7	9.3
21	2.3	45	e5.9	e4.0	e26	e5.6	e11	8.0	10	11	5.2	11
22	5.4	20	e6.4	e3.9	e27	e5.8	e10	e7.6	9.6	7.1	5.3	9.5
23	5.0	14	e5.9	e4.0	e14	e6.4	e9.5	e7.4	10	4.9	6.4	7.4
24	4.0	12	e7.0	e4.1	e9.0	e7.4	e9.1	e84	18	4.1	7.6	10
25	3.3	11	18	4.2	e7.2	e10	e8.5	e45	13	3.4	5.4	6.9
26	2.9	9.5	11	4.5	e6.2	e17	e7.9	e28	10	3.1	4.5	21
27	2.6	9.3	8.1	7.3	e5.6	e16	6.6	e21	8.3	3.0	4.1	19
28	2.3	22	9.8	5.3	e4.8	e14	6.2	e16	7.5	10	4.1	11
29	2.4	19	12	5.2	---	e14	5.6	e12	7.4	8.6	3.7	8.9
30	2.1	13	8.4	5.2	---	e18	e12	e11	6.1	6.4	4.8	6.0
31	1.9	---	8.0	5.5	---	e24	---	e10	---	6.3	3.8	---
TOTAL	92.1	409.5	233.8	146.8	203.8	218.9	548.4	811.8	499.1	179.4	347.1	215.3
MEAN	2.97	13.6	7.54	4.74	7.28	7.06	18.3	26.2	16.6	5.79	11.2	7.18
MAX	5.4	45	18	7.3	27	24	80	84	79	11	73	21
MIN	1.6	5.6	4.8	3.7	3.3	3.2	5.6	7.4	6.1	3.0	3.2	2.4
CFSM	.57	2.61	1.44	.91	1.39	1.35	3.50	5.02	3.19	1.11	2.14	1.37
IN.	.66	2.92	1.67	1.05	1.45	1.56	3.91	5.79	3.56	1.28	2.47	1.53

CAL YR 1988 TOTAL 2916.4 MEAN 7.97 MAX 127 MIN 1.1 CFSM 1.53 IN. 20.78
WTR YR 1989 TOTAL 3906.0 MEAN 10.7 MAX 84 MIN 1.6 CFSM 2.05 IN. 27.84

e Estimated

CONNECTICUT RIVER BASIN

129

01166500 MILLERS RIVER AT ERVING, MASS.

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.--75 years, 631 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, 2,880 ft³/s, Apr. 6, gage height, 5.44 ft; minimum daily, 99 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	246	903	512	e200	387	1690	694	614	290	258	193
2	105	718	853	452	e210	367	1710	1410	690	276	223	170
3	118	910	740	402	e220	319	1390	2270	939	244	203	158
4	114	864	650	e380	e230	268	1220	2310	941	213	191	157
5	119	707	602	e350	e220	257	1190	2170	816	196	204	156
6	142	754	543	e280	e210	270	2200	2540	830	261	212	155
7	117	700	522	e230	e190	254	2570	2480	939	271	322	156
8	166	673	480	e210	e180	241	2740	2160	1080	266	285	164
9	165	621	457	e200	e215	249	2640	2350	1270	264	271	177
10	130	544	435	e195	249	198	2380	2000	1970	292	190	174
11	172	497	400	e190	346	189	1880	2150	1890	503	339	163
12	161	496	333	e180	283	192	1380	2490	1670	542	988	145
13	184	502	357	e170	206	198	1160	2480	1430	462	1660	101
14	198	659	377	e200	213	197	945	2220	1330	348	1800	128
15	188	664	361	e230	316	216	830	2000	1130	280	1920	239
16	199	614	e360	e250	408	272	1120	1640	1390	267	1620	280
17	196	595	e350	e225	350	283	1370	1290	1430	295	1090	335
18	192	625	e340	e200	322	311	1460	1120	1320	356	715	346
19	195	600	e345	e190	287	362	1340	930	1160	340	555	323
20	196	685	e350	e185	236	355	1190	791	943	308	440	325
21	185	1420	e360	e180	497	323	1040	688	720	330	399	354
22	244	1580	372	e175	1240	293	930	642	611	309	318	377
23	375	1420	452	e170	1020	295	811	587	560	264	324	384
24	431	1080	438	e160	873	278	730	1240	610	234	313	489
25	401	930	520	e150	767	326	662	2020	595	215	290	425
26	354	790	576	e160	568	501	610	1770	528	180	232	529
27	304	712	612	e170	500	659	570	1440	439	197	227	758
28	282	816	563	e180	438	709	544	1190	394	272	182	749
29	255	979	620	e170	---	719	525	915	372	327	174	663
30	244	1030	643	e175	---	849	620	753	335	374	191	700
31	235	---	590	e185	---	900	---	637	---	323	198	---
TOTAL	6466	23431	15504	7106	10994	11237	39447	49377	28946	9299	16334	9473
MEAN	209	781	500	229	393	362	1315	1593	965	300	527	316
MAX	431	1580	903	512	1240	900	2740	2540	1970	542	1920	758
MIN	99	246	333	150	180	189	525	587	335	180	174	101

CAL YR 1988 TOTAL 189684 MEAN 518 MAX 2180 MIN 64
WTR YR 1989 TOTAL 227614 MEAN 624 MAX 2740 MIN 99

e Estimated

CONNECTICUT RIVER BASIN

01168151 DEERFIELD RIVER NEAR ROWE, MASS.

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.--15 years, 737 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, 10,900 ft³/s, May 6, gage height, 11.61 ft; minimum daily, 78 ft³/s, Oct. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	361	715	1270	322	660	759	306	641	867	454	379	533
2	114	1170	1010	606	648	692	255	2620	994	371	398	88
3	400	1060	1070	905	681	760	458	3990	1260	618	480	89
4	394	670	990	912	560	726	793	1700	1100	288	530	189
5	268	793	1020	857	588	748	1150	1720	1150	727	236	540
6	403	1180	571	905	662	760	1660	6010	940	867	100	613
7	415	1020	988	977	702	702	835	4520	1240	899	617	589
8	123	821	1010	817	499	764	390	2480	1170	368	634	552
9	157	787	1010	886	515	737	204	968	1530	332	595	255
10	408	438	997	837	536	714	251	1320	3110	749	615	280
11	482	562	973	814	486	747	211	2780	2400	950	645	546
12	650	401	953	923	321	732	264	1810	2230	984	1020	520
13	552	572	989	838	650	763	324	1640	1910	986	1150	586
14	380	846	980	803	681	701	193	1540	1520	849	758	389
15	81	1030	752	881	725	699	170	1500	2320	692	590	532
16	118	997	958	625	502	802	854	782	2100	722	623	506
17	180	1020	680	743	678	480	463	140	1040	1000	510	245
18	231	996	682	624	657	737	984	216	1820	890	437	89
19	203	990	841	561	327	545	1280	201	1150	1010	241	534
20	208	1200	609	731	673	690	1370	146	1070	976	226	828
21	297	2070	387	536	1120	674	1070	81	973	988	593	1110
22	709	2360	632	565	820	649	876	427	918	731	571	1170
23	78	2080	639	647	567	618	513	548	970	626	497	642
24	570	1690	144	711	720	592	715	1170	742	670	753	384
25	603	1330	83	720	564	470	745	392	687	678	522	576
26	655	1180	235	666	659	665	344	547	921	672	127	982
27	498	1210	668	733	790	588	165	449	772	966	247	712
28	573	1430	684	697	747	750	208	402	676	224	571	416
29	162	1270	344	538	---	1440	123	476	750	502	621	544
30	80	1270	730	723	---	1340	323	762	379	392	620	370
31	463	---	599	676	---	326	---	965	---	389	558	---
TOTAL	10816	33158	23498	22779	17738	22370	17497	42943	38709	21570	16464	15409
MEAN	349	1105	758	735	633	722	583	1385	1290	696	531	514
MAX	709	2360	1270	977	1120	1440	1660	6010	3110	1010	1150	1170
MIN	78	401	83	322	321	326	123	81	379	224	100	88

CAL YR 1988 TOTAL 228618 MEAN 625 MAX 2910 MIN 76
WTR YR 1989 TOTAL 282951 MEAN 775 MAX 6010 MIN 78

CONNECTICUT RIVER BASIN

131

01168500 DEERFIELD RIVER AT CHARLEMONT, MASS.

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.--76 years, 899 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, 10,900 ft³/s, May 6, gage height, 8.64 ft; minimum daily, 111 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	365	698	1140	417	714	729	856	677	1040	533	392	552
2	111	2090	1140	691	762	742	624	3880	1410	398	409	174
3	430	1370	1150	891	694	736	983	4500	1680	637	445	133
4	361	890	1070	922	620	741	1230	2010	1290	439	508	215
5	338	944	1070	955	622	733	1660	1850	1300	662	313	444
6	331	1940	695	1070	636	758	2850	6570	1090	997	157	586
7	411	1340	1060	942	656	738	1810	5220	1400	960	500	557
8	218	1070	1070	873	562	701	1050	2810	1540	563	662	528
9	133	1030	1060	879	557	713	642	1420	1730	341	581	328
10	395	639	1020	858	570	714	614	1650	4350	e620	581	191
11	482	662	970	e760	500	717	526	3690	2680	e1300	588	565
12	608	459	975	e900	291	721	532	2630	2310	e1050	1360	495
13	714	808	959	e820	643	760	567	2160	2170	e980	1650	487
14	375	1220	1020	e780	690	731	438	1940	1830	e900	1040	466
15	187	1210	804	e900	824	868	447	1800	2470	e620	746	449
16	151	1170	1030	e780	613	1050	1520	1300	2720	e600	657	557
17	206	1190	773	e720	651	597	1250	568	1570	e1100	608	215
18	224	1180	742	e540	661	844	1250	549	2020	e760	485	267
19	265	1120	895	e680	402	660	1520	495	1490	975	304	482
20	235	1690	663	752	552	734	1570	402	1310	946	171	693
21	249	2970	444	633	1390	726	1370	310	1100	998	659	1100
22	992	2490	696	617	1270	723	1080	597	1110	772	596	1080
23	457	2170	748	620	711	662	819	573	1200	661	580	825
24	644	1800	317	677	792	651	802	1550	1360	676	744	401
25	566	1440	290	746	680	523	990	1060	911	650	502	493
26	780	1340	273	698	599	928	517	750	1100	633	226	1050
27	554	1270	812	710	892	1120	354	807	884	897	199	928
28	645	1760	696	841	681	1680	372	598	815	369	555	467
29	248	1170	637	485	---	2240	298	560	838	636	593	499
30	207	1150	768	696	---	1800	576	875	582	328	650	400
31	396	---	743	730	---	791	---	1050	---	504	563	---
TOTAL	12278	40280	25730	23583	19235	26831	29117	54851	47300	22505	18024	15627
MEAN	396	1343	830	761	687	866	971	1769	1577	726	581	521
MAX	992	2970	1150	1070	1390	2240	2850	6570	4350	1300	1650	1100
MIN	111	459	273	417	291	523	298	310	582	328	157	133

CAL YR 1988 TOTAL 281958 MEAN 770 MAX 3600 MIN 90
WTR YR 1989 TOTAL 335361 MEAN 919 MAX 6570 MIN 111

e Estimated

CONNECTICUT RIVER BASIN

01169000 NORTH RIVER AT SHATTUCKVILLE, MASS.

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 fair. 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.--50 years, 185 ft³/s, 28.23 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)
May 2	1330	3,170	6.76	June 10	0500	3,300	6.85
May 6	1115	*3,490	*6.97				

Minimum discharge, 18 ft³/s, Oct. 1; minimum daily, 20 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	114	215	e97	79	e57	423	182	158	79	36	32
2	21	1210	191	84	126	e56	334	1560	278	70	33	41
3	23	369	177	81	86	e52	426	774	306	64	31	38
4	22	225	164	e78	82	45	612	427	180	60	30	30
5	22	196	e140	e75	e64	47	618	334	151	89	32	28
6	23	1000	e135	e74	e58	53	1350	1890	194	153	39	26
7	23	408	154	e72	52	41	813	855	224	142	46	25
8	26	281	143	68	56	e42	442	518	370	133	37	24
9	32	214	123	e71	e49	e47	326	401	340	87	31	24
10	32	183	e105	e64	e48	52	279	375	1710	188	28	24
11	32	189	e86	e58	e42	56	228	1320	552	212	72	22
12	35	158	e63	e54	e40	55	199	1010	349	101	404	22
13	30	261	e68	e69	e40	46	184	679	472	78	430	20
14	27	429	e75	e69	45	62	177	490	448	78	285	21
15	25	255	e88	76	99	219	191	389	478	113	149	52
16	25	204	e76	89	111	207	680	335	772	82	100	40
17	25	280	e72	72	75	160	446	300	516	74	74	49
18	27	245	e70	67	63	228	357	254	358	67	58	47
19	34	193	e77	67	e51	162	308	219	280	59	51	39
20	31	515	e88	67	e42	96	258	194	229	58	49	100
21	27	1110	94	61	239	86	226	176	196	96	63	112
22	607	446	e100	e63	468	71	207	159	176	75	60	67
23	357	325	e90	e57	184	69	182	138	171	60	62	72
24	163	270	93	e56	110	73	171	416	249	50	59	63
25	119	230	156	e57	106	127	161	376	174	45	44	46
26	94	207	e130	e52	72	454	154	240	138	41	38	112
27	81	199	e105	69	65	551	151	206	126	37	35	113
28	74	432	111	e61	63	736	146	171	107	86	33	65
29	80	325	175	e57	---	899	140	144	96	70	33	51
30	70	245	e125	59	---	446	197	128	84	47	46	43
31	64	---	e110	64	---	322	---	130	---	40	39	---
TOTAL	2272	10718	3599	2108	2615	5617	10386	14790	9882	2634	2527	1448
MEAN	73.3	357	116	68.0	93.4	181	346	477	329	85.0	81.5	48.3
MAX	607	1210	215	97	468	899	1350	1890	1710	212	430	113
MIN	21	114	63	52	40	41	140	128	84	37	28	20
CFSM	.82	4.01	1.30	.76	1.05	2.04	3.89	5.36	3.70	.95	.92	.54
IN.	.95	4.48	1.50	.88	1.09	2.35	4.34	6.18	4.13	1.10	1.06	.61

CAL YR 1988 TOTAL 61772 MEAN 169 MAX 1960 MIN 17 CFSM 1.90 IN. 25.82
WTR YR 1989 TOTAL 68596 MEAN 188 MAX 1890 MIN 20 CFSM 2.11 IN. 28.67

e Estimated

CONNECTICUT RIVER BASIN

133

01169900 SOUTH RIVER NEAR CONWAY, MASS.

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.--23 years, 52.1 ft³/s, 29.36 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)
Nov. 1	2345	678	5.15	May 6	1000	*1,110	5.94
Nov. 20	2315	926	5.63	May 11	0630	838	5.47
Feb. 21	1715	Ice jam	*8.14	June 10	0230	984	5.73
May 2	1230	828	5.45				

Minimum discharge, 6.1 ft³/s, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	74	60	e26	e20	e19	134	64	81	30	14	10
2	8.8	240	55	e24	e35	e18	77	312	69	28	13	13
3	9.3	70	52	e21	e25	e17	79	134	61	25	12	11
4	9.2	49	48	e17	e20	e16	94	91	48	24	12	9.9
5	9.3	62	45	e21	e17	e15	104	81	42	30	11	9.6
6	10	200	49	e20	e16	e14	237	428	57	38	11	9.3
7	9.8	74	e42	e19	e15	e13	148	161	57	29	13	9.0
8	13	57	43	e18	e16	e12	101	113	70	24	12	9.0
9	14	50	e38	e17	e15	e13	85	98	112	21	10	8.8
10	12	46	e30	e17	e14	e14	77	115	385	47	9.8	8.7
11	11	44	e24	e16	e13	e15	67	415	109	57	75	8.6
12	11	40	e18	e15	e12	e13	61	225	77	28	181	8.4
13	10	99	e19	e18	e11	e15	59	154	137	23	117	8.2
14	10	91	e20	e19	e13	e17	57	120	114	21	77	8.9
15	10	59	e22	e20	e25	e32	62	103	133	19	40	41
16	10	51	e21	e24	e28	30	206	114	242	18	31	16
17	10	64	e20	e21	e23	24	117	123	125	24	25	22
18	10	56	e19	e19	e18	35	94	88	95	22	21	22
19	11	48	e21	e18	e14	29	83	74	80	18	19	19
20	11	236	e24	e18	e12	20	72	66	69	21	19	39
21	10	248	e25	e17	e50	20	67	59	61	60	18	27
22	195	107	e27	e17	e110	e18	62	52	63	29	16	20
23	56	89	e25	e16	e50	e18	57	47	75	23	18	25
24	31	79	e26	e15	e30	20	54	260	103	18	16	23
25	25	71	e40	e15	e25	48	51	143	65	17	14	16
26	21	66	e35	e14	e23	126	48	84	51	15	13	56
27	19	63	e29	e18	e21	130	47	76	46	14	12	34
28	18	117	e30	e18	e20	150	46	67	41	41	12	22
29	18	78	e43	e16	---	110	45	57	38	22	12	19
30	17	65	e35	e15	---	112	96	53	33	17	14	16
31	17	---	e29	e17	---	102	---	61	---	17	12	---
TOTAL	635.1	2693	1014	566	691	1235	2587	4038	2739	820	879.8	549.4
MEAN	20.5	89.8	32.7	18.3	24.7	39.8	86.2	130	91.3	26.5	28.4	18.3
MAX	195	248	60	26	110	150	237	428	385	60	181	56
MIN	8.7	40	18	14	11	12	45	47	33	14	9.8	8.2
CFSM	.85	3.72	1.36	.76	1.02	1.65	3.58	5.40	3.79	1.10	1.18	.76
IN.	.98	4.16	1.57	.87	1.07	1.91	3.99	6.23	4.23	1.27	1.36	.85

CAL YR 1988 TOTAL 16757.3 MEAN 45.8 MAX 350 MIN 6.7 CFSM 1.90 IN. 25.87
WTR YR 1989 TOTAL 18447.3 MEAN 50.5 MAX 428 MIN 8.2 CFSM 2.10 IN. 28.47

e Estimated

CONNECTICUT RIVER BASIN

01170000 DEERFIELD RIVER NEAR WEST DEERFIELD, MASS.

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.--No estimated daily discharges. Records good. Flow regulated since 1913 by Somerset Reservoir, since 1924 by Harriman Reservoir (Reservoirs in Connecticut River basin), and by several powerplants upstream.

AVERAGE DISCHARGE.--49 years (water years 1941-89), 1,296 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, 14,800 ft³/s, May 6, gage height, 8.16 ft; minimum daily, 190 ft³/s, Oct. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	486	1010	1630	698	974	905	1770	1190	1670	844	526	686
2	348	4540	1640	980	1150	978	1280	6700	2100	724	681	361
3	466	2230	1640	1110	878	789	1690	7000	3000	835	469	294
4	432	1460	1570	1110	940	1030	2230	3210	1940	697	747	263
5	459	1350	1500	1040	756	968	2890	2620	1850	1040	449	667
6	456	3910	1090	1340	732	903	5350	10100	1650	1440	292	721
7	508	2240	1410	1570	974	898	3830	8300	2260	1360	642	616
8	336	1660	1510	1340	704	826	2000	4210	2520	971	870	671
9	290	1690	1420	1120	708	945	1450	2660	2800	610	738	478
10	428	986	1380	1180	710	873	1270	2350	8820	1160	715	299
11	585	1050	1310	1040	723	843	1070	6810	4480	1990	1130	609
12	698	936	1200	1490	611	943	928	5070	3490	1400	2580	667
13	780	1260	1330	1040	627	863	942	3740	3650	1310	3030	575
14	498	2300	1380	1010	876	924	840	3170	3140	1260	1950	687
15	290	1870	1160	1260	1200	1170	863	2760	3830	927	1300	737
16	190	1730	1270	1090	1100	1700	2840	2450	5160	990	1030	730
17	347	1710	1180	938	780	960	2440	1380	2910	1460	761	557
18	246	1880	1140	719	928	1190	1990	1140	3150	1040	584	510
19	348	1630	1400	878	577	1130	2230	1040	2440	1420	608	595
20	362	2640	1180	960	584	1010	2240	870	1810	1270	381	1020
21	315	5620	779	864	2300	1050	2080	772	1760	1310	791	1590
22	2240	3880	1030	701	2760	934	1550	1060	1650	1140	829	1460
23	1420	3110	1050	1010	1130	756	1370	919	1660	936	849	1210
24	878	2740	739	826	1010	1110	1150	2850	2390	935	956	617
25	895	2020	825	973	852	916	1460	2570	1620	888	771	658
26	944	2020	599	952	814	1850	893	1350	1570	836	417	1530
27	886	1810	1030	866	1150	2100	801	1460	1260	1060	402	1500
28	802	2760	1210	1070	866	3080	735	1220	1360	786	597	389
29	418	2070	1140	686	---	4070	690	1010	1190	797	760	709
30	466	1760	1140	887	---	3020	1250	1230	873	470	834	670
31	515	---	1080	958	---	1950	---	1660	---	668	805	---
TOTAL	18332	65872	37962	31706	27414	40684	52122	92871	78003	32574	27494	22076
MEAN	591	2196	1225	1023	979	1312	1737	2996	2600	1051	887	736
MAX	2240	5620	1640	1570	2760	4070	5350	10100	8820	1990	3030	1590
MIN	190	936	599	686	577	756	690	772	873	470	292	263

CAL YR 1988 TOTAL 438650 MEAN 1198 MAX 7640 MIN 190
WTR YR 1989 TOTAL 527110 MEAN 1444 MAX 10100 MIN 190

CONNECTICUT RIVER BASIN

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01170100 GREEN RIVER NEAR COLRAIN, MASS.

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.--22 years, 90.8 ft³/s, 29.78 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)
Nov. 2	0130	863	4.69	May 11	0815	843	4.66
May 2	1300	1,180	5.13	June 10	0500	1,130	5.06
May 6	1030	*1,770	*5.85				

Minimum discharge, 10 ft³/s, Oct. 1, 2, 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	70	98	e37	33	e31	201	86	74	40	19	17
2	10	515	87	e35	57	30	160	622	95	43	18	21
3	11	163	81	e35	37	29	217	323	105	39	17	19
4	11	101	74	e29	e27	27	302	205	70	33	17	17
5	11	85	64	e28	e24	e27	331	166	61	47	18	15
6	12	361	e64	e28	28	e23	592	806	85	68	22	15
7	12	160	e66	e28	26	e19	364	384	93	58	26	14
8	13	110	63	e28	24	e21	220	256	153	69	19	14
9	15	88	e55	e27	23	23	166	207	142	45	17	13
10	15	76	e41	e27	e22	e22	143	193	592	83	16	13
11	15	81	e33	e27	e20	e25	118	578	230	101	56	13
12	15	68	e30	26	e18	e29	105	529	147	54	155	12
13	14	119	e30	e32	e18	29	97	337	187	42	160	12
14	13	171	e35	e32	e20	e26	92	252	189	42	133	12
15	12	108	e35	e39	e46	e100	100	208	214	42	60	25
16	12	88	e35	e49	e50	e95	313	178	332	37	44	19
17	12	127	e33	36	e35	e68	231	159	237	35	34	24
18	12	108	e32	33	e25	e86	184	136	167	33	29	23
19	15	85	e35	32	e22	e65	156	119	134	30	26	20
20	15	202	e40	31	e20	e48	132	107	114	30	27	52
21	13	395	e44	27	e100	e40	117	93	99	40	33	49
22	281	181	e44	e25	e230	e35	108	83	86	33	29	30
23	156	136	42	e25	e110	e33	95	74	78	29	27	31
24	69	115	e44	e25	e60	e29	88	203	102	26	25	28
25	52	99	e70	e25	e50	69	84	167	79	24	21	22
26	41	89	e61	27	e40	180	80	115	66	22	20	47
27	36	86	46	e30	e36	230	77	99	61	22	18	46
28	32	193	e56	e30	e33	355	75	83	53	32	18	30
29	33	144	e68	29	---	439	72	72	49	26	18	25
30	31	112	e58	28	---	215	89	65	43	22	22	22
31	30	---	e40	30	---	148	---	66	---	20	18	---
TOTAL	1029	4436	1604	940	1234	2596	5109	6971	4137	1267	1162	700
MEAN	33.2	148	51.7	30.3	44.1	83.7	170	225	138	40.9	37.5	23.3
MAX	281	515	98	49	230	439	592	806	592	101	160	52
MIN	10	68	30	25	18	19	72	65	43	20	16	12
CFSM	.80	3.57	1.25	.73	1.06	2.02	4.11	5.43	3.33	.99	.91	.56
IN.	.92	3.99	1.44	.84	1.11	2.33	4.59	6.26	3.72	1.14	1.04	.63

CAL YR 1988 TOTAL 26905.5 MEAN 73.5 MAX 695 MIN 8.7 CFMS 1.78 IN. 24.18
WTR YR 1989 TOTAL 31185 MEAN 85.4 MAX 806 MIN 10 CFMS 2.06 IN. 28.02

e Estimated

CONNECTICUT RIVER BASIN

01170500 CONNECTICUT RIVER AT MONTAGUE CITY, MASS.

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 excellent. 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.--85 years, 13,810 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, 77,700 ft³/s, Apr. 7, gage height, 27.76 ft; minimum daily, 2,270 ft³/s, Aug. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4680	10400	18100	6050	5190	5750	35400	16000	13800	5550	5180	5150
2	3050	18100	16800	6550	6570	4980	27700	29800	16100	5860	5800	3430
3	5040	20100	15400	7700	7990	5900	29800	58300	16100	5830	4680	2640
4	4840	19400	13700	8230	7460	5020	31100	51800	16000	6430	3030	6050
5	4530	15100	14100	9890	4550	5170	38100	44700	14800	8000	5050	6960
6	4290	16100	11500	7640	5730	6400	59300	58600	16300	9650	13800	5990
7	4080	26100	11400	3440	6690	7950	73500	75600	19200	11100	20200	5640
8	3710	21400	11000	3470	5680	5380	71500	66700	25000	6090	16100	5250
9	2440	20700	12900	7910	6790	3660	59800	53400	25400	4730	16300	3510
10	3720	16900	8800	8060	6330	4530	51000	42100	41500	8330	12000	2660
11	4610	12600	e6800	7070	4800	4350	38400	42800	36700	13700	8700	6890
12	6220	11800	e9800	7110	3460	3890	30800	45500	31300	14900	19500	3850
13	6450	11900	e6800	4850	6090	5560	24400	53500	29500	13900	20500	3830
14	5760	17000	e7300	5720	6560	5330	23100	48500	26300	8310	29100	4970
15	2810	18000	e6200	4170	7070	7300	19200	41600	24300	3940	27000	7190
16	2370	19500	e8000	7050	6960	13300	22700	32400	25300	3470	20500	6710
17	4470	17600	e6200	5720	5460	17500	31300	27500	32400	7840	10900	4990
18	5490	13100	e5400	6840	4320	12700	30600	24100	23500	7310	13800	8080
19	6270	15100	e7800	7480	2830	11500	35400	17400	23400	6710	7270	9700
20	5840	16300	e7000	6760	3310	10700	35900	18400	19000	7120	6220	11600
21	7370	30100	6950	4660	12000	9720	32600	16300	16200	7090	9070	15600
22	9680	36100	7930	4420	19000	9310	25500	14800	14300	6320	8480	18400
23	10500	31100	8730	5530	11400	9250	24300	15400	14100	4190	7100	18000
24	8080	24700	4950	5880	14200	10600	18800	18600	13500	4510	7670	10800
25	10100	19300	5390	5210	9370	10900	17900	21900	10300	5040	8260	11000
26	9580	17700	6560	5680	7160	7980	17600	17300	11600	5170	3730	13000
27	8850	15200	9750	6120	7130	18000	16100	13300	13400	5200	2270	12500
28	7960	16100	7510	4850	5450	22800	15600	13700	11100	5130	4400	11000
29	4460	20400	8210	3370	---	43000	15200	15500	9860	4760	6040	9790
30	2650	19700	9910	4910	---	48400	14600	14200	8950	4350	8080	4460
31	5400	---	6830	5390	---	34900	---	13700	---	5040	6280	---
TOTAL	175300	567600	287720	187730	199550	371730	967200	1023400	599210	215570	337010	239640
MEAN	5655	18920	9281	6056	7127	11990	32240	33010	19970	6954	10870	7988
MAX	10500	36100	18100	9890	19000	48400	73500	75600	41500	14900	29100	18400
MIN	2370	10400	4950	3370	2830	3660	14600	13300	8950	3470	2270	2640

CAL YR 1988 TOTAL 4454240 MEAN 12170 MAX 69700 MIN 2370
WTR YR 1989 TOTAL 5171660 MEAN 14170 MAX 75600 MIN 2270

e Estimated

CONNECTICUT RIVER BASIN

137

01171300 FORT RIVER NEAR AMHERST, MASS.

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.--23 years, 58.0 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)
Apr. 7	--	550	unknown	May 12	--	600	unknown
May 2	--	650	unknown	May 25	unknown	*967	*a6.54
May 6	1745	549	4.82	Aug. 14	0200	614	5.14

a From peak-stage indicator.

Minimum discharge, 6.2 ft³/s, Oct. 1-3; minimum daily, 6.2 ft³/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	23	75	e31	34	e30	158	e100	e80	28	20	15
2	6.2	162	63	28	41	e30	114	e500	e95	27	18	14
3	8.7	85	57	27	e35	e30	97	e247	e140	24	17	14
4	8.6	52	51	e22	e36	e30	107	146	e110	23	16	13
5	7.0	36	44	e20	e30	e25	120	106	e90	26	14	12
6	7.9	68	39	e20	e26	e20	e245	345	e80	47	15	11
7	8.4	64	41	e20	e23	e20	e400	302	e100	37	17	11
8	10	46	41	e22	e21	e20	e300	167	e150	31	15	11
9	12	38	37	e25	e17	e19	e200	129	e200	27	12	11
10	11	33	33	e25	e12	e19	e150	e126	e250	30	11	10
11	9.3	38	33	e23	e14	e19	e125	e200	e230	38	67	9.5
12	8.4	33	e26	e23	15	e20	e100	e450	e200	30	298	9.0
13	8.4	48	e28	e25	e14	e20	e95	e300	e120	24	388	8.1
14	8.4	100	e30	e27	20	e20	e90	e200	e110	20	361	15
15	8.4	63	e34	e40	54	e25	e85	e150	e110	18	124	82
16	8.4	46	e30	e60	69	e26	e150	e130	e207	16	79	55
17	8.4	63	e28	e45	e42	26	e200	e120	162	27	59	54
18	8.4	80	e25	e35	e26	35	e150	e100	116	28	48	43
19	8.4	55	e25	e30	24	40	e130	e85	84	25	41	35
20	8.1	115	e25	e30	e21	28	e120	e70	65	30	36	53
21	7.1	302	e27	e25	150	28	e100	e65	56	92	29	91
22	37	162	27	e25	234	30	e90	e60	51	58	25	78
23	30	101	21	e22	85	30	e80	e60	57	42	24	67
24	20	73	27	e21	e55	35	e70	e90	96	28	22	54
25	15	59	69	495	e45	e60	e65	e700	74	20	20	40
26	14	51	49	20	e40	e70	e60	e350	55	17	17	128
27	12	48	41	25	e35	113	e55	e200	46	15	16	142
28	11	123	46	24	e35	111	e50	e150	42	33	16	89
29	10	127	66	24	---	109	e55	e120	41	40	15	56
30	10	93	48	28	---	118	e80	e95	32	27	19	43
31	9.5	---	42	31	---	145	---	e80	---	23	20	---
TOTAL	346.2	2387	1228	1318	1253	1351	3841	5943	3249	951	1879	1273.6
MEAN	11.2	79.6	39.6	42.5	44.7	43.6	128	192	108	30.7	60.6	42.5
MAX	37	302	75	495	234	145	400	700	250	92	388	142
MIN	6.2	23	21	20	12	19	50	60	32	15	11	8.1

CAL YR 1988 TOTAL 16044.3 MEAN 43.8 MAX 412 MIN 3.2
WTR YR 1989 TOTAL 25019.8 MEAN 68.5 MAX 700 MIN 6.2

e Estimated

CONNECTICUT RIVER BASIN

01171500 MILL RIVER AT NORTHAMPTON, MASS.

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 fair except those for estimated daily discharges, which are poor. Prior to 1956, flow regulated by mill upstream.

AVERAGE DISCHARGE.--51 years, 96.5 ft³/s, 24.27 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)
May 6	1145	*1,910	*5.99	June 10	0400	1,520	5.35

Minimum discharge, 9.7 ft³/s, Oct. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	59	98	e65	50	e36	234	118	123	51	32	22
2	14	332	90	e60	54	35	141	569	102	48	29	23
3	15	118	86	e55	52	34	129	312	94	43	29	21
4	14	77	80	e50	45	33	150	175	77	38	27	19
5	14	58	73	e45	41	34	182	148	69	45	26	18
6	13	217	70	e40	40	36	491	873	107	62	25	18
7	15	96	69	e37	36	32	329	351	127	51	27	18
8	20	74	69	e37	35	e31	211	207	123	41	26	18
9	27	65	64	e45	e32	29	172	168	172	36	23	17
10	21	65	59	e40	e30	28	153	184	813	119	21	16
11	34	65	57	e36	e28	29	130	758	224	145	125	16
12	36	59	e54	e33	e27	33	118	428	145	62	363	16
13	35	121	e52	e35	e27	31	111	274	182	48	248	15
14	34	182	e60	e38	32	32	104	210	188	41	146	24
15	33	103	65	e45	65	41	107	179	185	37	85	98
16	19	84	62	e45	70	50	362	194	371	35	67	44
17	16	99	e60	e42	45	44	212	252	205	58	55	40
18	17	102	e60	e40	37	59	162	167	155	52	44	36
19	19	92	e62	e40	31	64	144	139	126	42	39	34
20	16	286	66	e40	31	44	124	119	108	72	37	63
21	15	509	e66	e38	191	45	112	107	95	229	36	82
22	276	185	e64	e37	187	42	105	98	122	87	33	61
23	123	149	e62	e36	89	41	96	85	158	62	29	64
24	59	130	e60	e34	57	44	91	595	212	49	27	50
25	46	131	e90	e33	e52	77	86	393	114	45	24	36
26	36	131	e82	e37	e44	148	82	189	91	37	23	121
27	33	126	e75	46	42	157	79	160	90	34	22	90
28	31	197	e70	41	40	163	76	139	73	66	22	49
29	30	141	e100	40	---	162	74	112	69	51	22	41
30	28	108	e80	44	---	168	168	101	58	38	27	36
31	26	---	e75	46	---	179	---	101	---	35	25	---
TOTAL	1128	4161	2180	1300	1510	1981	4735	7905	4778	1859	1764	1206
MEAN	36.4	139	70.3	41.9	53.9	63.9	158	255	159	60.0	56.9	40.2
MAX	276	509	100	65	191	179	491	873	813	229	363	121
MIN	13	58	52	33	27	28	74	85	58	34	21	15
CFSM	.67	2.57	1.30	.78	1.00	1.18	2.92	4.72	2.95	1.11	1.05	.74
IN.	.78	2.87	1.50	.90	1.04	1.36	3.26	5.45	3.29	1.28	1.22	.83

CAL YR 1988 TOTAL 29252.9 MEAN 79.9 MAX 614 MIN 9.9 CFSM 1.48 IN. 20.15
WTR YR 1989 TOTAL 34507 MEAN 94.5 MAX 873 MIN 13 CFSM 1.75 IN. 23.77

e Estimated

CONNECTICUT RIVER BASIN

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01172003 CONNECTICUT RIVER BELOW HOLYOKE DAM AT HOLYOKE, MASS.

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.--5 years (water years 1985-89), 10,570 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, 80,200 ft³/s, May 7, gage height, 16.52 ft; minimum daily, 2,000 ft³/s, Aug. 4, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4010	6380	14100	5390	4510	e4200	30700	13300	11900	5980	3840	2880
2	3040	11500	13000	5680	5880	e4000	27900	17700	13800	4830	4440	3570
3	3580	14900	11500	6410	6830	e3800	24200	50400	14000	6110	4710	2170
4	4370	16600	10000	5640	8390	e3700	26500	54400	13400	5580	2000	3140
5	4230	13000	9800	e4500	3500	e3600	30300	43800	12500	7840	3070	5810
6	3730	12300	8680	e3700	4890	e3500	48700	50900	11800	7510	7970	4980
7	3120	18200	7410	e3100	e4700	e3450	72500	76800	15300	10400	12300	4620
8	3670	19200	8620	2480	e4500	e3400	76600	73800	18100	8620	9510	4120
9	3070	16500	7950	4290	e4300	e3350	65100	57900	22500	4420	9320	3650
10	2160	13800	7970	6560	e4100	3320	51800	43300	33700	5400	8760	2080
11	4470	10500	5870	e6000	e3900	3510	40200	40700	38200	9250	5690	3730
12	4260	8730	e5000	e5300	e3800	3780	29300	44700	29700	9290	11900	3820
13	5680	8670	e4200	e4600	3650	3730	22700	51700	26600	8900	15300	3410
14	5900	10900	3470	3930	5650	5120	20900	49500	24300	6090	19800	2840
15	4090	13400	4870	5110	4640	5710	16700	40800	22000	4150	23300	5990
16	2260	14500	5320	5300	5030	8670	18000	31100	22300	2820	16500	5370
17	2420	14100	e4000	6100	3590	13500	25000	26500	26100	5220	10000	4700
18	4210	11100	2870	5560	3010	11800	28600	22400	24400	7360	9090	5870
19	6080	10200	4520	6650	3420	8760	28800	16300	20500	5110	5070	8040
20	5250	11300	5770	7090	2270	8660	31500	15900	17500	5730	5030	8470
21	6170	22400	6630	4790	6530	7330	29700	15200	14300	6830	6780	11300
22	7800	31500	6840	3540	13700	6720	24100	13800	12200	5850	7490	11900
23	11300	28000	8710	e3400	11000	8730	20600	13400	11900	4860	5100	12200
24	7720	23300	6170	e3300	8990	8140	17500	17000	13100	3330	4610	10600
25	8300	17200	3990	e3200	e7200	9570	14400	22600	10700	3700	6230	8790
26	9370	14200	5610	e3100	e5800	7590	13800	17800	9030	4220	4780	10600
27	8550	11400	8400	6050	e5000	11400	12800	13400	9220	4620	2000	11200
28	8140	11900	7590	4680	e4300	14900	11600	13600	8360	3810	2140	10700
29	5970	14600	7410	3480	---	31500	11500	14500	7770	4030	4220	7460
30	2690	16500	8450	3880	---	44700	14200	13100	8690	3630	5960	6600
31	3760	---	6980	4740	---	36800	---	12700	---	3920	6580	---
TOTAL	159370	446780	221700	147550	153080	296940	886200	989000	523870	179410	243490	190610
MEAN	5141	14890	7152	4760	5467	9579	29540	31900	17460	5787	7855	6354
MAX	11300	31500	14100	7090	13700	44700	76600	76800	38200	10400	23300	12200
MIN	2160	6380	2870	2480	2270	3320	11500	12700	7770	2820	2000	2080

CAL YR 1988 TOTAL 3534480 MEAN 9657 MAX 66600 MIN 2000
WTR YR 1989 TOTAL 4438000 MEAN 12160 MAX 76800 MIN 2000

e Estimated

CONNECTICUT RIVER BASIN

01172500 WARE RIVER NEAR BARRE, MASS.

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.

GAGE.--Water-stage recorder. Elevation of gage is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. 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.--43 years, 94.2 ft³/s, 23.22 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, 0.21 ft³/s, Aug. 18, 1980, Oct. 22, 1984; minimum daily, 0.5 ft³/s, Sept. 11, 1963. Maximum discharge since construction of Barre Falls Reservoir in 1958, 1,230 ft³/s, Mar. 14, 1979, gage height, 5.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 594 ft³/s, Aug. 17, gage height, 4.53 ft; minimum, 4.1 ft³/s, Oct. 2; minimum daily, 4.8 ft³/s, Oct. 2.

REVISIONS.--Revised maximum discharges for water years 1984-88 and revised daily discharges, in cubic feet per second, are given below. These figures supercede those published in the reports for 1984-88.

Annual maximum discharge and gage-height:

Water Year	Date	Discharge (ft ³ /s)	Gage Height (ft)	Water Year	Date	Discharge (ft ³ /s)	Gage Height (ft)
1984	June 12, 1984	1,080	5.10	1987	Apr. 13, 1987	1,630	5.56
1985	Mar. 14, 1985	378	4.16	1988	Mar. 30, 1988	457	4.31
1986	Mar. 19, 1986	798	4.80				

Daily discharges:

Water year 1984:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Dec. 15	522	Feb. 22	344	Apr. 17	457	June 11	702
Dec. 16	765	Apr. 8	468	Apr. 18	522	June 12	988
Dec. 17	773	Apr. 9	749	Apr. 19	643	June 13	1040
Dec. 18	535	Apr. 10	912	Apr. 20	679	June 14	1010
Feb. 16	326	Apr. 11	950	Apr. 21	580	June 15	876
Feb. 17	672	Apr. 12	850	June 6	378	June 16	824
Feb. 18	940	Apr. 13	580	June 7	440	June 17	798
Feb. 19	687	Apr. 14	363	June 8	429	June 18	687
Feb. 20	580	Apr. 15	313	June 9	429	June 19	695
Feb. 21	463	Apr. 16	403	June 10	429	June 20	429

Water year 1985:

Date	Discharge
Mar. 14	357

Water year 1986:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Jan. 29	583	Mar. 17	432	Mar. 21	599	June 8	348
Jan. 30	715	Mar. 18	493	Mar. 22	584	June 9	564
Jan. 31	732	Mar. 19	610	Mar. 23	552	June 10	599
Feb. 1	451	Mar. 20	660	Mar. 24	379		

Water year 1987:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Dec. 21	514	Mar. 29	385	Apr. 12	1290	Apr. 18	621
Dec. 22	573	Apr. 3	469	Apr. 13	1430	Apr. 19	603
Dec. 23	548	Apr. 8	889	Apr. 14	1350	Apr. 20	625
Dec. 24	400	Apr. 9	1070	Apr. 15	1360	Apr. 21	657
Mar. 27	388	Apr. 10	1200	Apr. 16	872	Apr. 22	419
Mar. 28	388	Apr. 11	1180	Apr. 17	605		

Water year 1988:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
Mar. 29	374	Mar. 31	423	Apr. 29	357	Apr. 30	390
Mar. 30	433	Apr. 1	372				

CONNECTICUT RIVER BASIN

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01172500 WARE RIVER NEAR BARRE, MASS.--Continued

Month	Total	Mean	Max	Min	Meant	Cfsmt	In.†
December 1983	7168	231	773	131	245	4.45	5.13
February 1984	7745	267	940	70	269	4.88	5.27
April 1984	11359	379	950	93	368	6.68	7.45
June 1984	11054	368	1040	21	255	4.63	5.17
Cal year 1983	49330.0	135	773	2.7	135	2.45	33.34
Wtr year 1984	57306.5	157	1040	2.1	157	2.85	38.69
March 1985	3665	118	357	64	109	1.98	2.29
Cal year 1984	47904.6	131	1040	2.1	130	2.36	32.22
Wtr year 1985	17803.6	48.8	357	2.2	48.8	.89	12.04
January 1986	4346	140	732	46	155	2.81	3.24
February 1986	3673	131	451	75	112	2.03	2.12
March 1986	7425	240	660	66	248	4.50	5.20
June 1986	4369	146	599	30	145	2.63	2.95
Cal year 1985	24539.9	67.2	357	2.9	67.2	1.22	16.57
Wtr year 1986	37290.5	102	732	7.2	102	1.85	25.16
December 1986	6671	215	573	73	219	3.97	4.58
March 1987	4394	142	388	38	173	3.14	3.62
April 1987	16757	559	1430	24	520	9.44	10.52
Cal year 1986	37468.7	103	732	7.2	103	1.87	25.39
Wtr year 1987	41867.0	115	1430	.86	115	2.09	28.27
March 1988	4312	139	433	74	149	2.70	3.13
April 1988	4374	146	390	65	134	2.43	2.72
Cal year 1987	37831.76	104	1430	.86	103	1.87	25.38
Wtr year 1988	27209.0	74.3	433	4.1	74.3	1.35	18.36

† Adjusted for change in contents in Barre Falls Reservoir.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	38	196	84	51	160	234	152	144	39	32	31
2	4.8	178	164	74	59	89	233	225	154	36	25	27
3	5.2	281	143	73	63	66	228	378	209	31	21	22
4	5.3	229	128	64	56	65	221	372	192	27	18	18
5	6.0	162	113	55	54	64	210	262	153	26	16	17
6	7.7	143	108	51	44	46	217	279	140	50	16	9.9
7	7.7	138	94	44	40	38	287	345	160	60	28	12
8	10	122	89	25	42	38	317	295	167	49	43	13
9	16	105	75	47	39	38	315	246	177	41	40	11
10	18	92	65	44	37	38	306	211	209	40	31	11
11	17	88	47	39	28	38	253	307	220	49	36	9.6
12	15	83	52	39	21	37	198	389	179	46	72	8.8
13	13	79	48	39	21	31	176	399	150	41	63	8.2
14	12	113	48	40	22	28	160	360	153	35	69	9.7
15	11	121	48	40	22	29	148	269	145	33	176	122
16	10	105	54	51	23	36	222	232	81	28	430	180
17	9.7	101	61	65	23	40	290	210	163	48	552	144
18	9.1	114	60	68	23	40	290	186	244	72	545	125
19	9.7	108	59	67	23	59	249	163	292	63	138	111
20	8.7	123	50	67	23	89	219	145	173	51	98	117
21	9.0	273	46	67	24	99	189	136	118	95	82	120
22	63	348	48	56	25	99	167	155	102	82	69	75
23	118	262	48	50	25	98	149	142	94	61	63	156
24	196	198	48	40	89	97	136	227	106	45	67	220
25	118	164	58	36	197	96	125	401	104	36	56	114
26	75	141	75	36	215	97	115	407	89	30	45	122
27	57	126	80	46	211	156	106	326	75	24	35	187
28	47	178	80	50	203	188	97	243	68	42	31	177
29	41	270	94	50	---	223	91	200	61	74	30	132
30	36	247	101	50	---	235	129	164	50	66	34	104
31	32	---	100	51	---	234	---	143	---	44	35	---
TOTAL	995.3	4730	2480	1608	1703	2691	6077	7969	4372	1464	2996	2414.2
MEAN	32.1	158	80.0	51.9	60.8	86.8	203	257	146	47.2	96.6	80.5
MAX	196	348	196	84	215	235	317	407	292	95	552	220
MIN	4.8	38	46	25	21	28	91	136	50	24	16	8.2
MEAN†	32.4	159	88.5	50.4	69.6	79.7	194	257	145	47.2	96.6	80.9
CFSMT	.59	2.89	1.61	.91	1.26	1.45	3.52	4.66	2.63	.86	1.75	1.47
IN.†	.68	3.22	1.85	1.06	1.32	1.67	3.93	5.38	2.94	.99	2.02	1.64
CAL YR 1988	TOTAL 29865.3	MEAN 81.6	MAX 433	MIN 4.1	MEAN† 81.9	CFSMT† 1.49	IN.† 20.24					
WTR YR 1989	TOTAL 39499.5	MEAN 108	MAX 532	MIN 4.8	MEAN† 108	CFSMT† 1.96	IN.† 26.68					

† Adjusted for change in contents in Barre Falls Reservoir.

CONNECTICUT RIVER BASIN

01173000 WARE RIVER AT INTAKE WORKS, NEAR BARRE, MASS.

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.--61 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, 727 ft³/s, May 25; minimum daily, 15 ft³/s, Oct. 2-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	75	285	133	98	154	383	258	215	76	61	55
2	15	326	241	122	106	131	362	580	290	68	53	51
3	15	376	196	101	106	111	357	663	354	63	45	46
4	15	266	196	107	96	106	348	574	290	58	41	42
5	55	171	153	80	87	106	351	419	214	68	38	38
6	24	161	136	60	79	81	477	579	246	95	45	34
7	20	141	145	54	71	74	522	621	268	57	71	32
8	23	163	137	61	69	71	561	485	332	82	80	31
9	30	136	123	83	63	71	501	380	353	71	69	29
10	30	132	103	80	51	70	458	380	451	80	56	28
11	30	123	83	73	45	70	362	642	395	86	115	25
12	28	114	80	74	45	66	313	703	292	74	233	25
13	25	119	94	80	44	64	276	648	275	69	239	25
14	22	135	115	77	54	62	253	528	259	74	252	38
15	22	167	68	107	78	72	265	415	233	69	361	210
16	21	146	85	105	82	83	480	361	259	67	525	234
17	19	137	93	114	64	85	478	328	309	91	712	213
18	17	167	95	113	58	105	435	288	341	108	626	191
19	18	153	92	114	53	119	375	248	319	95	157	170
20	16	312	89	111	50	130	327	212	220	111	136	198
21	18	525	93	99	163	132	290	206	170	132	150	244
22	102	498	90	91	209	136	256	252	153	115	116	166
23	137	359	89	85	166	135	223	201	144	89	131	223
24	191	288	100	74	141	136	212	626	160	97	106	255
25	138	230	127	68	238	150	164	727	164	108	85	154
26	102	189	130	74	274	199	178	646	140	73	72	240
27	79	192	128	92	259	303	141	493	121	53	62	286
28	69	389	130	94	232	329	140	366	113	97	56	235
29	62	425	164	91	---	393	142	290	102	125	55	195
30	55	351	143	95	---	407	261	243	88	104	64	158
31	50	---	139	95	---	395	---	209	---	79	61	---
TOTAL	1465	6966	3942	2807	3081	4546	9891	13571	7270	2634	4873	3871
MEAN	47.3	232	127	90.5	110	147	330	438	242	85.0	157	129
MAX	191	525	285	133	274	407	561	727	451	132	712	286
MIN	15	75	68	54	44	62	140	201	88	53	38	25
MEAN†	47.6	233	136	89.1	119	140	321	438	242	85.0	157	129
CFSM†	.49	2.42	1.41	.93	1.24	1.45	3.33	4.55	2.51	.88	1.63	1.34
IN.†	.57	2.70	1.62	1.07	1.28	1.67	3.72	5.24	2.80	1.02	1.88	1.50
CAL YR 1988	TOTAL 48570	MEAN 133	MAX 729	MIN 12	MEAN† 133	CFSM† 1.38	IN.† 18.81					
WTR YR 1989	TOTAL 64917	MEAN 178	MAX 727	MIN 15	MEAN† 178	CFSM† 1.85	IN.† 25.08					

† Adjusted for change in contents in Barre Falls Reservoir.

CONNECTICUT RIVER BASIN

143

01173500 WARE RIVER AT GIBBS CROSSING, MASS.

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 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; 59 years (water years 1931-89), affected by diversion and storage, 281 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, 1,980 ft³/s, May 24, gage height, 4.93 ft; minimum daily, 39 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	132	359	e214	e157	e214	494	342	322	174	142	109
2	49	345	317	e205	189	e227	418	744	316	154	121	79
3	51	333	291	e174	e178	e185	384	1040	419	154	101	90
4	58	248	283	e150	e167	163	390	589	316	112	109	85
5	50	198	e250	e150	e137	154	393	480	327	150	99	73
6	99	265	e236	e125	e140	e160	638	646	333	150	94	76
7	56	263	273	e78	e128	e134	859	703	398	182	120	75
8	66	218	171	e93	e140	e134	673	508	440	160	119	100
9	52	210	225	e96	e128	e111	566	432	504	150	134	73
10	89	196	e197	e106	e106	111	484	409	752	143	119	73
11	75	227	e182	e119	e106	111	412	833	567	182	155	69
12	58	151	e167	e134	e78	107	355	947	414	153	657	63
13	56	208	e160	e150	e93	121	336	711	382	125	1180	39
14	44	270	e160	e134	104	119	340	554	404	134	1140	59
15	45	243	e150	e222	e167	115	321	484	371	114	689	429
16	45	226	e119	e250	e185	139	547	431	765	103	410	518
17	45	220	e119	e214	e185	142	569	391	772	182	358	491
18	73	308	e134	e185	e106	177	462	336	604	189	338	476
19	59	229	e134	e167	e106	221	412	316	609	185	258	375
20	51	345	e150	e185	e93	209	363	311	577	167	215	378
21	54	860	e167	e174	e205	223	306	273	392	327	219	636
22	99	530	e167	e134	e695	220	336	337	333	300	238	591
23	228	397	e160	e150	e423	226	277	306	306	231	171	401
24	202	337	177	e147	e274	226	284	1010	334	178	186	410
25	170	295	271	137	e260	262	270	1450	339	160	167	416
26	201	267	e269	e106	e260	393	251	753	315	167	131	437
27	162	260	e250	e150	e227	379	260	551	250	137	115	751
28	113	468	236	e150	e218	319	243	494	258	155	107	560
29	109	587	e289	e134	---	348	243	421	234	234	81	471
30	84	419	e250	e150	---	376	352	363	206	222	113	382
31	109	---	e227	e150	---	483	---	340	---	188	119	---
TOTAL	2703	9255	6540	4733	5255	6509	12238	17505	12559	5362	8205	8785
MEAN	87.2	308	211	153	188	210	408	565	419	173	265	293
MAX	228	860	359	250	695	483	859	1450	772	327	1180	751
MIN	44	132	119	78	78	107	243	273	206	103	81	39

CAL YR 1988 TOTAL 87212 MEAN 238 MAX 1390 MIN 44
WTR YR 1989 TOTAL 99649 MEAN 273 MAX 1450 MIN 39

e Estimated

CONNECTICUT RIVER BASIN

01174500 EAST BRANCH SWIFT RIVER NEAR HARDWICK, MASS.

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.--No estimated daily discharges. Records good.

AVERAGE DISCHARGE.--52 years, 69.7 ft³/s, 21.66 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)
Apr. 7	0600	359	20.23	May 25	0400	*503	*20.45
May 3	0400	437	20.35	Aug. 13	1900	418	20.32
May 12	0400	385	20.27				

Minimum discharge, 6.2 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	18	102	43	39	43	147	100	77	28	43	16
2	7.1	67	83	40	42	39	136	222	86	25	31	17
3	8.5	90	71	38	46	38	119	399	140	23	25	15
4	8.1	73	62	34	44	38	115	260	121	21	21	13
5	7.4	56	54	28	38	36	119	173	93	23	19	12
6	8.2	69	48	25	34	33	240	214	80	29	21	11
7	7.7	70	46	24	32	28	351	275	91	29	39	11
8	8.3	58	46	27	29	25	292	203	151	30	44	12
9	9.2	46	46	31	27	24	231	152	201	26	33	15
10	9.2	37	43	32	24	23	180	132	263	28	26	14
11	9.8	36	42	30	23	23	144	291	240	38	42	13
12	9.8	33	33	29	22	24	121	370	163	37	166	9.9
13	9.6	35	30	34	22	23	107	288	130	29	364	8.1
14	9.4	52	35	34	24	23	97	219	121	25	325	9.2
15	9.7	58	39	44	37	26	92	178	114	21	189	62
16	9.8	51	38	59	62	33	157	145	189	18	119	73
17	9.7	54	34	54	52	34	204	123	198	26	82	63
18	10	64	32	46	39	40	173	105	149	28	58	62
19	12	60	30	44	32	53	145	90	114	27	42	54
20	11	75	29	44	28	47	123	79	92	28	34	48
21	11	203	32	40	62	49	106	72	81	51	30	76
22	20	186	33	34	231	43	95	76	72	47	27	90
23	28	128	31	32	191	39	84	70	66	38	28	76
24	28	95	34	32	114	41	77	216	67	29	29	62
25	25	74	52	31	77	54	71	456	65	23	24	46
26	22	62	61	34	56	83	67	277	63	19	21	80
27	19	57	51	39	49	108	59	180	58	16	19	171
28	17	97	49	39	46	112	54	138	46	39	17	126
29	16	153	66	36	---	115	51	108	41	75	17	83
30	14	130	63	38	---	123	78	88	33	65	19	62
31	13	---	50	38	---	142	---	79	---	52	19	---
TOTAL	395.0	2287	1465	1133	1522	1562	4035	5778	3405	993	1973	1410.2
MEAN	12.7	76.2	47.3	36.5	54.4	50.4	134	186	113	32.0	63.6	47.0
MAX	28	203	102	59	231	142	351	456	263	75	364	171
MIN	7.1	18	29	24	22	23	51	70	33	16	17	8.1
CFSM	.29	1.74	1.08	.84	1.24	1.15	3.08	4.27	2.60	.73	1.46	1.08
IN.	.34	1.95	1.25	.96	1.30	1.33	3.43	4.92	2.90	.85	1.68	1.20

CAL YR 1988 TOTAL 22510.7 MEAN 61.5 MAX 543 MIN 5.2 CFSM 1.41 IN. 19.16
WTR YR 1989 TOTAL 25958.2 MEAN 71.1 MAX 456 MIN 7.1 CFSM 1.63 IN. 22.10

CONNECTICUT RIVER BASIN

145

01174570 DICKEY BROOK NEAR COOLEYVILLE, MASS.

LOCATION.--Lat 42°25'42", long 72°21'06", Franklin County, Hydrologic Unit 01080204, on left bank off gate 17 road, 2.4 mi south of State Highway 202, and 2.7 mi southeast of Cooleyville.

DRAINAGE AREA.--1.19 mi².

PERIOD OF RECORD.--February 1985 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 870 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 46 ft³/s, Mar. 31, 1987, gage height, 2.45 ft; minimum, 0.04 ft³/s Aug. 26, 27, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 21	1745	17	1.63	May 24	1645	*29	*2.00
May 2	1830	20	1.73	June 10	0645	25	1.89
May 6	1400	20	1.73	Aug. 13	1230	18	1.67
May 11	1100	19	1.71				

Minimum discharge, 0.12 ft³/s, Sept. 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	1.1	2.3	1.4	1.0	.89	3.6	2.1	2.3	.84	.47	.31
2	.34	4.7	2.0	1.3	1.1	.78	2.9	12	2.4	.76	.39	.28
3	.58	2.4	1.9	1.3	.98	.77	2.2	9.8	2.3	.62	.31	.28
4	.46	1.6	1.7	1.3	1.0	.81	2.4	4.9	1.9	.62	.24	.27
5	.44	1.4	e1.6	e1.2	.78	.81	3.1	3.7	1.6	.65	.24	.24
6	.58	3.0	e1.4	e1.1	.74	.81	10	14	2.0	1.1	.32	.19
7	.56	2.2	1.4	1.2	.75	e.68	9.9	8.8	2.4	.93	.44	.18
8	.62	1.6	1.4	e1.3	.74	.74	6.6	5.2	3.4	.88	.37	.18
9	.67	1.3	e1.3	e1.3	e.74	.57	5.4	4.3	4.1	.76	.29	.18
10	.62	1.2	e1.2	1.2	e.74	.56	4.2	4.1	18	1.2	.24	.18
11	.62	1.2	e1.1	1.1	e.74	.59	3.5	15	6.5	1.1	4.2	.18
12	.59	1.1	e1.0	1.2	e.74	.62	3.0	12	3.9	.79	9.5	.17
13	.56	1.6	e1.0	2.9	.74	.66	2.6	7.6	3.9	.71	16	.15
14	.56	2.1	e1.0	e1.2	4.4	.81	2.4	5.6	4.2	.60	8.6	.18
15	.56	1.7	1.1	e2.6	7.5	1.0	2.1	4.3	3.8	.50	3.8	3.1
16	.56	1.3	1.1	e1.2	5.1	1.0	5.5	3.8	7.9	.46	2.4	2.3
17	.56	1.6	1.0	e.80	e1.2	.95	4.6	3.5	4.9	.90	1.6	1.8
18	.59	1.8	.95	e.75	e1.3	1.2	3.6	3.0	3.5	.76	1.2	1.8
19	.64	1.6	.95	e.85	1.3	1.4	3.0	2.5	2.8	.65	1.0	1.6
20	.62	3.5	.89	e1.2	.86	e1.0	2.4	2.2	2.3	1.0	.85	1.6
21	.62	7.8	.98	e1.0	11	1.0	2.0	1.8	2.0	1.8	.76	2.7
22	1.1	3.8	1.0	e.90	6.2	e.95	1.8	1.8	1.7	1.1	.66	2.6
23	1.1	2.9	.83	e.92	3.1	e1.0	1.7	1.5	3.2	.87	.62	1.8
24	.86	2.2	1.1	e1.0	e2.6	.95	1.5	18	4.6	.69	.57	1.8
25	.62	2.0	2.5	e.70	e1.9	1.6	1.5	13	2.7	.55	.45	1.4
26	.53	1.9	1.8	e.70	e1.5	2.6	1.3	5.7	2.1	.44	.41	1.5
27	.51	1.6	1.3	1.1	1.1	2.0	.89	4.2	1.7	.38	.32	6.6
28	.51	3.7	1.8	.73	.95	1.5	.88	3.7	1.3	.99	.25	3.1
29	.51	3.8	2.8	.62	---	1.6	1.0	3.0	1.2	.90	.24	2.0
30	.51	2.8	1.8	.78	---	2.1	2.6	2.4	1.0	.66	.36	1.5
31	.48	---	1.4	1.0	---	2.9	---	2.2	---	.58	.36	---
TOTAL	18.34	70.5	43.60	35.85	60.80	34.85	98.17	185.7	105.6	24.79	57.46	40.17
MEAN	.59	2.35	1.41	1.16	2.17	1.12	3.27	5.99	3.52	.80	1.85	1.34
MAX	1.1	7.8	2.8	2.9	11	2.9	10	18	18	1.8	16	6.6
MIN	.26	1.1	.83	.62	.74	.56	.88	1.5	1.0	.38	.24	.15
CFSM	.50	1.97	1.18	.97	1.82	.94	2.75	5.03	2.96	.67	1.56	1.13
IN.	.57	2.20	1.36	1.12	1.90	1.09	3.07	5.81	3.30	.77	1.80	1.26

CAL YR 1988 TOTAL 549.73 MEAN 1.50 MAX 13 MIN .07 CFSM 1.26 IN. 17.18
WTR YR 1989 TOTAL 775.83 MEAN 2.13 MAX 18 MIN .15 CFSM 1.79 IN. 24.25

e Estimated

CONNECTICUT RIVER BASIN

01174575 DICKEY BROOK TRIBUTARY NEAR COOLEYVILLE, MASS.

LOCATION.--Lat 42°26'38", long 72°22'13", Franklin County, Hydrologic Unit 01080204, on right bank off gate 17 road, 1.2 mi southeast of State Highway 202, and 1.4 mi southeast of Cooleyville.

DRAINAGE AREA.--1.06 mi².

PERIOD OF RECORD.--February 1985 to September 1989 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 575 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32 ft³/s, Mar. 31, 1987, gage height, 1.52 ft; minimum, 0.03 ft³/s Aug. 8, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10 ft/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb. 21	1600	20	1.21	May 24	1115	*24	*1.27
May 2	1600	16	1.13	June 10	0400	17	1.15
May 6	1045	14	1.10	June 24	0015	11	1.02
May 11	0615	15	1.11	Aug. 11	2330	10	1.01

Minimum discharge, 0.23 ft³/s, Sept. 13-14, Aug. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	.96	2.6	e1.1	1.2	e1.0	2.7	2.6	2.8	1.5	.57	.46
2	.28	3.9	2.3	.98	1.1	e1.0	2.0	8.2	3.1	1.4	.41	.48
3	.28	2.1	2.1	.98	1.3	.99	1.9	6.7	3.8	1.2	.35	.48
4	.31	1.3	2.0	e.98	e1.0	.98	2.3	3.9	2.7	.99	.32	.40
5	.33	1.1	1.9	e.78	e.84	1.0	2.7	3.1	2.2	1.0	.25	.38
6	.42	1.8	1.8	.75	.73	1.0	7.1	9.8	2.4	1.8	.33	.35
7	.45	1.7	1.8	.97	e.72	e.84	6.3	7.0	3.4	1.6	.51	.25
8	.50	1.2	1.8	1.3	e.72	e.72	4.8	4.9	3.4	1.2	.48	.25
9	.60	1.0	1.6	1.2	.76	e.72	4.4	4.2	3.5	.93	.35	.25
10	.78	.98	e1.6	.93	1.4	.76	3.9	4.1	12	1.3	.30	.25
11	.74	.98	e1.3	.80	1.7	e.78	3.5	12	5.5	2.0	2.3	.25
12	.72	.98	e1.3	.90	1.7	e.84	3.2	9.1	4.0	1.2	7.0	.25
13	.68	1.3	e1.2	1.3	1.7	e.78	3.1	6.8	3.6	.88	7.8	.23
14	.60	2.0	e1.1	.87	3.7	.92	2.9	5.2	4.2	.67	5.4	.49
15	.59	1.6	1.3	1.9	5.0	1.2	2.8	4.5	3.7	.66	2.8	3.7
16	.55	1.3	1.3	1.2	2.2	1.1	5.7	4.1	6.1	.61	1.9	1.6
17	.53	1.8	1.2	1.0	e1.3	1.0	4.1	3.8	4.5	1.1	1.4	1.5
18	.62	2.3	1.1	.98	e.91	1.4	2.9	3.2	3.5	1.4	1.1	1.5
19	.72	1.7	1.1	1.1	.71	1.3	2.9	2.8	3.1	.86	.99	1.1
20	.68	3.1	1.0	1.2	e.60	e.91	2.7	2.6	2.8	.87	.98	1.4
21	.60	4.9	1.3	e.84	e1.1	.93	2.6	2.4	2.4	2.9	.98	2.2
22	.95	3.4	1.4	e.72	4.3	e.91	2.4	2.9	2.3	1.6	.89	1.5
23	1.4	3.2	1.1	.72	1.8	e.98	2.3	2.4	3.1	1.0	.75	1.2
24	1.1	2.6	1.2	.81	e1.4	1.0	2.1	14	7.4	.68	.90	1.1
25	.89	2.4	2.6	.79	e1.3	1.5	2.0	10	4.0	.57	.71	.93
26	.84	2.4	1.6	.92	e1.2	2.0	1.9	5.6	3.0	.47	.62	3.0
27	.85	2.3	e1.3	1.2	e1.1	1.7	1.7	4.6	2.4	.40	.56	2.9
28	.91	2.3	1.5	.93	e1.0	1.5	1.6	4.1	2.1	.62	.55	1.5
29	.76	4.1	2.0	.91	---	1.7	1.7	3.4	2.0	1.0	.56	1.1
30	.61	3.1	1.3	1.0	---	2.0	3.3	3.1	1.6	.71	.75	.91
31	.55	---	e1.2	1.0	---	2.6	---	2.8	---	.67	.67	---
TOTAL	20.12	63.80	47.9	31.06	52.39	36.06	93.5	163.9	110.6	33.79	43.48	31.91
MEAN	.65	2.13	1.55	1.00	1.87	1.16	3.12	5.29	3.69	1.09	1.40	1.06
MAX	1.4	4.9	2.6	1.9	11	2.6	7.1	14	12	2.9	7.8	3.7
MIN	.28	.96	1.0	.72	.60	.72	1.6	2.4	1.6	.40	.25	.23
CFSM	.61	2.01	1.46	.95	1.77	1.10	2.94	4.99	3.48	1.03	1.32	1.00
IN.	.71	2.24	1.68	1.09	1.84	1.27	3.28	5.75	3.88	1.19	1.53	1.12

CAL YR 1988 TOTAL 536.43 MEAN 1.47 MAX 9.1 MIN .16 CFSM 1.38 IN. 18.83
WTR YR 1989 TOTAL 728.51 MEAN 2.00 MAX 14 MIN .23 CFSM 1.88 IN. 25.57

e Estimated

CONNECTICUT RIVER BASIN

147

01174600 CADWELL CREEK NEAR PELHAM, MASS.

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.--28 years, 1.14 ft³/s, 25.80 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62 ft³/s, Mar. 6, 1979, gage height, 5.26 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)
Nov. 20	2300	19	4.54	May 11	0600	21	4.58
May 2	1230	25	4.68	May 24	1115	*29	4.77
May 6	0915	23	4.63	June 10	0230	*29	*4.78

Minimum discharge, 0.01 ft³/s, Sept. 10, 11, 12-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	e.98	1.2	.61	.82	.57	3.7	1.4	1.3	.24	.10	.05
2	e.02	3.1	.99	.58	.80	.51	2.2	12	1.3	.29	.08	.04
3	e.03	.89	.88	.56	.82	.49	2.1	5.4	1.2	.23	.07	.03
4	e.03	.54	.78	.49	.73	.48	2.3	2.8	.81	.13	.06	.03
5	e.04	.51	.69	e.34	.57	e.45	3.0	2.0	.64	.15	.06	.03
6	e.05	1.7	.64	.30	.52	e.40	9.4	12	1.1	.47	.07	.03
7	e.05	.88	.64	.31	.50	e.35	7.1	4.8	1.3	.31	.07	.03
8	e.06	.59	.62	.49	.43	e.34	3.9	2.8	3.4	.19	.06	.03
9	e.06	.47	.57	.50	.38	e.34	2.9	2.0	3.7	.15	.05	.02
10	e.05	.45	.52	.43	.35	e.30	2.1	2.7	13	.24	.04	.02
11	e.04	.60	.48	.40	.31	e.34	1.7	12	3.5	.33	2.9	.02
12	e.04	.44	.39	.42	.32	e.36	1.5	8.4	1.9	.17	4.6	.02
13	e.04	1.3	.36	.63	.30	e.36	1.3	4.3	2.6	.12	5.2	.01
14	e.04	1.8	.44	.45	.77	e.36	1.1	2.7	2.3	.11	2.2	.08
15	e.04	.95	.50	.99	e1.2	e.40	1.3	2.1	2.3	.10	1.0	1.5
16	e.04	.69	.43	.77	e1.0	e.45	5.4	1.8	6.1	.09	.59	.48
17	e.04	1.4	.37	.62	e.68	e.50	3.0	1.6	3.0	.34	.38	.62
18	e.06	1.3	.39	.56	e.50	e.63	2.1	1.3	1.9	.28	.24	.46
19	e.07	.85	.36	.69	.43	e.74	1.7	1.1	1.3	.18	.19	.53
20	e.05	5.6	.41	e.74	.39	e.63	1.4	.90	.98	.50	.16	1.1
21	e.05	6.7	.62	e.58	4.4	e.63	1.2	.87	.80	1.3	.14	2.5
22	e.25	2.3	.58	e.44	3.7	e.63	1.1	.84	.73	.41	.11	.97
23	e.30	1.5	.48	e.37	1.9	e.68	.97	.64	1.1	.23	.09	.91
24	e.18	1.1	.75	.43	1.2	e.65	.92	17	1.7	.16	.07	.75
25	e.14	.94	1.8	.41	e.87	1.3	.85	7.0	.98	.12	.06	.42
26	e.10	.82	1.1	.45	e.71	2.4	.77	3.0	.67	.10	.05	4.3
27	e.08	.78	.74	.60	.67	2.1	.73	2.3	.53	.08	.05	2.1
28	e.07	4.0	1.0	.50	.60	1.8	.68	1.7	.46	.37	.04	.98
29	e.07	2.6	1.5	.51	---	2.0	.74	1.2	.41	.39	.05	.65
30	e.08	1.6	.93	e.74	---	2.9	2.3	.98	.29	.17	.06	.45
31	e.07	---	.73	.74	---	3.3	---	.97	---	.12	.04	---
TOTAL	2.26	47.38	21.89	16.65	25.87	27.39	69.46	120.60	61.30	8.07	18.88	19.16
MEAN	.073	1.58	.71	.54	.92	.88	2.32	3.89	2.04	.26	.61	.64
MAX	.30	6.7	1.8	.99	4.4	3.3	9.4	17	13	1.3	5.2	4.3
MIN	.02	.44	.36	.30	.30	.30	.68	.64	.29	.08	.04	.01
CFSM	.12	2.63	1.18	.90	1.54	1.47	3.86	6.48	3.41	.43	1.02	1.06
IN.	.14	2.94	1.36	1.03	1.60	1.70	4.31	7.48	3.80	.50	1.17	1.19

CAL YR 1988 TOTAL 313.70 MEAN .86 MAX 11 MIN .01 CFSM 1.43 IN. 19.45
WTR YR 1989 TOTAL 438.91 MEAN 1.20 MAX 17 MIN .01 CFSM 2.00 IN. 27.21

e Estimated

CONNECTICUT RIVER BASIN

01174900 CADWELL CREEK NEAR BELCHERTOWN, MASS.

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 good except those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--28 years, 4.88 ft³/s, 25.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 271 ft³/s, Mar. 6, 1979, gage height, 7.42 ft, from rating curve extended above 92 ft³/s; minimum, 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)
May 24	1115	*90	*6.54	June 10	0200	86	6.52

Minimum discharge, 0.23 ft³/s, Oct 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	4.7	6.0	e2.7	3.8	3.1	14	6.2	6.8	2.4	.70	.55
2	.25	13	5.2	e2.3	3.6	2.7	9.0	40	7.0	2.0	.61	.66
3	.41	4.2	4.7	e1.6	3.6	e2.5	8.7	21	6.7	1.8	.54	.50
4	.32	2.6	4.2	e1.4	3.0	e2.3	9.4	12	5.0	1.6	.48	.43
5	.29	2.3	3.8	e1.3	e2.3	e2.1	12	9.4	4.1	2.0	.49	.40
6	.40	6.5	3.6	e1.2	e2.2	e1.8	31	37	5.5	3.5	.46	.39
7	.35	3.7	3.6	e1.2	e1.9	e1.8	27	20	6.4	2.4	.55	.37
8	.56	2.5	3.4	e2.0	e1.8	e1.8	18	12	17	1.7	.46	.37
9	.59	2.1	e2.7	2.4	1.7	e1.7	12	9.7	15	1.3	.34	.35
10	.45	2.0	e2.7	2.1	1.6	e1.5	9.7	11	45	2.0	.31	.35
11	.45	2.8	e2.2	e1.8	1.5	e1.7	8.2	37	16	2.1	13	.34
12	.41	2.0	e1.9	e1.7	1.5	e1.7	7.2	32	9.6	1.2	19	.32
13	.37	4.8	e2.1	e2.2	1.3	e1.7	6.7	19	13	1.0	25	.34
14	.35	6.9	e2.2	2.2	3.0	e1.7	6.1	13	11	.90	12	1.4
15	.35	4.0	e2.4	4.4	5.5	e2.0	6.9	10	11	.84	6.3	12
16	.36	3.0	e2.0	3.7	5.1	e2.5	21	9.0	28	.74	4.4	3.2
17	.39	5.5	e2.0	3.0	3.2	2.8	12	8.2	15	2.9	3.1	4.7
18	.44	5.3	2.2	2.7	2.4	e3.2	9.2	6.8	10	1.8	2.1	3.3
19	.57	3.6	2.0	e3.2	2.2	e3.0	7.8	6.0	7.9	1.2	1.7	3.5
20	.43	18	2.2	e2.9	1.9	e2.6	6.7	5.4	6.3	2.5	1.5	5.6
21	.41	23	3.1	e2.2	e14	e3.0	6.0	5.4	5.4	6.6	1.3	11
22	2.5	9.3	e2.8	2.1	14	e2.8	5.4	5.1	4.9	2.9	1.0	5.8
23	1.7	6.8	e2.2	1.9	e7.7	e3.4	5.1	4.1	8.7	1.9	.98	5.6
24	1.0	5.6	3.7	2.0	5.3	3.8	4.8	54	13	1.2	.88	4.8
25	.83	4.8	6.9	2.0	4.5	6.2	4.5	29	7.9	1.0	.68	3.2
26	.72	4.3	4.7	2.1	3.8	9.0	4.2	14	5.8	.80	.61	18
27	.65	4.1	3.6	2.9	3.8	7.9	4.0	11	4.7	.69	.55	10
28	.62	16	4.8	2.4	3.3	7.3	3.7	9.1	4.1	2.9	.54	6.1
29	.66	10	5.7	2.4	---	7.6	4.1	7.0	3.6	2.3	.59	4.6
30	.58	7.3	e3.8	3.8	---	10	8.9	6.1	2.8	1.2	1.1	3.6
31	.56	---	e3.2	3.6	---	13	---	5.9	---	.85	.71	---
TOTAL	18.21	190.7	105.6	73.4	109.5	118.2	293.3	475.4	307.2	58.22	101.98	111.77
MEAN	.59	6.36	3.41	2.37	3.91	3.81	9.78	15.3	10.2	1.88	3.29	3.73
MAX	2.5	23	6.9	4.4	14	13	31	54	45	6.6	25	18
MIN	.24	2.0	1.9	1.2	1.3	1.5	3.7	4.1	2.8	.69	.31	.32
CFSM	.23	2.49	1.34	.93	1.53	1.50	3.83	6.01	4.02	.74	1.29	1.46
IN.	.27	2.78	1.54	1.07	1.60	1.72	4.28	6.94	4.48	.85	1.49	1.63

CAL YR 1988 TOTAL 1400.17 MEAN 3.83 MAX 35 MIN .10 CFSM 1.50 IN. 20.43
WTR YR 1989 TOTAL 1963.48 MEAN 5.38 MAX 54 MIN .24 CFSM 2.11 IN. 28.64

e Estimated

CONNECTICUT RIVER BASIN

149

01175500 SWIFT RIVER AT WEST WARE, MASS.

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 excellent. 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; 50 years (water years 1940-89), affected by storage and diversions, 93.9 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, 152 ft³/s, Sept. 15, gage height, 2.82 ft; maximum gage height, 3.11 ft, Feb. 10 (ice jam); minimum daily discharge, 28 ft³/s, Feb. 18-20, 23, 24, Feb. 28 to Mar. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	43	42	40	e30	28	35	34	33	33	33	32
2	39	42	42	40	30	28	34	42	33	33	32	32
3	39	41	42	41	30	28	34	32	33	33	33	32
4	39	40	42	e33	30	28	34	36	32	33	32	32
5	39	41	41	e33	29	28	34	35	32	33	32	32
6	39	41	41	e33	29	28	38	40	33	34	33	32
7	39	41	41	33	29	e28	36	36	33	33	32	32
8	39	41	41	33	e29	e28	36	36	35	33	32	32
9	40	40	41	33	e29	28	35	36	34	33	32	32
10	39	41	41	33	e29	32	34	37	39	34	32	32
11	39	40	41	33	e29	32	34	41	34	33	40	32
12	39	40	41	37	29	32	34	41	33	32	38	32
13	39	41	41	33	29	32	34	38	34	33	43	32
14	38	41	41	33	29	32	34	37	33	33	36	75
15	39	40	41	e33	30	32	34	31	34	33	35	75
16	39	41	41	33	29	32	38	31	37	32	34	34
17	39	41	41	32	e29	32	35	31	34	34	34	35
18	39	41	41	32	e28	33	34	32	33	33	33	33
19	39	40	41	32	28	33	34	32	32	33	33	34
20	39	46	41	32	28	32	34	32	32	35	33	35
21	39	45	41	e32	35	33	34	32	32	36	33	37
22	42	42	41	e32	31	33	35	32	32	34	33	34
23	40	42	41	31	28	32	34	31	38	33	33	35
24	40	42	42	31	28	33	34	51	37	33	33	35
25	40	41	42	31	29	34	34	39	35	33	33	34
26	39	41	41	31	29	33	33	35	35	32	33	40
27	39	41	41	32	29	33	33	35	34	33	32	34
28	40	46	42	31	28	33	33	34	34	35	32	34
29	40	43	41	e31	---	33	33	34	34	33	32	34
30	40	43	41	e31	---	34	35	33	33	33	33	33
31	40	---	41	e31	---	35	---	33	---	33	32	---
TOTAL	1218	1248	1278	1026	819	972	1033	1099	1017	1031	1041	1087
MEAN	39.3	41.6	41.2	33.1	29.2	31.4	34.4	35.5	33.9	33.3	33.6	36.2
MAX	42	46	42	41	35	35	38	51	39	36	43	75
MIN	38	40	41	31	28	28	33	31	32	32	32	32

CAL YR 1988 TOTAL 16644 MEAN 45.5 MAX 127 MIN 27
WTR YR 1989 TOTAL 12869 MEAN 35.3 MAX 75 MIN 28

e Estimated

CONNECTICUT RIVER BASIN

01175670 SEVENMILE RIVER NEAR SPENCER, MASS.

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.--29 years, 14.6 ft³/s, 22.84 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)
Nov. 21	0400	99	10.81	May 2	1900	64	10.45
Apr. 7	0330	64	10.44	May 24	2245	72	10.53
Apr. 10	1400	64	10.45	Aug. 13	1500	*126	*11.06

Minimum discharge, 0.60 ft³/s, Oct. 1, 2; minimum daily, 0.60 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	8.0	26	e8.5	e8.0	e13	47	21	20	7.2	3.4	3.6
2	.61	23	23	e8.0	e8.0	e11	39	44	23	6.4	3.1	3.6
3	2.7	22	20	e7.0	e7.5	e10	33	57	34	5.7	2.8	3.5
4	1.5	17	19	e6.0	e7.0	e9.0	34	43	25	5.1	2.6	3.0
5	1.2	13	16	e5.0	e6.5	e8.5	34	33	19	4.8	2.4	2.9
6	3.4	13	e14	e5.0	e6.5	e7.5	50	48	18	10	2.3	2.9
7	.69	12	14	e5.0	e6.5	e7.0	60	52	21	7.9	3.5	e2.9
8	.86	9.3	14	e6.0	e7.0	e6.5	56	40	29	7.5	3.4	3.1
9	1.1	6.1	13	e7.0	e7.0	e6.2	54	e33	30	6.8	2.7	3.0
10	1.4	6.7	e11	e8.0	e7.0	e6.0	49	e32	38	6.2	2.3	3.0
11	2.8	4.5	e11	e10	e7.0	e6.0	37	e35	31	7.0	4.9	2.8
12	1.5	3.9	e10	e13	e7.0	6.3	33	e55	23	6.1	37	2.5
13	1.0	5.9	e8.6	e12	e7.0	e6.5	29	e60	20	5.0	98	2.1
14	.88	19	e6.8	e10	e7.0	6.4	25	e45	22	4.4	78	2.0
15	.96	15	e6.5	e10	e8.0	7.6	24	e40	20	4.7	47	32
16	1.1	10	e6.0	e11	e8.0	8.8	50	32	34	4.3	31	21
17	1.1	11	e6.0	e11	e8.0	8.4	52	29	35	12	21	18
18	1.1	14	e8.0	e10	e8.0	9.5	43	25	28	12	15	13
19	1.1	13	e12	e10	e8.0	11	38	20	22	8.2	12	11
20	1.1	23	e10	e10	e8.0	9.9	33	18	18	7.0	10	13
21	5.9	84	9.6	e8.0	e20	10	27	16	16	33	8.0	19
22	9.9	51	8.3	e8.0	e22	11	25	15	15	21	6.6	17
23	12	37	e7.5	e7.5	e25	9.7	22	14	15	15	6.2	15
24	6.9	29	e7.5	e7.5	e20	8.4	20	39	23	10	6.0	14
25	12	24	e7.5	e7.5	e18	15	18	67	19	7.9	5.0	8.9
26	6.6	20	e8.0	e8.0	e17	26	17	51	15	5.6	4.6	17
27	1.9	18	e8.0	e10	e16	31	16	41	13	4.9	4.1	21
28	6.5	31	e8.0	e10	e15	29	15	36	11	6.5	3.5	14
29	1.5	41	e9.0	e9.0	---	29	14	28	10	6.3	3.3	11
30	1.9	32	e9.0	e8.0	---	31	21	21	8.4	4.9	4.1	9.1
31	2.1	---	e9.0	e8.0	---	48	---	20	---	3.9	3.9	---
TOTAL	93.90	616.4	346.3	264.0	300.0	413.2	1015	1110	655.4	257.3	437.7	294.9
MEAN	3.03	20.5	11.2	8.52	10.7	13.3	33.8	35.8	21.8	8.30	14.1	9.83
MAX	12	84	26	13	25	48	60	67	38	33	98	32
MIN	.60	3.9	6.0	5.0	6.5	6.0	14	14	8.4	3.9	2.3	2.0
CFSM	.35	2.37	1.29	.98	1.23	1.54	3.90	4.13	2.52	.96	1.63	1.13
IN.	.40	2.64	1.48	1.13	1.29	1.77	4.35	4.76	2.81	1.10	1.88	1.26

CAL YR 1988 TOTAL 4240.20 MEAN 11.6 MAX 84 MIN .58 CFSM 1.33 IN. 18.17
WTR YR 1989 TOTAL 5804.10 MEAN 15.9 MAX 98 MIN .60 CFSM 1.83 IN. 24.87

e Estimated

CONNECTICUT RIVER BASIN

151

01176000 QUABOAG RIVER AT WEST BRIMFIELD, MASS.

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 fair 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.--77 years (water years 1913-89), 245 ft³/s, 22.18 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)
May 24	1230	*939	*5.60	No other peak greater than base discharge.			

Minimum discharge, 37 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	136	e400	176	126	157	485	299	467	157	123	145
2	48	223	e386	168	129	136	476	479	429	147	115	137
3	52	191	366	155	128	141	479	525	402	136	108	126
4	50	202	331	131	e120	137	477	529	379	127	101	117
5	49	209	319	e99	e115	130	470	530	352	124	95	110
6	49	224	e297	e99	e120	122	526	630	352	133	90	102
7	47	211	277	e99	e115	e112	573	621	346	128	94	95
8	50	203	261	e148	e120	e109	602	601	400	122	87	88
9	49	191	253	e144	107	e107	611	580	406	116	79	82
10	49	188	e237	e144	e107	101	601	566	499	118	76	78
11	50	183	225	e133	e124	97	575	685	440	115	117	74
12	47	178	187	e172	e104	97	548	717	415	106	262	70
13	45	194	e215	e124	e107	95	521	715	414	103	401	66
14	44	214	e172	e107	108	98	481	692	398	99	502	67
15	46	199	e142	142	120	106	452	657	390	95	544	189
16	46	197	e133	135	135	106	528	624	447	89	553	171
17	47	205	e142	131	e107	114	525	588	432	121	534	190
18	50	203	e139	128	e129	132	529	544	412	118	500	193
19	49	198	e139	126	e119	144	521	502	389	116	460	199
20	46	249	e139	126	e112	146	498	457	361	116	421	222
21	46	e400	e139	e94	193	160	478	418	327	148	382	248
22	81	e500	141	e94	291	169	441	383	294	153	335	245
23	90	e450	140	e91	301	169	408	348	271	151	304	244
24	97	e350	e139	e87	273	173	381	700	269	148	277	236
25	98	e300	e162	e99	244	214	351	702	253	144	252	234
26	99	e250	e156	111	e227	261	329	669	238	137	231	278
27	99	e250	e158	121	210	282	301	667	218	129	211	274
28	103	e300	e166	121	191	297	277	631	201	148	196	262
29	104	e450	e184	118	---	307	264	592	185	142	182	255
30	108	e425	192	126	---	364	303	546	168	135	172	246
31	111	---	e182	124	---	447	---	504	---	129	153	---
TOTAL	1997	7673	6519	3873	4282	5230	14011	17701	10554	3950	7957	5043
MEAN	64.4	256	210	125	153	169	467	571	352	127	257	168
MAX	111	500	400	176	301	447	611	717	499	157	553	278
MIN	44	136	133	87	104	95	264	299	168	89	76	66
CFSM	.43	1.71	1.40	.83	1.02	1.12	3.11	3.81	2.35	.85	1.71	1.12
IN.	.50	1.90	1.62	.96	1.06	1.30	3.47	4.39	2.62	.98	1.97	1.25

CAL YR 1988 TOTAL 68765 MEAN 188 MAX 520 MIN 32 CFSM 1.25 IN. 17.05
WTR YR 1989 TOTAL 88790 MEAN 243 MAX 717 MIN 44 CFSM 1.62 IN. 22.02

e Estimated

CONNECTICUT RIVER BASIN

01177000 CHICOPEE RIVER AT INDIAN ORCHARD, MASS.

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.--61 years, 898 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, 4,980 ft³/s, May 25, gage height, 9.07 ft; minimum daily, 78 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	349	1050	598	460	595	1200	354	1120	237	388	445
2	160	577	1090	580	504	550	1330	1070	728	217	377	377
3	157	832	1080	539	496	553	1320	1900	989	324	422	306
4	170	714	783	476	474	544	989	1890	1290	433	313	330
5	232	590	387	203	488	522	1030	1110	585	438	350	341
6	78	680	730	315	353	538	1580	682	378	546	281	264
7	181	708	972	399	366	517	2130	522	454	519	339	310
8	283	605	616	414	294	442	1990	1210	542	518	260	308
9	191	520	598	430	367	488	1840	1560	582	452	355	285
10	169	497	623	397	318	e450	1410	1380	1980	424	324	277
11	218	426	580	399	354	e430	1450	870	1970	550	506	259
12	211	554	345	348	274	e420	1280	1680	1490	666	1460	176
13	149	425	329	414	253	e420	1320	2130	843	383	2510	318
14	189	703	388	351	314	e430	766	2010	1320	469	2720	235
15	133	618	423	497	423	e450	409	1100	1320	414	2060	806
16	118	581	e447	545	514	e470	795	602	1030	372	1570	1030
17	231	590	e577	579	565	e500	1330	1040	1680	520	1380	952
18	257	650	473	522	540	e500	810	1340	1590	526	1200	937
19	161	640	426	492	396	e500	1290	756	1460	536	1010	807
20	215	640	466	498	378	564	1320	438	1240	544	901	904
21	100	2030	510	427	436	e598	718	387	896	576	829	1010
22	278	1630	486	351	1760	e663	629	965	378	739	753	1340
23	322	1240	508	360	1450	597	952	691	465	641	695	1010
24	460	1030	494	392	1280	589	343	2360	516	578	677	904
25	448	1090	562	297	1480	e663	334	4340	500	539	567	889
26	431	814	614	316	1500	e830	396	2530	305	472	620	1010
27	311	793	696	458	1460	e1250	278	2100	322	510	593	1370
28	441	1100	656	447	709	1220	279	1930	254	503	499	1220
29	167	1520	643	438	---	737	263	1630	277	513	414	1050
30	270	1320	656	314	---	e1230	320	1400	250	541	466	728
31	332	---	636	486	---	1400	---	1370	---	518	346	---
TOTAL	7260	24466	18844	13282	18206	19660	30101	43347	26754	15218	25185	20198
MEAN	234	816	608	428	650	634	1003	1398	892	491	812	673
MAX	460	2030	1090	598	1760	1400	2130	4340	1980	739	2720	1370
MIN	78	349	329	203	253	420	263	354	250	217	260	176

CAL YR 1988 TOTAL 231706 MEAN 633 MAX 2600 MIN 67
WTR YR 1989 TOTAL 262521 MEAN 719 MAX 4340 MIN 78

e Estimated

CONNECTICUT RIVER BASIN

153

01179500 WESTFIELD RIVER AT KNIGHTVILLE, MASS.

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 current year.
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. Flow regulated by Knightville Reservoir since 1941 (Reservoirs in Connecticut River basin).

AVERAGE DISCHARGE.--80 years, 328 ft³/s, 27.67 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, 2,510 ft³/s, May 9, gage height, 6.59 ft; minimum, 29 ft³/s, Sept. 22; minimum daily, 34 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	104	403	242	127	335	666	395	314	152	85	58
2	42	783	358	220	133	194	989	478	318	138	73	59
3	43	1340	331	198	174	144	937	1430	422	121	66	64
4	44	528	314	185	184	122	881	1650	286	110	59	52
5	41	359	272	133	161	116	383	1230	240	122	56	49
6	42	1100	255	188	142	112	731	499	247	233	53	45
7	42	1110	268	109	110	105	1690	1250	346	190	66	43
8	50	485	268	87	94	93	1240	2080	437	146	73	42
9	81	376	233	97	85	85	949	1910	318	118	58	41
10	72	322	e205	117	73	77	555	667	836	152	50	39
11	66	310	e195	122	67	73	391	498	1550	641	84	38
12	62	280	e175	120	64	78	342	1450	1340	241	506	36
13	56	307	e180	117	65	e78	283	1780	564	166	84	34
14	53	927	e240	117	65	77	247	1640	767	131	888	38
15	52	515	286	118	75	85	233	1470	670	116	1670	178
16	52	386	e250	122	144	110	568	848	1330	100	383	126
17	49	396	213	139	143	121	553	1040	908	108	199	92
18	48	482	e185	149	105	148	560	710	584	116	152	105
19	56	356	e185	146	104	204	635	526	443	97	122	90
20	65	473	185	145	101	245	691	438	364	107	112	130
21	53	1770	184	144	100	254	673	335	306	522	108	201
22	172	2130	187	135	133	226	720	363	286	273	101	107
23	319	735	263	126	142	182	930	310	294	192	89	153
24	637	532	259	118	217	154	946	601	964	140	81	155
25	506	450	231	114	335	148	455	1440	479	112	71	109
26	168	397	255	109	328	164	283	1160	326	93	64	227
27	135	374	276	110	414	332	271	565	262	78	59	342
28	119	695	264	124	522	557	262	486	222	173	55	181
29	120	685	274	126	---	1020	249	373	206	201	55	129
30	115	467	303	126	---	1050	544	310	175	130	66	104
31	103	---	282	125	---	408	---	288	---	98	74	---
TOTAL	3502	19174	7779	4228	4407	7097	18857	28220	15804	5317	5662	3067
MEAN	113	639	251	136	157	229	629	910	527	172	183	102
MAX	637	2130	403	242	522	1050	1690	2080	1550	641	1670	342
MIN	39	104	175	87	64	73	233	288	175	78	50	34
MEAN†	113	639	258	134	169	268	573	910	526	171	183	102
CFSM†	.70	3.97	1.60	.83	1.05	1.66	3.56	5.65	3.27	1.06	1.14	.63
IN.†	.81	4.43	1.85	.96	1.09	1.92	3.97	6.52	3.65	1.23	1.31	.71

CAL YR 1988 TOTAL 110532 MEAN 302 MAX 2280 MIN 34 MEAN† 302 CFSM† 1.88 IN.† 25.54
WTR YR 1989 TOTAL 123114 MEAN 337 MAX 2130 MIN 34 MEAN† 337 CFSM† 2.09 IN.† 28.45

e Estimated

† Adjusted for change in contents in Knightville Reservoir.

CONNECTICUT RIVER BASIN

01180500 MIDDLE BRANCH WESTFIELD RIVER AT GOSS HEIGHTS, MASS.

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 current year.

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 estimated daily discharges, which are fair. 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.--79 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, 966 ft³/s, Nov. 21, gage height, 5.29 ft; minimum, 3.6 ft³/s, Apr. 28; minimum daily, 8.0 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	38	146	73	44	36	233	149	85	47	36	16
2	8.7	378	124	65	55	32	338	312	81	42	29	16
3	9.7	356	110	61	54	30	325	568	83	37	24	15
4	9.4	196	100	52	47	29	260	474	74	33	21	13
5	9.1	148	88	37	39	29	139	250	63	33	19	12
6	8.8	466	81	35	e35	30	203	262	65	47	17	11
7	8.5	406	80	36	e32	26	477	437	80	53	16	11
8	11	228	77	39	e30	24	501	640	89	47	15	10
9	14	152	73	43	28	21	311	481	92	38	13	9.7
10	15	117	64	43	24	21	179	206	219	37	12	9.5
11	15	102	58	39	23	21	149	130	404	80	41	9.3
12	14	90	42	37	22	25	113	434	423	74	108	8.7
13	14	104	40	37	22	23	101	532	322	54	23	8.0
14	12	266	48	38	22	24	101	503	240	42	371	10
15	12	211	56	40	32	32	101	486	213	37	515	39
16	12	151	54	48	52	61	109	401	355	32	208	44
17	12	137	50	46	44	53	259	364	297	32	101	37
18	13	153	49	43	35	57	356	254	205	32	64	31
19	12	128	e48	42	e28	75	228	183	149	29	48	27
20	13	223	e49	42	24	59	107	147	117	29	40	31
21	12	765	e56	40	61	51	61	123	97	156	36	46
22	66	717	e64	34	159	42	100	107	85	139	32	35
23	147	330	63	32	216	37	504	91	80	93	28	43
24	104	210	60	32	189	40	352	167	264	64	24	52
25	74	162	85	32	85	55	148	374	227	48	21	42
26	56	135	97	33	55	97	102	424	142	38	19	62
27	45	120	79	43	46	182	87	258	100	31	17	110
28	38	201	76	47	40	307	75	167	77	34	16	80
29	35	239	127	43	---	330	80	124	65	62	15	58
30	33	183	113	42	---	241	129	100	54	59	17	44
31	30	---	86	43	---	95	---	89	---	46	17	---
TOTAL	871.8	7112	2343	1317	1543	2185	6228	9237	4847	1625	1963	940.2
MEAN	28.1	237	75.6	42.5	55.1	70.5	208	298	162	52.4	63.3	31.3
MAX	147	765	146	73	216	330	504	640	423	156	515	110
MIN	8.5	38	40	32	22	21	61	89	54	29	12	8.0
MEAN†	29.6	242	73.2	40.5	55.1	92.8	189	299	161	51.5	62.4	32.3
CFSM†	.56	4.59	1.39	.77	1.05	1.76	3.59	5.67	3.06	.98	1.18	.61
IN.†	.65	5.12	1.60	.89	1.09	2.03	3.99	6.55	3.40	1.13	1.36	.68

CAL YR 1988 TOTAL 37442.4 MEAN 102 MAX 932 MIN 6.6 MEAN† 102 CFSM† 1.94 IN.† 26.46
WTR YR 1989 TOTAL 40212.0 MEAN 110 MAX 765 MIN 8.0 MEAN† 111 CFSM† 2.11 IN.† 28.42

e Estimated

† Adjusted for change in contents in Littleville Lake.

CONNECTICUT RIVER BASIN

155

01181000 WEST BRANCH WESTFIELD RIVER AT HUNTINGTON, MASS.

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 388.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Prior to 1950, some diurnal fluctuation at low flow caused by small mill upstream.

AVERAGE DISCHARGE.--54 years, 190 ft³/s, 27.45 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,100 ft³/s, Aug. 19, 1955, gage height, 15.27 ft, 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)
Nov. 21	0015	*5,010	*6.68	May 6	1045	2,850	5.09
May 2	1330	2,710	4.96	May 11	0700	2,980	5.20

Minimum discharge, 14 ft³/s, Sept. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e22	125	247	123	85	58	468	222	157	e74	e52	e32
2	e22	1070	223	111	115	55	318	1290	141	e66	e47	e30
3	e27	395	200	108	88	50	336	829	134	e58	e42	e28
4	e25	233	182	87	68	45	366	439	114	e53	e37	e25
5	e23	290	162	e81	65	46	415	321	104	e60	e34	e23
6	e22	1040	154	e77	65	50	1180	1640	129	e100	e31	e21
7	e22	419	160	e74	55	44	856	849	159	e84	e29	e19
8	e27	289	156	e75	e50	47	496	507	186	e72	e27	e18
9	e44	235	137	89	e47	43	372	378	356	e65	e25	e16
10	e38	202	117	74	e44	43	310	433	1400	e75	e24	e15
11	e35	184	103	65	e44	43	262	1920	464	e170	e120	e15
12	e35	142	e87	e58	41	42	228	1250	257	e120	e700	15
13	e33	280	e81	e70	e41	43	207	784	332	e80	e750	e15
14	e32	487	105	e65	42	43	197	524	367	e66	e450	20
15	e32	263	e115	87	90	69	208	401	451	e75	e320	e109
16	e30	205	e105	97	127	102	789	453	865	e62	e200	e69
17	e29	243	e91	77	e70	62	552	903	478	e54	e150	e55
18	e30	252	e100	70	e58	104	394	478	298	e50	e110	e46
19	e34	192	e100	72	48	122	329	343	226	e48	e84	e40
20	e34	1100	87	77	44	67	268	273	183	e47	e75	e63
21	e33	1880	121	e77	516	65	231	227	158	e300	e68	e118
22	309	576	144	e72	456	56	206	207	e150	e180	e61	80
23	212	378	105	60	170	56	179	168	e130	e120	e55	e87
24	99	309	110	58	99	59	165	1170	e500	e90	e50	e91
25	74	263	217	58	87	98	154	898	e250	e70	e47	e63
26	56	233	171	62	e79	251	143	443	e180	e55	e42	231
27	45	218	e125	122	70	413	138	320	e150	e50	e37	211
28	39	572	168	85	65	764	133	253	e120	e70	e33	104
29	42	382	280	74	---	758	130	199	e100	e120	e31	77
30	38	283	175	73	---	488	284	169	e85	e90	e34	62
31	33	---	154	78	---	446	---	161	---	e65	e36	---
TOTAL	1576	12740	4482	2456	2829	4632	10314	18452	8624	2689	3801	1798
MEAN	50.8	425	145	79.2	101	149	344	595	287	86.7	123	59.9
MAX	309	1880	280	123	516	764	1180	1920	1400	300	750	231
MIN	22	125	81	58	41	42	130	161	85	47	24	15
CFSM	.54	4.52	1.54	.84	1.07	1.59	3.66	6.33	3.06	.92	1.30	.64
IN.	.62	5.04	1.77	.97	1.12	1.83	4.08	7.30	3.41	1.06	1.50	.71

CAL YR 1988 TOTAL 69063 MEAN 189 MAX 2070 MIN 10 CFSM 2.01 IN. 27.33
WTR YR 1989 TOTAL 74393 MEAN 204 MAX 1920 MIN 15 CFSM 2.17 IN. 29.44

e Estimated

CONNECTICUT RIVER BASIN

01183000 LITTLE RIVER AT OUTLET OF COBBLE MOUNTAIN RESERVOIR, NEAR WESTFIELD, MASS.

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.--79 years (water years 1911-89), 89.7 ft³/s, 26.60 in/yr, adjusted for storage.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

	Meant	Per square mile†	Runoff, in inches†
October.....	7.03	0.15	0.18
November.....	220	4.80	5.37
December.....	57.3	1.25	1.44
Calendar year 1988.....	74.4	1.62	22.12
January.....	31.2	.68	.79
February.....	56.5	1.23	1.29
March.....	84.3	1.84	2.12
April.....	158	3.45	3.84
May.....	339	7.40	8.54
June.....	143	3.12	3.47
July.....	24.8	.54	.62
August.....	43.1	.94	1.08
September.....	22.4	.49	.55
Water year 1989.....	98.8	2.16	29.30

† Adjusted for change in contents in Borden Brook and Cobble Mountain Reservoirs.

CONNECTICUT RIVER BASIN

157

01183500 WESTFIELD RIVER NEAR WESTFIELD, MASS.

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.--75 years, 922 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, 7,160 ft³/s, Nov. 21, gage height, 10.48 ft; minimum, 65 ft³/s, Oct. 16, 19; minimum daily, 111 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DÉC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	270	1100	634	391	654	1550	1190	883	457	237	e220
2	134	2010	986	579	441	428	1980	2640	891	414	196	e200
3	140	2340	916	541	462	391	1880	3550	753	381	183	e210
4	133	1600	841	531	457	345	1840	3190	629	342	166	e190
5	133	893	757	643	383	322	1560	2560	592	356	157	e180
6	134	2350	699	516	376	337	2360	4290	833	544	149	e170
7	130	2380	890	346	344	335	3420	3730	922	539	143	e160
8	147	1320	928	365	278	318	2890	3940	1710	417	154	e160
9	174	1020	931	377	281	261	2110	e3600	3990	351	144	e150
10	204	846	704	377	240	263	1590	e3100	2910	329	127	e150
11	181	784	555	373	248	255	1160	e4700	2500	978	e250	e140
12	157	685	600	349	230	275	1040	4540	1970	647	e1500	e160
13	160	737	554	372	218	275	908	4270	1990	445	e1000	136
14	167	1930	538	350	253	261	842	3440	2750	360	e2500	167
15	142	1300	552	404	341	292	817	2940	3710	340	e3000	575
16	140	977	601	443	505	403	1920	2600	2410	318	e1200	487
17	140	949	513	406	428	388	1870	2940	1540	425	e800	356
18	134	1130	469	407	324	420	1710	1880	1380	380	e600	330
19	126	897	501	416	304	568	1550	1510	1010	309	e450	314
20	138	1590	439	406	273	536	1420	1200	856	266	e400	407
21	157	5470	480	367	816	538	1260	1050	829	1080	e360	595
22	492	4070	548	376	1540	502	1320	954	767	806	e340	527
23	985	2110	531	360	836	440	1600	1370	845	566	e310	441
24	790	1480	624	342	739	442	1830	4550	2300	463	e290	492
25	1030	1230	741	330	698	583	1210	3960	1480	340	e270	406
26	493	1080	749	334	619	780	801	2290	1020	284	e250	625
27	350	994	660	447	672	1090	742	1650	827	241	e230	1060
28	297	1690	692	411	780	1710	710	1190	724	255	e210	628
29	275	1800	983	381	---	2300	675	984	609	429	e200	469
30	284	1300	824	395	---	2490	1090	879	535	365	e220	379
31	266	---	707	366	---	1470	---	831	---	276	e250	---
TOTAL	8344	47232	21613	12944	13477	19672	45655	81518	44165	13703	16286	10484
MEAN	269	1574	697	418	481	635	1522	2630	1472	442	525	349
MAX	1030	5470	1100	643	1540	2490	3420	4700	3990	1080	3000	1060
MIN	111	270	439	330	218	255	675	831	535	241	127	136

CAL YR 1988 TOTAL 288212 MEAN 787 MAX 5470 MIN 91
WTR YR 1989 TOTAL 335093 MEAN 918 MAX 5470 MIN 111

e Estimated

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CONN.

(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.

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.--61 years, 16,510 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, 93,900 ft³/s, May 7, gage height, 5.80 ft; minimum daily, 2,870 ft³/s, Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4960	7700	26300	10900	6660	7790	41500	20900	16200	8220	7030	5460
2	4570	19700	24500	10000	6900	7450	40800	28000	17800	6760	7040	5730
3	3650	23400	23300	e9500	8260	e7200	35100	59400	18700	7110	7960	4450
4	4710	23800	21600	e8900	10700	6870	37800	69200	18400	6700	6040	3990
5	4820	20000	19800	e8400	7480	6620	40700	58000	18100	8440	5070	6630
6	4040	19900	e18500	e7900	5720	6920	56400	62900	17300	9050	9970	6980
7	3910	24400	16700	e7400	e5600	e6600	83200	87900	21100	11400	18900	6350
8	4220	27300	17200	6900	e5400	e6200	89600	88700	24200	10600	18400	5450
9	3550	23500	16200	6840	e5200	e5800	79700	73900	32400	6370	17400	5050
10	2870	21600	e14500	9910	e5100	5340	65000	57300	45400	6460	17600	3990
11	3880	18300	e12500	e9500	e5000	5340	53500	54900	53500	13200	12200	3900
12	4120	15600	10800	e8700	e4900	5810	41400	59000	42900	16200	21300	5500
13	6000	14900	e10200	e8100	e4800	5140	34000	65200	37200	15300	28200	4050
14	e6400	17800	e9800	7590	7910	6670	30800	63600	35100	11400	31500	4690
15	e4500	20600	e10800	9670	8270	6930	26800	54100	32300	7560	36700	7500
16	e3000	21300	e10200	8610	9920	10100	28600	43700	34100	5430	28100	7860
17	e3200	21300	e9500	9710	8250	18200	34900	38100	36500	6320	18700	7620
18	4380	19300	e9100	8440	6610	19000	40300	31500	36600	9410	16400	7050
19	5700	17400	e8800	10100	5730	15300	39000	23500	29500	7580	10700	8780
20	5620	19500	11300	10100	4860	13800	42300	21200	26600	7830	8050	9910
21	6080	32500	10300	e8000	7990	13100	40600	20000	22200	9840	8700	13800
22	9350	43600	10500	e6200	22400	10600	35900	18600	18000	9290	9470	18500
23	14000	41700	12700	e5900	22300	12000	31100	17000	17600	8530	9640	19300
24	11100	36800	e11000	e5700	16600	10600	29000	28100	19200	5950	6830	16300
25	11200	30100	8900	e5600	e14000	14600	24400	37900	15900	6040	8090	10400
26	12500	26100	10100	e5500	e11000	12400	23000	31400	13900	6360	7790	12900
27	10700	23500	12600	7350	e9300	16800	22100	21300	13800	6460	5000	15100
28	9960	24400	13100	6960	e8500	24100	20700	19000	14500	6470	4110	13700
29	8320	26700	12000	6190	---	38500	20600	18700	11000	6970	5830	9590
30	4440	28400	13000	5230	---	55700	20000	18000	10800	7130	7280	9510
31	3830	---	12700	6270	---	50300	---	17800	---	7050	8860	---
TOTAL	189580	711100	428500	246070	245360	431780	1208800	1308800	750800	261430	408860	260040
MEAN	6115	23700	13820	7938	8763	13930	40290	42220	25030	8433	13190	8668
MAX	14000	43600	26300	10900	22400	55700	89600	88700	53500	16200	36700	19300
MIN	2870	7700	8800	5230	4800	5140	20000	17000	10800	5430	4110	3900

CAL YR 1988 TOTAL 5229980 MEAN 14290 MAX 73300 MIN 2870
WTR YR 1989 TOTAL 6451120 MEAN 17670 MAX 89600 MIN 2870

e Estimated

CONNECTICUT RIVER BASIN

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01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CONN.--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, 229 microsiemens, Oct. 10; minimum, 65 microsiemens, Nov. 22, May 7, 8.

WATER TEMPERATURES: Maximum, 29.0°C, July 27, 28; minimum, 0.0°C, on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE AIR (DEG C)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT												
04...	1250	4200	151	7.44	16.0	18.0	--	8.4	89	--	--	--
17...	1300	3100	143	7.54	20.0	14.0	0.70	10.4	100	520	K13	--
NOV												
09...	1000	23000	84	7.24	13.5	9.5	1.5	11.4	99	160	190	220
DEC												
19...	1515	9100	122	7.24	3.0	2.5	1.4	13.6	99	2900	98	--
JAN												
09...	1540	7050	144	7.28	1.0	3.0	1.5	13.5	99	700	850	980
24...	1715	6500	159	7.44	11.5	2.5	--	13.8	100	--	--	--
FEB												
06...	1840	6600	168	7.22	0.0	1.5	--	13.2	95	--	--	--
21...	1805	11200	147	7.48	12.0	3.0	--	13.5	101	--	--	--
MAR												
13...	1315	4700	142	7.25	9.5	3.0	0.75	14.2	104	120	69	--
27...	1320	18500	124	7.23	17.0	7.0	4.6	12.5	102	--	--	--
APR												
10...	1215	64000	74	7.08	11.5	5.0	12	13.4	104	45	200	--
24...	1555	28200	82	7.31	14.5	9.5	3.0	11.7	103	--	--	--
MAY												
08...	1305	87400	69	7.04	15.0	10.5	16	11.5	103	870	320	920
30...	1645	17700	114	7.28	22.0	18.0	3.0	9.1	95	--	--	--
JUN												
13...	1000	37000	66	7.13	15.5	17.5	4.6	9.1	95	250	300	--
26...	1320	13900	107	7.14	29.0	23.0	1.7	8.3	97	--	--	--
JUL												
10...	1245	5200	128	7.00	29.5	25.0	1.5	8.2	100	36	81	45
24...	1315	5110	125	7.49	29.5	25.0	0.80	8.2	98	--	--	--
AUG												
07...	1340	20600	137	7.49	25.0	27.5	0.85	7.8	100	68	200	--
23...	1155	10800	127	7.21	29.0	25.0	1.5	7.6	93	--	--	--
SEP												
06...	0900	7360	142	7.48	22.0	21.5	0.94	8.2	92	2000	25	--
20...	1325	9500	143	7.38	22.0	20.0	1.7	7.5	82	--	--	--

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, Conn.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER WH IT FIELD (MG/L AS HCO3)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO3)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT												
04...	--	--	--	--	--	--	--	--	--	--	--	--
17...	41	13	2.1	--	--	--	--	--	15	12	--	--
NOV												
09...	30	9.0	1.7	5.1	1.4	14	11	19	12	7.8	0.10	5.6
DEC												
19...	35	11	1.8	--	--	--	--	--	15	10	--	--
JAN												
09...	42	13	2.2	13	1.8	31	25	29	15	18	0.10	7.3
24...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
06...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
13...	35	11	1.9	--	--	--	--	--	14	16	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
APR												
10...	23	7.2	1.3	--	--	--	--	--	11	7.8	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
08...	21	6.5	1.2	4.3	1.1	15	12	14	8.0	6.3	0.10	4.8
30...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
13...	25	7.9	1.3	--	--	--	--	--	8.0	7.4	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
10...	40	13	1.9	8.4	1.5	31	25	28	10	12	0.10	5.3
24...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
07...	43	14	2.0	--	--	--	--	--	7.0	12	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
06...	43	14	2.0	--	--	--	--	--	13	13	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
OCT												
04...	--	--	--	--	--	--	0.400	0.370	0.310	0.300	0.39	0.70
17...	90	0.12	753	112	0.380	0.020	0.400	0.360	0.280	0.250	0.52	0.80
NOV												
09...	59	0.08	3660	66	0.190	0.010	0.200	0.230	0.070	0.060	0.33	0.40
DEC												
19...	66	0.09	1620	78	--	<0.010	0.300	--	0.220	--	0.28	0.50
JAN												
09...	90	0.12	1710	97	--	<0.010	0.500	0.540	0.300	0.300	0.30	0.60
24...	--	--	--	--	--	--	0.600	0.550	0.400	0.390	0.40	0.80
FEB												
06...	--	--	--	--	--	--	0.500	0.490	0.440	0.430	0.56	1.0
21...	--	--	--	--	--	--	0.600	0.610	0.340	0.330	0.76	1.1
MAR												
13...	79	0.11	1000	80	0.580	0.020	0.600	0.590	0.240	0.230	0.26	0.50
27...	--	--	--	--	--	--	0.500	0.470	0.160	0.160	0.24	0.40
APR												
10...	56	0.08	9680	130	--	<0.010	0.400	0.360	0.070	0.080	0.33	0.40
24...	--	--	--	--	--	--	0.300	0.350	0.080	0.080	0.52	0.60
MAY												
08...	48	0.06	11300	90	--	<0.010	0.300	0.280	0.040	0.040	0.26	0.30
30...	--	--	--	--	--	--	0.400	0.380	0.200	0.210	0.30	0.50
JUN												
13...	57	0.08	5690	90	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	0.300	0.410	0.120	0.130	0.38	0.50
JUL												
10...	73	0.10	1020	--	0.380	0.020	0.400	0.420	0.170	0.180	0.43	0.60
24...	--	--	--	--	--	--	0.400	0.380	0.160	0.120	0.24	0.40
AUG												
07...	78	0.11	4340	86	0.390	0.010	0.400	0.410	0.080	0.080	0.32	0.40
23...	--	--	--	--	--	--	0.400	0.360	0.220	0.220	0.38	0.60
SEP												
06...	78	0.11	1550	90	0.370	0.030	0.400	0.470	0.380	0.400	0.52	0.90
20...	--	--	--	--	--	--	0.400	0.450	0.240	0.230	0.46	0.70

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WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CONN.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	MERCURY DIS- SOLVED (µG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI)	NICKEL, DIS- SOLVED (µG/L AS NI)	SELE- NIUM, DIS- SOLVED (µG/L AS SE)	SILVER, DIS- SOLVED (µG/L AS AG)	STRON- TIUM, DIS- SOLVED (µG/L AS SR)	VANA- DIUM, DIS- SOLVED (µG/L AS V)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN)	ZINC, DIS- SOLVED (µG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT											
04...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	2	<1	--	--	--	--	<10	9	4.8
NOV											
09...	0.3	<10	3	2	<1	<1.0	43	<6	<10	5	4.8
DEC											
19...	--	--	4	<1	--	--	--	--	<10	6	3.8
JAN											
09...	<0.1	<10	1	<1	<1	<1.0	69	<6	<10	15	4.1
24...	--	--	--	--	--	--	--	--	--	--	--
FEB											
06...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
MAR											
13...	--	--	7	9	--	--	--	--	20	7	3.8
27...	--	--	--	--	--	--	--	--	--	--	--
APR											
10...	--	--	4	1	--	--	--	--	10	6	6.1
24...	--	--	--	--	--	--	--	--	--	--	--
MAY											
08...	0.1	<10	6	2	<1	<1.0	32	<6	10	4	5.2
30...	--	--	--	--	--	--	--	--	--	--	--
JUN											
13...	--	--	1	1	--	--	--	--	<10	<3	5.0
26...	--	--	--	--	--	--	--	--	--	--	--
JUL											
10...	0.5	<10	3	1	<1	<1.0	69	<6	<10	6	3.6
24...	--	--	--	--	--	--	--	--	--	--	--
AUG											
07...	--	--	1	1	--	--	--	--	<10	<3	3.5
23...	--	--	--	--	--	--	--	--	--	--	--

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	GROSS ALPHA, DIS- SOLVED (µG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (µG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URIANIUM NATURAL DIS- SOLVED (µG/L AS U)
OCT									
17...	1300	<0.4	<0.4	3.2	<0.4	2.7	<0.4	0.05	0.21
APR									
10...	1215	<0.4	1.0	1.7	1.8	1.6	1.7	0.04	0.05

SUSPENDED SEDIMENT MEASUREMENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV					
09...	1000	23000	8	497	96
JAN					
09...	1540	7050	1	19	100
MAY					
08...	1305	87400	75	17700	88
JUL					
10...	1245	5200	10	140	80

CONNECTICUT RIVER BASIN

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01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CONN.--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	145	132	137	134	123	129	88	82	85	121	117	119
2	176	141	156	134	98	118	91	87	89	121	117	120
3	194	160	180	96	82	88	92	90	90	120	114	117
4	205	179	198	90	80	83	94	91	92	117	113	116
5	182	168	175	91	88	90	98	94	96	123	115	119
6	170	148	161	93	79	89	147	98	107	123	117	120
7	173	152	161	78	73	75	138	102	114	128	120	126
8	160	142	149	81	73	77	106	100	103	138	125	128
9	172	147	158	86	81	84	103	99	101	150	129	142
10	229	127	156	90	85	87	103	101	102	152	134	140
11	206	146	176	90	88	89	109	101	105	134	117	125
12	165	143	148	89	87	88	138	109	113	134	111	126
13	149	144	146	98	88	90	113	111	112	162	131	141
14	144	137	142	99	84	93	115	110	112	179	165	173
15	147	142	144	83	80	82	126	113	121	181	169	176
16	144	141	142	84	82	83	187	122	144	186	175	183
17	145	140	142	90	84	86	122	117	119	174	151	159
18	157	146	150	90	87	88	119	117	118	154	149	151
19	154	142	147	91	86	88	125	119	122	157	153	155
20	143	137	138	92	87	90	127	122	125	153	147	150
21	145	139	142	86	66	74	130	122	127	150	146	148
22	148	142	145	69	65	66	132	128	130	158	145	152
23	142	124	132	78	69	73	128	124	126	161	145	154
24	123	118	120	81	78	80	135	124	128	160	153	157
25	120	112	116	124	81	92	149	136	143	154	151	153
26	116	112	114	140	82	99	149	129	139	163	153	156
27	121	117	119	114	81	88	130	121	125	196	152	177
28	125	121	123	91	84	89	124	121	122	194	166	185
29	124	119	122	90	81	84	137	124	130	165	156	159
30	123	119	122	83	80	82	124	117	121	161	153	158
31	128	122	124	---	---	---	117	114	115	164	160	162
MONTH	229	112	145	140	65	87	187	82	115	196	111	147

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	164	153	157	148	132	136	92	83	87	105	96	100
2	156	151	154	135	130	133	90	83	86	101	90	96
3	158	150	153	138	131	135	88	83	84	87	80	82
4	170	152	160	141	136	138	91	87	89	79	73	75
5	153	146	150	148	138	144	92	89	90	78	75	76
6	175	146	160	152	148	150	96	90	94	81	68	76
7	176	164	170	151	148	150	90	75	83	72	65	69
8	167	156	161	148	122	138	74	71	73	70	65	67
9	156	151	153	142	138	140	72	71	71	67	66	67
10	157	149	153	148	140	142	75	71	73	75	67	70
11	151	146	148	154	147	150	82	75	78	76	66	72
12	151	145	147	155	148	151	84	81	82	72	66	70
13	153	147	149	157	146	153	86	81	83	69	66	68
14	162	152	156	156	152	153	87	86	86	71	68	70
15	169	159	164	157	151	154	93	87	89	72	70	71
16	171	164	168	156	143	151	97	90	95	77	70	74
17	166	158	162	153	138	144	89	83	85	77	72	75
18	164	158	161	153	137	146	85	83	84	79	72	75
19	161	159	160	152	135	143	88	86	87	85	79	81
20	166	160	162	136	130	133	90	87	89	89	86	87
21	168	151	161	165	129	138	90	87	88	95	89	91
22	157	128	140	166	148	156	90	88	89	96	93	94
23	128	116	121	151	136	142	88	85	86	106	95	100
24	123	117	119	138	131	135	84	78	80	107	84	92
25	125	115	121	151	138	144	87	81	84	88	81	85
26	129	125	127	141	134	137	93	88	90	84	79	81
27	135	128	132	138	123	131	97	93	94	104	85	94
28	154	136	148	123	110	116	100	96	98	103	100	102
29	---	---	---	110	98	103	101	98	100	107	103	105
30	---	---	---	97	86	93	107	101	105	111	104	107
31	---	---	---	88	82	84	---	---	---	114	110	112
MONTH	176	115	151	166	82	138	107	71	87	114	65	83

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CONN.--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	118	113	115	130	121	125	148	144	146	139	134	137
2	116	111	113	130	123	128	151	143	148	146	139	143
3	114	110	112	138	128	131	154	150	152	147	140	144
4	114	107	110	137	130	133	157	152	155	152	142	146
5	109	106	107	136	131	134	162	155	158	152	146	149
6	116	109	112	142	136	139	168	158	164	148	138	143
7	116	113	114	142	132	135	162	152	157	147	140	144
8	115	108	112	135	126	131	165	154	159	149	145	147
9	107	91	102	134	131	132	169	165	167	155	149	152
10	93	84	88	139	131	136	168	162	165	156	149	152
11	83	72	77	144	132	139	160	142	152	154	148	151
12	73	71	72	132	126	129	152	127	135	159	155	157
13	85	71	79	130	123	126	130	118	123	155	144	150
14	87	84	85	136	128	131	116	103	107	163	129	152
15	89	85	87	138	133	135	103	95	99	160	123	148
16	89	76	82	140	133	137	95	90	93	151	139	144
17	78	75	77	148	132	141	108	96	101	147	140	143
18	86	75	81	147	136	140	119	109	113	144	139	142
19	92	86	88	139	132	136	121	119	120	150	143	145
20	98	86	90	141	134	137	125	122	123	152	145	148
21	106	98	102	153	138	147	128	121	125	151	144	148
22	114	106	109	141	132	134	132	126	128	148	141	145
23	113	109	111	136	132	134	131	127	129	146	140	143
24	115	93	106	139	135	136	134	129	131	145	138	141
25	109	99	104	143	136	141	140	125	131	147	136	142
26	117	108	110	146	141	143	134	124	128	142	135	138
27	122	115	118	147	139	144	130	121	125	139	123	129
28	123	116	119	145	138	142	134	127	130	127	122	124
29	130	120	124	148	144	146	135	121	132	130	128	129
30	130	123	126	149	145	147	136	129	133	133	127	130
31	---	---	---	148	145	147	142	132	138	---	---	---
MONTH	130	71	101	153	121	137	169	90	134	163	122	144
YEAR	229	65	122									

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.5	17.5	18.5	8.0	8.0	8.0	5.5	5.0	5.5	1.5	1.5	1.5
2	19.0	18.5	18.5	8.0	6.5	7.5	5.0	4.5	5.0	2.0	1.5	1.5
3	19.0	18.5	18.5	7.5	6.5	7.0	5.0	4.5	5.0	2.0	1.5	1.5
4	18.5	17.0	18.0	7.5	6.5	7.0	5.5	4.5	5.0	2.0	.5	1.0
5	17.5	16.5	17.0	8.0	7.0	7.5	4.5	4.0	4.5	.5	.5	.5
6	17.0	16.5	16.5	9.0	8.0	8.5	4.5	4.0	4.5	.5	.5	.5
7	16.0	15.0	16.0	9.0	9.0	9.0	4.5	4.0	4.5	.5	.5	.5
8	15.0	13.5	14.0	9.0	8.0	8.5	5.0	4.5	4.5	.5	.0	.5
9	13.5	13.0	13.0	8.5	8.0	8.0	5.0	4.0	4.5	.5	.0	.5
10	14.0	13.0	13.5	8.5	7.5	8.0	4.5	3.5	4.0	.5	.0	.5
11	14.0	13.0	13.5	8.5	7.5	8.0	4.0	3.0	3.5	.5	.0	.5
12	13.5	13.0	13.5	7.5	7.0	7.5	3.0	2.0	2.5	.5	.0	.5
13	12.5	12.0	12.5	7.0	7.0	7.0	2.5	2.0	2.0	1.0	.0	.5
14	12.5	12.0	12.0	7.0	6.5	7.0	3.0	2.0	2.5	.5	.0	.0
15	12.5	12.0	12.0	7.5	6.5	7.0	3.5	3.0	3.0	1.0	.0	.5
16	12.5	12.0	12.5	7.5	7.0	7.0	3.0	2.0	2.5	1.0	.5	1.0
17	13.0	12.0	12.5	7.5	7.5	7.5	2.5	2.0	2.5	1.0	.5	.5
18	13.5	12.5	13.0	7.5	7.0	7.0	2.5	2.0	2.5	1.0	.5	1.0
19	13.5	13.0	13.0	7.0	6.5	6.5	2.5	2.5	2.5	1.5	1.0	1.5
20	13.0	12.0	12.5	6.5	6.5	6.5	3.0	2.5	2.5	2.0	1.5	1.5
21	12.0	11.5	12.0	6.5	6.0	6.0	3.0	2.5	3.0	1.5	.5	1.0
22	11.5	11.0	11.0	6.0	5.5	5.5	3.0	2.5	3.0	.5	.0	.5
23	11.0	10.5	10.5	5.5	5.0	5.5	2.5	2.0	2.5	1.0	.0	.5
24	10.5	10.5	10.5	5.0	4.5	5.0	2.5	2.5	2.5	1.5	.5	1.0
25	10.5	10.0	10.5	4.5	4.0	4.5	3.0	2.5	2.5	1.5	1.0	1.0
26	10.0	10.0	10.0	4.5	4.0	4.0	2.5	2.0	2.5	1.0	.5	1.0
27	10.0	9.5	10.0	5.0	4.0	4.5	2.5	2.0	2.0	1.5	1.0	1.5
28	10.0	9.5	9.5	7.0	5.0	6.5	3.0	2.5	2.5	1.5	1.0	1.5
29	10.0	9.5	9.5	6.5	6.0	6.5	3.0	2.5	2.5	1.5	1.0	1.5
30	9.5	9.0	9.5	6.0	5.5	6.0	2.5	2.5	2.5	2.5	1.5	2.0
31	9.0	8.0	8.5	---	---	---	2.5	1.5	2.0	3.0	2.5	2.5
MONTH	19.0	8.0	13.0	9.0	4.0	7.0	5.5	1.5	3.0	3.0	.0	1.0

CONNECTICUT RIVER BASIN

01185500 WEST BRANCH FARMINGTON RIVER NEAR NEW BOSTON, MASS.

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.--76 years, 182 ft³/s, 26.95 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, 1,960 ft³/s, Nov. 20, gage height, 6.38 ft; minimum daily, 11.0 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	224	377	173	79	66	365	133	140	61	38	18
2	14	693	339	141	85	60	262	679	131	54	33	18
3	18	553	313	118	77	54	241	619	116	49	32	16
4	16	434	288	e95	70	47	256	403	100	44	30	15
5	15	441	264	e84	76	45	301	311	89	50	28	14
6	14	706	214	e80	77	45	666	1060	123	90	26	14
7	14	518	161	e85	67	e45	564	699	149	74	24	14
8	25	423	146	e90	60	e45	436	473	161	67	22	13
9	31	366	136	e100	69	44	343	485	381	59	20	13
10	25	321	126	e85	68	40	279	653	816	71	20	13
11	23	297	117	e76	68	41	237	1400	442	202	87	13
12	23	267	e90	e70	60	35	197	1160	237	105	473	12
13	21	349	e100	e74	55	47	167	865	275	77	597	11
14	20	446	e120	e85	65	40	161	696	337	66	567	21
15	107	366	e140	e110	118	62	176	509	477	62	309	92
16	153	316	e130	e100	153	72	499	514	688	53	155	54
17	116	352	e120	e95	101	63	408	736	544	65	119	43
18	28	350	e110	e90	78	95	326	521	418	61	86	40
19	35	306	e105	e86	63	106	281	405	284	52	70	45
20	20	765	e110	85	56	78	251	339	193	50	63	78
21	23	1150	e130	e82	338	74	207	298	154	76	60	214
22	240	723	e150	e78	398	65	174	276	118	92	55	294
23	334	558	e160	e74	219	61	152	208	108	83	50	192
24	301	480	e140	e72	138	64	137	798	151	68	45	93
25	269	419	e270	e70	117	114	126	881	154	57	41	70
26	211	372	e200	94	111	202	116	584	131	48	38	226
27	158	347	e170	124	91	255	109	378	107	42	37	205
28	128	599	e290	85	74	378	104	308	93	54	34	122
29	131	507	403	69	---	438	104	251	84	63	22	90
30	130	426	254	67	---	390	161	196	72	54	24	71
31	127	---	209	70	---	364	---	150	---	45	20	---
TOTAL	2784	14074	5882	2807	3031	3535	7806	16988	7273	2094	3225	2134
MEAN	89.8	469	190	90.5	108	114	260	548	242	67.5	104	71.1
MAX	334	1150	403	173	398	438	666	1400	816	202	597	294
MIN	14	224	90	67	55	35	104	133	72	42	20	11
MEAN†	50.2	399	169	95.1	128	136	314	578	248	66.1	103	69.7
CFSM†	.55	4.35	1.84	1.04	1.40	1.48	3.42	6.30	2.70	.72	1.12	.76
IN.†	.63	4.86	2.12	1.20	1.45	1.71	3.83	7.27	3.02	.83	1.29	.85

CAL YR 1988 TOTAL 59280.1 MEAN 162 MAX 1370 MIN 9.0 MEAN† 162 CFSM† 1.77 IN.† 23.99
WTR YR 1989 TOTAL 71633 MEAN 196 MAX 1400 MIN 11 MEAN† 196 CFSM† 2.14 IN.† 29.06

e Estimated

† Adjusted for change in contents in Otis Reservoir.

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 1988 TO SEPTEMBER 1989

	Birch Hill Reservoir	Tully Lake	Somerset and Harriman Reservoirs	Barre Falls Reservoir	Quabbin Reservoir†	Conant Brook Reservoir
Sept. 30, 1988.....	1.3	45.8	5288.8	2.0	39461	0
Oct. 31.....	3.0	29.7	5350.5	2.9	38009	0
Nov. 30.....	18.2	27.8	6467.6	5.7	38634	.1
Dec. 31.....	4.5	25.4	5603.4	28.4	38247	.1
Jan. 31, 1989.....	2.5	26.0	4367.1	24.5	37850	.1
Feb. 28.....	3.0	33.9	3731.5	45.7	37692	.1
Mar. 31.....	90.2	95.2	4066.8	26.8	37709	.2
Apr. 30.....	6.5	70.5	6472.5	4.7	39461	.1
May 31.....	5.7	66.6	7330.8	4.7	42731	.1
June 30.....	3.0	69.2	6799.6	3.1	44161	.1
July 31.....	2.8	69.2	6027.4	3.1	43419	0
Aug. 31.....	2.0	66.6	5756.7	2.9	43478	.1
Sept. 30.....	4.8	41.6	5255.0	3.9	43107	.1

	Ludlow Reservoir	Knightville Reservoir	Littleville Lake	Borden Brook and Cobble Mountain Reservoirs	Otis Reservoir
Sept. 30, 1988.....	158.0	0.1	418.5	2442.6	695.7
Oct. 31.....	151.1	.4	422.4	2312.0	589.7
Nov. 30.....	177.5	.9	434.1	2774.4	408.5
Dec. 31.....	174.1	18.7	427.6	2642.7	352.0
Jan. 31, 1989.....	168.6	13.5	422.4	2565.7	364.3
Feb. 28.....	168.6	42.0	422.4	2575.9	411.8
Mar. 31.....	168.6	146.4	482.2	2640.6	471.5
Apr. 30.....	179.4	3.4	432.8	2934.1	612.0
May 31.....	181.1	2.5	427.6	3227.4	691.8
June 30.....	179.4	.4	425.0	3260.1	707.2
July 31.....	179.4	.2	422.4	3131.9	703.3
Aug. 31.....	179.4	.1	419.8	3053.8	699.5
Sept. 30.....	177.5	.2	422.4	2969.3	695.7

† Affected by diversion from Ware River and diversion to Wachusett Reservoir and Chicopee Valley aqueduct.

HOUSATONIC RIVER BASIN

01197000 EAST BRANCH HOUSATONIC RIVER AT COLTSVILLE, MASS.

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.--53 years, 105 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)
May 6	1430	*1,150	*4.56				

Minimum daily discharge, 19 ft³/s, Sept. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	62	129	53	54	37	201	163	95	53	46	26
2	26	415	114	51	67	36	130	601	115	47	41	27
3	29	218	106	53	54	35	160	603	124	41	38	23
4	28	112	98	41	39	33	177	282	90	39	36	22
5	27	95	85	33	34	33	210	192	74	55	35	23
6	27	287	83	36	34	31	520	792	80	113	35	22
7	27	208	84	39	33	26	455	598	101	90	39	21
8	28	128	87	42	32	26	250	300	155	63	36	21
9	29	104	89	45	28	26	168	214	153	50	33	20
10	29	92	81	41	27	26	139	201	410	92	31	19
11	31	90	70	39	27	26	123	641	283	278	38	20
12	31	73	40	38	26	30	109	572	178	145	216	20
13	30	103	40	45	26	30	101	382	199	91	502	20
14	29	209	52	40	45	34	101	265	225	63	271	22
15	36	139	59	52	76	57	110	206	217	58	136	35
16	30	100	49	52	61	78	296	192	284	46	93	40
17	29	127	47	47	36	48	304	273	219	42	82	38
18	31	154	45	41	30	64	214	207	152	40	62	53
19	33	117	45	42	26	67	177	157	117	37	46	67
20	31	235	49	43	24	45	146	132	91	52	40	57
21	28	617	65	34	220	44	126	120	74	215	40	52
22	95	285	72	30	341	40	114	116	90	138	38	49
23	145	166	57	33	100	35	99	90	181	79	35	58
24	83	126	66	35	48	37	92	310	612	55	33	60
25	60	106	124	34	37	43	85	438	309	44	30	45
26	50	95	99	38	40	112	77	231	163	39	27	88
27	45	97	64	51	40	213	74	181	127	42	25	98
28	42	251	79	45	38	383	74	145	114	141	24	56
29	42	234	117	39	---	586	73	113	89	174	26	41
30	39	157	86	41	---	271	179	97	63	94	31	35
31	39	---	59	45	---	211	---	89	---	58	31	---
TOTAL	1255	5202	2340	1298	1643	2763	5084	8903	5184	2574	2196	1178
MEAN	40.5	173	75.5	41.9	58.7	89.1	169	287	173	83.0	70.8	39.3
MAX	145	617	129	53	341	586	520	792	612	278	502	98
MIN	26	62	40	30	24	26	73	89	63	37	24	19

CAL YR 1988 TOTAL 36040 MEAN 98.5 MAX 1200 MIN 16
WTR YR 1989 TOTAL 39620 MEAN 109 MAX 792 MIN 19

HOUSATONIC RIVER BASIN

169

01197500 HOUSATONIC RIVER NEAR GREAT BARRINGTON, MASS.

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.--76 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)
May 8	0500	*2,510	*5.73	No other peak greater than base discharge.			

Minimum daily discharge, 111 ft³/s, Sept 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	215	814	e350	222	217	1010	686	541	e380	275	162
2	176	777	728	321	259	205	823	937	554	e330	244	156
3	184	1120	653	315	e261	198	695	2010	499	e300	240	167
4	187	786	584	e288	237	199	735	2040	451	e280	234	167
5	179	591	530	e261	209	193	799	1480	428	e400	223	165
6	178	748	490	e276	196	202	1300	1670	535	e500	201	160
7	176	903	480	264	187	186	1920	2390	562	458	195	140
8	178	746	467	270	e173	169	1700	2400	665	396	208	173
9	175	602	445	279	e170	158	1240	1780	e690	321	202	168
10	165	523	410	263	e167	156	997	1280	e1150	303	188	161
11	167	492	379	239	161	160	866	1730	e1200	815	185	126
12	172	463	e308	e232	e114	163	771	2290	e860	776	469	116
13	176	466	e308	240	147	155	700	2210	e880	539	1400	111
14	171	722	e333	e239	164	142	681	1660	e950	414	1410	117
15	167	730	e337	253	226	177	661	1250	e960	367	903	186
16	168	600	e320	284	371	259	925	1150	e1100	322	571	210
17	198	570	e333	254	e239	246	1280	1260	e1000	286	439	203
18	183	653	e337	230	e192	235	1150	1070	e800	266	363	202
19	212	586	e329	237	170	272	963	851	e660	258	311	191
20	219	691	e320	257	159	237	825	736	e560	277	269	215
21	193	1950	327	234	395	221	725	693	e500	782	247	264
22	275	1790	350	e198	1240	212	659	660	e490	701	241	275
23	388	1180	e329	e198	905	203	605	614	e700	528	229	277
24	435	879	317	189	462	210	554	1070	e1700	396	218	293
25	384	738	483	190	e329	342	515	1490	e1300	332	209	268
26	321	670	473	190	e261	618	479	904	e900	293	199	342
27	254	636	384	245	237	755	451	717	e750	261	190	451
28	235	875	376	230	e236	959	432	616	e620	332	182	375
29	231	1090	532	213	---	1210	429	571	e520	494	172	326
30	220	955	477	208	---	1260	605	549	e450	436	182	284
31	204	---	392	214	---	1050	---	541	---	332	180	---
TOTAL	6746	23747	13345	7661	8089	10969	25495	39305	22975	12875	10779	6451
MEAN	218	792	430	247	289	354	850	1268	766	415	348	215
MAX	435	1950	814	350	1240	1260	1920	2400	1700	815	1410	451
MIN	165	215	308	189	114	142	429	541	428	258	172	111
CFSM	.77	2.81	1.53	.88	1.02	1.25	3.01	4.50	2.72	1.47	1.23	.76
IN.	.89	3.13	1.76	1.01	1.07	1.45	3.36	5.18	3.03	1.70	1.42	.85

CAL YR 1988 TOTAL 171264 MEAN 468 MAX 3600 MIN 77 CFSM 1.66 IN. 22.59
WTR YR 1989 TOTAL 188437 MEAN 516 MAX 2400 MIN 111 CFSM 1.83 IN. 24.86

e Estimated

HUDSON RIVER BASIN

01331500 HOOSIC RIVER AT ADAMS, MASS.

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. 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.--58 years 89.7 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)
Aug. 12	1915	*710	*7.59				

Minimum discharge, 21 ft³/s, Oct. 6; minimum daily, 22 ft³/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	79	112	53	72	43	247	109	96	60	46	34
2	25	269	104	51	60	43	180	387	121	56	42	44
3	25	144	98	50	49	43	204	300	128	52	40	35
4	25	99	89	41	42	41	247	201	89	49	38	32
5	24	112	82	42	38	49	258	170	76	86	37	30
6	22	194	80	38	38	52	392	455	106	112	40	29
7	24	126	80	37	37	39	322	339	114	75	55	29
8	26	99	80	39	35	36	234	247	170	63	45	28
9	29	87	74	42	33	36	197	211	141	56	38	28
10	30	83	69	39	31	37	178	208	312	200	34	28
11	34	88	57	38	30	39	104	371	179	278	44	28
12	34	76	27	46	30	42	94	311	130	105	277	26
13	31	110	30	53	29	38	98	256	156	80	459	25
14	31	148	37	41	85	37	102	218	169	70	220	26
15	31	102	38	67	111	104	120	195	206	63	142	36
16	27	88	35	48	61	72	287	181	239	56	115	33
17	26	135	34	42	41	59	232	168	173	52	111	51
18	29	126	33	39	38	101	195	101	134	49	119	40
19	37	99	34	41	35	69	167	94	118	43	99	34
20	34	217	36	42	34	49	143	90	102	47	82	72
21	31	333	43	38	279	46	131	88	93	76	57	77
22	113	202	46	35	240	40	121	88	91	58	49	52
23	102	157	40	35	127	42	108	82	123	51	45	66
24	67	137	55	35	96	42	102	194	217	45	42	71
25	57	122	96	36	90	55	96	187	126	42	38	47
26	49	112	62	40	85	215	88	126	100	39	36	115
27	44	108	50	56	80	210	86	138	87	38	34	88
28	44	218	88	42	45	263	83	113	79	116	33	59
29	50	166	91	40	---	331	81	96	73	105	34	52
30	44	128	64	47	---	215	128	88	65	63	42	47
31	40	---	55	50	---	224	---	85	---	53	36	---
TOTAL	1210	4164	1919	1343	1971	2712	5025	5897	4013	2338	2529	1362
MEAN	39.0	139	61.9	43.3	70.4	87.5	167	190	134	75.4	81.6	45.4
MAX	113	333	112	67	279	331	392	455	312	278	459	115
MIN	22	76	27	35	29	36	81	82	65	38	33	25

CAL YR 1988 TOTAL 30376 MEAN 83.0 MAX 720 MIN 19
WTR YR 1989 TOTAL 34483 MEAN 94.5 MAX 459 MIN 22

HUDSON RIVER BASIN

171

01332000 NORTH BRANCH HOOSIC RIVER AT NORTH ADAMS, MASS.

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 current year.
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 fair. Infrequent diurnal fluctuation at low flow by mill upstream; more frequent fluctuation prior to 1948.

AVERAGE DISCHARGE.--58 years 96.4 ft³/s, 32.01 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)
Mar. 29	0630	1,320	8.25	May 6	unknown	*2,200	*a9.02

a From peak-stage indicator.

Minimum discharge, 7.4 ft³/s, Mar. 13; minimum daily, 11 ft³/s, Sept. 10-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	106	108	40	42	24	343	e90	e86	35	18	18
2	18	532	94	38	55	23	202	e700	e250	30	16	33
3	23	219	86	37	38	22	228	e450	e220	26	17	26
4	21	148	78	24	29	21	370	e200	e140	23	15	18
5	19	168	66	e29	26	25	484	e160	e110	66	25	15
6	20	381	66	e45	24	25	818	e1000	e120	85	30	14
7	18	195	63	e42	22	19	507	e500	151	49	29	13
8	19	141	62	e35	21	19	274	e260	251	39	25	13
9	21	119	53	e31	18	18	195	e200	171	29	19	12
10	24	102	47	28	23	19	165	e180	503	122	15	11
11	31	99	35	23	22	20	131	e600	238	138	17	11
12	36	84	32	22	17	20	113	e370	149	62	253	11
13	28	142	e35	30	16	18	106	e250	165	43	435	11
14	25	198	e37	25	32	27	107	e200	157	35	212	11
15	24	127	e41	42	58	108	122	e170	168	32	108	16
16	22	103	44	35	40	102	325	e150	307	26	73	16
17	21	149	43	28	25	81	281	e130	316	24	54	48
18	23	137	39	26	22	158	282	e110	176	21	40	29
19	40	106	34	26	19	117	222	e90	129	19	33	20
20	29	308	32	26	17	76	176	e85	99	21	29	134
21	26	597	38	23	98	65	148	e80	81	38	43	135
22	146	239	39	25	169	51	130	e78	82	26	34	71
23	153	166	32	25	81	47	107	e75	169	22	57	89
24	106	132	41	22	48	45	95	e200	322	18	54	95
25	96	109	93	21	41	63	88	e200	132	16	34	63
26	76	96	51	21	37	176	83	e120	93	14	27	161
27	64	95	42	25	36	256	e80	e105	75	15	23	132
28	60	234	66	22	27	402	e78	e90	62	71	21	85
29	67	175	91	22	---	934	e76	e82	53	55	20	66
30	56	128	58	23	---	386	e95	e78	43	28	29	52
31	51	---	47	25	---	261	---	e75	---	23	21	---
TOTAL	1382	5535	1693	886	1103	3628	6431	7078	5018	1251	1826	1429
MEAN	44.6	184	54.6	28.6	39.4	117	214	228	167	40.4	58.9	47.6
MAX	153	597	108	45	169	934	818	1000	503	138	435	161
MIN	18	84	32	21	16	18	76	75	43	14	15	11
CFSM	1.09	4.51	1.34	.70	.96	2.86	5.24	5.58	4.09	.99	1.44	1.16
IN.	1.26	5.03	1.54	.81	1.00	3.30	5.85	6.44	4.56	1.14	1.66	1.30

CAL YR 1988 TOTAL 31397.1 MEAN 85.8 MAX 1030 MIN 7.3 CFSM 2.10 IN. 28.56
WTR YR 1989 TOTAL 37260 MEAN 102 MAX 1000 MIN 11 CFSM 2.50 IN. 33.89

e Estimated

HUDSON RIVER BASIN

01332500 HOOSIC RIVER NEAR WILLIAMSTOWN, MASS.

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 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.--49 years, 273 ft³/s, 29.42 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)
Mar. 29	unknown	3,000	unknown	May 6	1145	*3,040	*8.68

Minimum discharge, 73 ft³/s, Feb. 17, Sept. 14; minimum daily, 76 ft³/s, Feb. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

1	85	239	322	e140	151	114	e850	277	261	149	111	104
2	84	1140	287	e135	172	111	e560	1370	575	140	100	132
3	87	511	265	e125	128	109	e620	1020	521	126	100	113
4	83	341	234	e95	107	106	e900	597	317	122	98	100
5	86	351	216	e100	97	120	e1200	468	266	219	104	90
6	85	767	213	e130	99	137	e1800	1850	378	271	139	89
7	85	436	213	e120	96	96	e1300	1100	394	183	137	89
8	86	316	212	e110	91	100	e750	692	610	156	115	86
9	89	270	195	e130	79	95	e580	549	440	131	97	85
10	94	273	184	118	87	96	e500	523	1170	318	91	83
11	110	254	159	105	94	100	e390	1300	621	501	103	79
12	114	222	e100	124	78	103	e320	960	420	227	666	82
13	104	332	e110	148	76	95	296	769	459	179	1260	77
14	95	468	e120	115	195	108	297	600	467	164	572	77
15	91	312	e130	184	272	302	331	505	526	156	323	93
16	89	261	122	142	165	264	850	447	784	130	247	91
17	88	383	e115	122	102	185	719	409	686	126	212	147
18	92	371	e110	113	104	343	638	305	449	123	208	119
19	114	293	e105	116	102	268	527	267	369	114	183	95
20	106	681	e120	116	84	176	433	248	303	122	166	267
21	96	1290	132	93	665	163	380	237	256	175	173	283
22	318	627	140	95	651	137	343	237	250	142	141	169
23	339	461	116	98	267	133	298	211	391	126	163	198
24	227	376	145	92	180	139	276	536	726	117	153	217
25	209	328	258	92	165	175	258	550	358	112	127	158
26	175	292	174	98	149	587	242	343	271	100	110	340
27	158	278	140	136	154	e660	235	341	229	105	106	290
28	150	622	232	100	117	e1000	232	279	202	236	104	196
29	165	485	271	96	---	e2000	219	242	190	234	107	166
30	147	364	190	105	---	e1000	293	228	168	143	128	145
31	142	---	159	120	---	e700	---	227	---	118	109	---
TOTAL	3993	13344	5489	3613	4727	9722	16637	17687	13057	5265	6453	4260
MEAN	129	445	177	117	169	314	555	571	435	170	208	142
MAX	339	1290	322	184	665	2000	1800	1850	1170	501	1260	340
MIN	83	222	100	92	76	95	219	211	168	100	91	77
CFSM	1.02	3.53	1.41	.92	1.34	2.49	4.40	4.53	3.45	1.35	1.65	1.13
IN.	1.18	3.94	1.62	1.07	1.40	2.87	4.91	5.22	3.85	1.55	1.91	1.26

CAL YR 1988 TOTAL 87715 MEAN 240 MAX 2120 MIN 52 CFSM 1.90 IN. 25.90
WTR YR 1989 TOTAL 104247 MEAN 286 MAX 2000 MIN 76 CFSM 2.27 IN. 30.78

e Estimated

HUDSON RIVER BASIN

173

01333000 GREEN RIVER AT WILLIAMSTOWN, MASS.

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 fair. Slight diurnal fluctuation at times caused by mill upstream.

AVERAGE DISCHARGE.--40 years, 82.3 ft³/s, 26.24 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,060 ft³/s, Dec. 31, 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)
Feb. 21	1530	1,020	3.84	May 6	1045	*1,460	*4.36

Minimum discharge, 11 ft³/s, Sept. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	59	112	51	47	e34	325	77	88	58	28	21
2	15	219	102	49	47	e32	182	318	201	53	26	33
3	17	123	95	47	40	30	195	250	162	47	24	21
4	15	97	85	e39	32	29	234	183	125	45	22	19
5	15	98	79	e45	e35	44	236	154	104	80	24	17
6	17	145	75	e41	e35	e35	455	685	150	67	33	16
7	15	118	73	e38	34	29	409	396	135	54	35	15
8	16	101	69	e36	34	e30	276	292	183	52	28	14
9	17	88	64	e40	30	33	214	220	160	44	23	13
10	18	82	60	36	e29	e27	183	214	367	132	20	13
11	22	80	45	32	e28	e30	154	413	229	137	23	13
12	20	70	e32	56	26	27	133	357	167	83	105	13
13	19	134	e43	53	e24	27	125	289	169	70	121	12
14	18	130	e41	38	100	34	126	227	147	61	85	12
15	17	106	e39	79	94	81	139	191	160	55	62	16
16	16	95	e36	42	46	51	310	168	232	49	52	14
17	16	148	e35	36	30	41	248	146	223	47	45	29
18	18	124	e34	34	33	82	211	129	162	43	40	17
19	20	110	e36	41	36	54	172	116	144	40	36	16
20	17	274	e38	48	32	39	144	102	124	44	35	49
21	17	369	e45	34	307	40	129	102	110	53	56	50
22	39	212	e45	46	127	35	121	92	108	41	38	35
23	40	168	e40	48	64	35	112	80	121	38	40	47
24	37	141	e60	42	47	37	103	134	196	34	33	49
25	37	122	78	32	e45	77	94	131	123	31	29	36
26	33	112	54	60	e43	249	85	106	103	28	27	74
27	30	106	e50	52	e40	233	79	115	89	28	25	59
28	32	177	78	36	e36	278	75	93	82	68	23	47
29	33	133	69	33	---	339	73	83	73	50	23	41
30	30	119	55	40	---	234	86	76	64	35	28	36
31	28	---	54	39	---	274	---	78	---	31	22	---
TOTAL	699	4060	1821	1343	1521	2620	5428	6017	4501	1698	1211	847
MEAN	22.5	135	58.7	43.3	54.3	84.5	181	194	150	54.8	39.1	28.2
MAX	40	369	112	79	307	339	455	685	367	137	121	74
MIN	15	59	32	32	24	27	73	76	64	28	20	12
CFSM	.53	3.18	1.38	1.02	1.28	1.98	4.25	4.56	3.52	1.29	.92	.66
IN.	.61	3.55	1.59	1.17	1.33	2.29	4.74	5.25	3.93	1.48	1.06	.74

CAL YR 1988 TOTAL 25660.3 MEAN 70.1 MAX 706 MIN 9.3 CFSM 1.65 IN. 22.41
WTR YR 1989 TOTAL 31766 MEAN 87.0 MAX 685 MIN 12 CFSM 2.04 IN. 27.74

e Estimated

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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 1989

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, Mass.	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.	--	1979-89	8-30-89	488.61	a970

a Does not include unknown amount of bypass flow.

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 1989

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
MYSTIC RIVER BASIN						
01102480	Aberjona River at Swanton Street at Winchester, Mass.	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	7-25-89 8-28-89 9- 7-89	4.4 5.4 3.9
01103015	Mill Brook at Arlington, Mass.	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	7-26-89 8-29-89 9- 7-89	1.2 1.4 1.4
CHARLES RIVER BASIN						
01103200	Charles River below Box Pond at Bellingham, Mass.	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	7-25-89 8-28-89 9- 5-89	16 12 8.3
01103217	Hopping Brook near West Medway, Mass.	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	7-25-89 8-28-89 9- 6-89	11 5.6 2.8
01103240	Mine Brook near Franklin, Mass.	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	7-26-89 8-28-89 9- 5-89	16 14 12
01103253	Chicken Brook near West Medway, Mass.	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	7-25-89 8-28-89 9- 6-89	4.9 3.8 2.8
01103300	Mill River near Norfolk, Mass.	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	9- 6-89 9-13-89	18 16
01103305	Charles River near Millis, Mass.	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	7-26-89 8-29-89 9- 5-89	102 77 57
01103330	Stop River near Medfield, Mass.	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	7-25-89 8-28-89 9- 7-89	6.3 18 13
01103395	Bogastow Brook, Orchard Street, near Millis, Mass.	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	7-25-89 8-28-89 9- 7-89	4.7 13 6.5

† 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 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
CHARLES RIVER BASIN--Continued						
01103400	Charles River near Medfield, Mass.	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	8-29-89 9- 6-89	143 128
01103435	Waban Brook at Wellesley, Mass	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	9- 8-89 9-13-89	3.8 3.0
01103440	Fuller Brook at Wellesley, Mass.	Lat 42°17'45", long 71°17'18", Norfolk County, at bridge on Brook Street, 0.3 mi east of Wellesley.	3.93	1959-60, 1968-71, 1983, 1989	7-25-89 8-28-89 9- 7-89	2.8 1.8 2.0
01103445	Fuller Brook at Wellesley College Golf Course at Wellesley, Mass.	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	7-25-89 8-28-89 9- 7-89	8.1 4.0 3.1
01104470	Stony Brook at Waltham, Mass.	Lat 42°22'04", long 71°16'16", Middlesex County, 0.5 mi upstream from Stony Brook Reservoir, 1.0 mi west of Waltham.	22.1	1989	7-25-89 8-28-89 9- 8-89	12 2.4 39
NEPONSET RIVER BASIN						
01104840	Neponset River at Walpole, Mass.	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	7-25-89 8-28-89 9- 6-89	6.0 10 8.2
01104850	Mine Brook at Walpole, Mass.	Lat 42°09'14", long 71°15'52", at inlet to Turner Pond, 0.75 mi northwest of Walpole.	6.00	1966-69, 1989	7-27-89 8-28-89 9- 6-89	6.1 8.9 6.4
01104980	Hawes Brook at Norwood, Mass.	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, 1989	7-25-89 8-28-89 9- 6-89	8.1 4.6 3.7
01105270	Massapoag Brook at Canton, Mass.	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	1989	7-26-89 8-28-89 9- 7-89	3.3 6.9 5.1
01105300	Steep Hill Brook at Canton, Mass.	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, 1989	7-26-89 8-28-89 9- 6-89	11 18 13
01105554	Neponset River near Dedham, Mass.	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	7-26-89 8-29-89 9- 6-89	112 90 54

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
WEYMOUTH FORE RIVER BASIN						
01105582	Monatiquot River at Braintree, Mass.	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	7-25-89 8-28-89 9- 7-89	32 22 16
WEYMOUTH BACK RIVER BASIN						
01105610	Whitmans Pond Outlet at East Weymouth, Mass.	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	7-26-89 8-29-89 9- 7-89	5.5 3.1 2.5
WEIR RIVER BASIN						
01105640	Weir River near Hingham, Mass.	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	7-26-89 8-28-89 9- 7-89	7.0 9.0 6.9
BLACKSTONE RIVER BASIN						
01109460	Dark Brook at Auburn, Mass.	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, 1989	7-27-89 8-29-89 9- 6-89	6.3 4.7 3.4
01109570	Tatnuck Brook below Coes Reservoir at Worcester, Mass.	Lat 42°15'03", long 71°50'15", Worcester County, at outlet below Coes Reservoir, 2.0 mi southwest of Worcester.	11.5	1989	7-27-89 8-29-89 9- 6-89	2.6 1.1 .50
01109658	Blackstone River near Millbury, Mass.	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	7-27-89 8-29-89 9- 6-89	33 30 20
01110100	Quinsigamond River near Grafton, Mass.	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	1989	7-25-89 8-29-89 9-6-89	.23 .12 .10
01111050	Mumford River at Uxbridge, Mass.	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	7-26-89 8-28-89 9- 6-89	60 48 36
01112250	Mill River near Blackstone, Mass.	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, 1989	7-25-89 8-28-89 9- 6-89	26 19 6.9
01112380	Peters River at Crooks Corner, Mass.	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	7-26-89 8-28-89 9- 6-89	9.0 8.8 7.6
01113750	Abbot Run near South Attleboro, Mass.	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	7-25-89 8-28-89 9- 5-89	30 29 29

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 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
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, Mass.	139	1940-77†, 1978-88	11-21-88 1- 6-89 2-17-89 4-19-89 5- 4-89 8- 3-89	1920 145 189 744 1400 209
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, R.I.	3.69	--	9-10-59 10- 7-59 10-22-59 9-16-88 10-11-88 12-15-88 1-18-89 3-15-89 4-20-89 5-16-89 6-20-89 7-14-89 8-17-89 9-15-89	0.51 .60 .88 .62 1.0 13 5.8 8.5 19 18 8.6 7.0 9.7 7.4
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, R.I.	8.14	--	9-10-59 10- 7-59 10-22-59 9-16-88 10-11-88 12-13-88 1-18-89 3-15-89 4-20-89 5-17-89 6-20-89 7-14-89 8-17-89 9-15-89	2.6 1.8 2.6 2.7 2.8 12 13 14 32 34 15 10 14 9.8
01117365 Queens Fort Brook	Queen River	Lat 41°32'53", long 71°32'01", Washington County, at bridge on Slocumville Road, 2.0 mi south of Exeter, R.I.	3.22	--	4-21-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	2.2 2.8 .90 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, R.I.	19.1	--	9-16-88 10-11-88 12-13-88 1-18-89 3-15-89 4-19-89 5-16-89 6-20-89 7-14-89 8-17-89 9-15-89	7.4 7.9 24 24 29 86 79 40 16 33 20

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
PAWCATUCK RIVER BASIN--Continued						
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, R.I.	0.82	--	12-16-88 1-18-89 3-15-89 4-19-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	1.9 1.3 1.2 1.1 3.1 1.6 .59 2.0 .17
01117380 Locke Brook	Queen River	Lat 41°32'14", long 71°35'17", Washington County, at bridge on Mail Road, 0.8 mi west of Liberty, R.I.	4.37	--	9-10-59 10- 7-59 10-22-59 10-11-88 12-13-88 1-17-89 3-15-89 4-19-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	.87 1.4 1.6 2.3 6.5 7.8 6.6 19 18 10 3.9 7.2 2.9
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, R.I.	0.25	--	12-16-88 1-17-89 3-14-89 4-19-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	.28 .49 .17 .66 .58 .29 0 .16 0
01117390 Glen Rock Brook	Usquepaug River	Lat 41°30'59", long 71°36'23", Washington County, at culvert on Glen Rock Road, 1.0 mi north of Usquepaug, R.I.	2.83	--	10-12-88 12-16-88 1-17-89 3-14-89 4-19-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	.68 4.9 5.1 3.7 9.4 12 6.2 1.4 3.1 .88
01117400 Sherman Brook	Usquepaug River	Lat 41°31'04", long 71°36'18", Washington County, at culvert on Glen Rock Road, 1.1 mi north of Usquepaug, R.I.	1.04	1966-74†	10-12-88 12-16-88 1-17-89 3-14-89 4-19-89 5-17-89 6-19-89 7-13-89 8-18-89 9-14-89	.39 2.6 2.6 1.6 4.2 5.4 3.6 .55 1.8 .46
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, R.I.	32.8	1972	10-12-88 12-13-88 1-17-89 3-14-89 4-21-89 5-16-89 6-20-89 7-14-89 8-17-89 9-15-89	12 37 56 42 119 130 74 26 69 42

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
THAMES RIVER BASIN						
01125000 French River	do.	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, Mass.	85.3	1949-81†, 1982-88	3-13-89 5-11-89	25 431
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, Mass.	--	1987-88	12-27-88 4-18-89 6- 8-89 7-11-89	289 1130 858 253
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, Mass.	--	1988	10-17-88 12-13-88 1-23-89 3- 6-89 4-27-89 5-11-89 6-13-89 7-28-89	24 82 97 101 147 344 173 79
HOUSATONIC RIVER BASIN						
011980650 Karner Brook	Housatonic River	Lat 42°09'19", long 73°25'51", Berkshire County, at most easterly bridge on Mount Washington Road, 0.8 mi southwest of South Egremont, Mass.	--	--	10-14-88	1.9
011980653 Karner Brook	do.	Lat 42°09'24", long 73°25'45", Berkshire County, 0.2 mi upstream from Mill Pond, 0.7 mi southwest of South Egremont, Mass.	--	--	10-14-88	2.1
011980661 Karner Brook	do.	Lat 42°09'30", long 73°25'20", Berkshire County, below outlet of Mill Pond, 0.4 mi southwest of South Egremont, Mass.	--	--	10-14-88	2.2

† Operated as a continuous-record gaging station.

‡ Operated as a crest-stage partial-record station and published as "Glen Rock Brook tributary".

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	26.68	DEC 20	24.77	FEB 21	25.31	APR 21	25.15	JUN 20	24.20	AUG 22	24.87
NOV 22	26.07	JAN 20	25.09	MAR 20	25.43	MAY 24	23.92	JUL 21	24.32	SEP 21	25.29

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	25.90	DEC 20	25.70	FEB 21	26.06	APR 21	25.25	JUN 20	24.58	AUG 22	25.11
NOV 22	26.17	JAN 20	25.85	MAR 20	26.10	MAY 24	24.67	JUL 21	24.89	SEP 21	25.49

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	34.43	JAN 20	33.39	APR 26	32.79	JUN 20	32.46	SEP 25	33.63		
NOV 21	34.37	FEB 23	33.69	MAY 10	32.34	JUL 21	32.98				
DEC 21	33.33	MAR 20	33.80	25	32.22	AUG 28	33.35				

GROUND-WATER LEVELS IN MASSACHUSETTS

BARNSTABLE COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	11.04	DEC 21	10.98	FEB 22	11.25	APR 26	10.68	JUN 27	10.24	AUG 22	10.33
NOV 23	11.14	JAN 26	11.16	MAR 23	11.31	MAY 24	10.37	JUL 24	10.10	SEP 22	10.60

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, 28.44 ft below land-surface datum, May 20, 1987; lowest measured, 33.60 ft below land-surface datum, Jan. 31, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	32.13	DEC 21	31.63	FEB 22	32.09	APR 26	31.00	JUL 24	30.55	SEP 22	31.21
NOV 23	32.21	JAN 26	32.90	MAR 23	32.14	JUN 27	30.14	AUG 22	30.80		

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, 26.22 ft below land-surface datum, Jan. 31, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	25.26	DEC 21	23.59	FEB 22	24.92	APR 27	23.89	JUN 27	23.52	AUG 22	24.02
NOV 23	25.22	JAN 24	24.64	MAR 23	25.08	MAY 24	23.55	JUL 24	23.91	SEP 22	24.40

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	9.91	DEC 21	8.87	FEB 23	9.43	APR 26	8.13	JUN 20	7.88	AUG 24	8.61
NOV 21	9.68	JAN 20	9.18	MAR 20	9.41	MAY 25	7.86	JUL 20	8.06	SEP 25	9.06

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	47.80	DEC 21	47.83	FEB 23	48.04	APR 26	47.38	JUN 20	47.10	AUG 24	47.40
NOV 21	47.89	JAN 20	47.77	MAR 20	47.81	MAY 24	47.16	JUL 20	47.24	SEP 26	47.52

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	50.35	JAN 20	50.57	APR 26	50.28	JUN 20	49.97	SEP 25	50.62		
NOV 21	50.50	FEB 23	50.83	MAY 10	50.16	JUL 20	50.00				
DEC 21	50.33	MAR 20	50.94	24	50.06	AUG 24	50.22				

GROUND-WATER LEVELS IN MASSACHUSETTS

BARNSTABLE COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	10.52	DEC 21	10.62	FEB 22	10.99	APR 25	10.72	JUN 27	10.67	AUG 22	10.87
NOV 23	10.76	JAN 25	10.98	MAR 23	11.06	MAY 24	10.61	JUL 24	10.76	SEP 22	10.72

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	12.47	DEC 21	12.22	FEB 22	12.53	APR 25	12.00	JUN 27	12.02	AUG 22	12.22
NOV 23	12.46	JAN 25	12.37	MAR 23	12.51	MAY 24	11.96	JUL 24	12.04		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	11.64	DEC 21	10.82	FEB 22	10.87	APR 25	10.36	JUN 27	9.78	AUG 22	10.14
NOV 23	11.75	JAN 25	10.72	MAR 23	11.03	MAY 24	9.95	JUL 24	9.95	SEP 22	10.38

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 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23, 1986	4.55	AUG 22, 1987	4.60	JUN 23, 1988	4.44	MAR 24, 1989	4.16
NOV 23	3.44	SEP 23	3.77	JUL 22	2.56	APR 24	3.75
DEC 22	3.96	OCT 21	3.92	AUG 23	4.62	MAY 23	3.74
JAN 25, 1987	4.01	NOV 23	3.60	SEP 22	4.49	JUN 22	3.93
FEB 23	4.17	DEC 23	3.85	OCT 22	3.38	JUL 24	4.13
MAR 23	3.61	JAN 22, 1988	3.34	NOV 22	2.68	AUG 23	4.30
APR 24	3.80	FEB 21	3.52	DEC 21	4.07	SEP 25	4.13
MAY 21	4.18	MAR 25	3.26	JAN 02, 1989	3.50		
JUN 22	4.33	APR 22	3.86	23	4.30		
JUL 23	4.52	MAY 24	3.28	FEB 22	3.65		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	7.50	DEC 22	5.77	FEB 23	9.23	APR 25	4.93	JUN 23	2.15	AUG 24	4.64
NOV 22	2.13	JAN 24	7.86	MAR 24	11.29	MAY 25	1.82	JUL 25	7.67		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	12.68	DEC 22	11.18	FEB 22	11.77	APR 25	7.88	JUN 22	8.96	AUG 24	11.16
NOV 22	6.92	JAN 24	11.86	MAR 24	12.17	MAY 23	5.52	JUL 25	10.90	SEP 24	11.87

GROUND-WATER LEVELS IN MASSACHUSETTS

BERKSHIRE COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	9.22	JAN 02	8.83	MAR 24	9.06	JUN 23	7.50	SEP 24	8.93		
NOV 22	6.82	24	8.90	APR 25	7.68	JUL 25	8.93				
DEC 22	8.55	FEB 23	8.48	MAY 25	6.28	AUG 24	8.65				

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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.11	19.60	16.13	15.91	16.89	17.92	18.25	---	---	15.56	---	16.34
2	18.20	19.46	16.11	15.92	16.92	17.92	18.22	---	---	15.58	---	16.40
3	18.28	19.36	16.09	15.95	16.93	17.96	18.14	---	---	15.62	---	16.48
4	18.36	19.27	16.09	16.02	16.95	17.98	18.04	---	---	15.67	---	16.57
5	18.46	19.15	16.09	16.14	16.98	18.00	17.94	---	---	15.72	---	16.65
6	18.56	18.99	16.08	16.26	17.02	18.00	17.77	---	---	15.72	---	16.74
7	18.65	18.82	16.06	16.36	17.07	18.00	17.53	---	---	15.72	---	16.85
8	18.70	18.65	16.06	16.40	17.11	18.07	17.38	---	---	15.72	---	16.96
9	18.78	18.49	16.06	16.46	17.16	18.17	17.30	---	---	15.74	---	17.10
10	18.87	18.32	16.06	16.50	17.25	18.27	17.25	---	---	15.79	---	17.21
11	18.95	18.15	16.08	16.54	17.33	18.32	17.21	---	---	15.76	---	17.32
12	19.02	18.00	16.12	16.57	17.43	18.35	17.17	---	---	15.74	---	---
13	19.09	17.82	16.12	16.60	17.55	18.38	17.12	---	---	15.76	---	---
14	19.17	17.64	16.15	16.63	17.63	18.41	17.09	---	---	15.80	16.17	---
15	19.25	17.49	16.13	16.63	17.62	18.43	17.05	---	---	15.85	16.12	---
16	19.33	17.36	16.13	16.61	17.62	18.44	16.99	---	---	15.90	16.03	---
17	19.42	17.22	16.09	16.61	17.64	18.44	16.93	---	---	15.95	15.98	---
18	19.49	17.13	16.09	16.63	17.67	18.43	16.92	---	---	---	15.93	---
19	19.53	17.04	16.09	16.64	17.75	18.43	16.92	---	---	---	15.87	---
20	19.62	16.92	16.09	16.62	17.82	18.49	16.84	---	15.43	---	15.81	---
21	19.71	16.74	16.08	16.66	17.87	18.53	16.81	---	15.43	---	15.78	---
22	19.72	16.63	16.05	16.72	17.86	18.57	16.81	---	15.43	---	15.78	---
23	19.61	16.53	16.00	16.78	17.86	18.62	16.71	m15.27	15.43	---	15.80	---
24	19.52	16.45	15.95	16.83	17.86	18.65	16.71	---	15.38	---	15.86	17.70
25	19.43	16.39	15.89	16.89	17.86	18.66	16.71	---	15.36	m16.20	15.92	17.77
26	19.42	16.37	15.87	16.91	17.86	18.64	---	---	15.36	---	15.98	17.78
27	19.47	16.33	15.87	16.91	17.88	18.57	---	---	15.39	---	16.06	17.64
28	19.50	16.25	15.83	16.93	17.91	18.48	---	---	15.45	---	16.13	17.53
29	19.51	16.21	15.84	16.92	---	18.41	---	---	15.50	---	16.20	17.53
30	19.57	16.16	15.84	16.89	---	18.37	---	---	15.52	---	16.24	17.65
31	19.59	---	15.86	16.89	---	18.30	---	m15.35	---	---	16.30	---
MEAN	19.13	17.63	16.03	16.56	17.47	18.33	---	---	---	---	---	---
LOW	19.72	19.60	16.15	16.93	17.91	18.66	---	---	---	---	---	---
HIGH	18.11	16.16	15.83	15.91	16.89	17.92	---	---	---	---	---	---

WTR YR 1989 HIGH 15.27 MAY 23 LOW 19.75 OCT 21, 22

m Measured

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, 11.95 ft below land-surface datum, July 25, 1989; lowest measured, 15.82 ft below land-surface datum, Oct. 16, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1987 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16, 1987	15.82	APR 21, 1988	14.10	OCT 22, 1988	14.10	APR 25, 1989	13.52
NOV 23	14.73	MAY 23	14.35	NOV 22	14.10	MAY 23	12.83
DEC 21	14.63	JUN 22	14.23	DEC 22	13.67	JUN 22	12.95
JAN 21, 1988	14.70	JUL 21	14.70	JAN 24, 1989	13.72	JUL 25	11.95
FEB 23	14.46	AUG 23	14.05	FEB 22	13.56	AUG 24	12.45
MAR 24	14.12	SEP 22	13.70	MAR 24	14.05	SEP 24	12.87

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	5.14	DEC 24	4.07	FEB 20	4.19	APR 20	3.93	JUN 25	3.81	AUG 28	4.19
NOV 20	4.27	JAN 21	4.24	MAR 20	3.93	MAY 20	3.34	JUL 26	3.98	SEP 22	3.80

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	14.02	DEC 24	14.10	FEB 20	15.03	APR 23	14.06	JUN 25	13.44	AUG 28	13.53
NOV 20	14.85	JAN 21	14.53	MAR 20	14.97	MAY 20	13.48	JUL 26	13.00	SEP 22	13.66

GROUND-WATER LEVELS IN MASSACHUSETTS

BRISTOL COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	4.48	DEC 24	4.22	FEB 20	4.22	APR 23	3.63	JUN 25	3.82	AUG 28	3.89
NOV 20	4.11	JAN 21	4.17	MAR 20	4.01	MAY 20	3.86	JUL 26	3.96	SEP 22	3.94

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	10.46	DEC 26	7.66	FEB 20	8.27	APR 23	5.51	JUN 25	6.85	AUG 28	8.88
NOV 20	9.02	JAN 21	8.18	MAR 20	7.17	MAY 20	5.42	JUL 26	7.46	SEP 22	7.63

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	7.45	DEC 24	6.48	FEB 20	6.42	APR 23	5.75	JUN 25	5.95	AUG 28	6.57
NOV 20	6.69	JAN 21	6.60	MAR 20	6.25	MAY 20	5.61	JUL 26	6.23	SEP 22	5.85

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	12.43	DEC 26	9.22	FEB 20	9.55	APR 23	8.19	JUN 25	8.71	AUG 28	8.89
NOV 20	11.12	JAN 21	9.45	MAR 20	9.04	MAY 20	7.82	JUL 26	8.87	SEP 22	8.62

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	19.41	JAN 22	19.96	APR 28	19.76	JUN 24	17.99	AUG 25	17.75		
DEC 26	19.90	MAR 26	20.41	MAY 23	18.82	JUL 28	17.56	SEP 26	18.12		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	12.56	DEC 26	12.05	FEB 20	12.45	APR 22	8.38	JUN 28	11.43	AUG 29	12.77
NOV 24	10.78	JAN 22	12.70	MAR 25	12.26	MAY 21	10.06	JUL 26	12.21	SEP 24	12.42

GROUND-WATER LEVELS IN MASSACHUSETTS

ESSEX COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	15.65	DEC 26	14.98	FEB 20	15.53	APR 22	14.25	JUN 28	14.57	AUG 29	14.36
NOV 24	14.58	JAN 22	15.26	MAR 25	15.33	MAY 21	14.23	JUL 26	15.01	SEP 24	15.09

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	5.19	DEC 26	4.63	FEB 20	5.10	APR 22	3.61	JUN 28	4.61	AUG 29	5.27
NOV 27	4.32	JAN 22	5.11	MAR 25	4.21	MAY 21	4.06	JUL 26	4.85	SEP 24	4.86

GROUND-WATER LEVELS IN MASSACHUSETTS

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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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	13.56	12.69	12.92	13.36	12.82	12.93	11.69	11.14	11.90	12.52	13.01
2	---	13.46	12.69	12.93	13.38	12.85	12.87	11.67	11.17	11.95	12.54	13.04
3	---	13.16	12.68	12.94	13.39	12.87	12.83	11.63	11.20	11.98	12.57	13.07
4	---	13.00	12.67	12.96	13.41	12.90	12.79	11.61	11.22	12.01	12.60	13.10
5	---	12.92	12.67	12.98	13.42	12.92	12.76	11.60	11.25	12.05	12.62	13.13
6	---	12.89	12.67	12.99	13.43	12.95	12.73	11.58	11.28	12.08	12.65	13.16
7	---	12.87	12.66	13.01	13.45	12.98	12.68	11.55	11.32	12.11	12.68	13.18
8	---	12.87	12.66	13.01	13.47	13.02	12.64	11.52	11.35	12.12	12.71	13.20
9	---	12.87	12.67	13.03	13.49	13.05	12.57	11.51	11.38	12.13	12.74	13.22
10	---	12.87	12.67	13.04	13.50	13.06	12.53	11.49	11.40	12.16	12.76	13.24
11	---	12.87	12.67	13.06	13.51	13.11	12.52	11.46	11.38	12.16	12.79	13.25
12	---	12.88	12.68	13.09	13.52	13.13	12.46	11.40	11.42	12.16	12.81	13.29
13	---	12.89	12.69	13.10	13.53	13.15	12.42	11.32	11.44	12.17	12.81	13.31
14	---	12.90	12.69	13.12	13.55	13.17	12.40	11.24	11.48	12.20	12.74	13.33
15	---	12.90	12.71	13.13	13.57	13.19	12.38	11.16	11.52	12.23	12.71	13.34
16	---	12.91	12.73	13.14	13.53	13.21	12.36	11.07	11.52	12.27	12.71	13.29
17	---	12.92	12.74	13.16	13.47	13.22	12.29	11.01	11.51	12.29	12.74	13.29
18	---	12.94	12.75	13.17	13.45	13.22	12.20	10.97	11.52	12.30	12.77	13.31
19	---	12.96	12.78	13.18	13.44	13.24	12.09	10.94	11.54	12.32	12.79	13.33
20	---	12.96	12.80	13.18	13.44	13.26	12.00	10.92	11.57	12.35	12.80	13.34
21	---	12.93	12.81	13.21	13.44	13.27	11.93	10.90	11.60	12.38	12.82	13.35
22	---	12.89	12.83	13.22	13.24	13.29	11.87	10.89	11.63	12.41	12.83	13.35
23	---	12.86	12.85	13.23	12.95	13.29	11.82	10.90	11.66	12.38	12.85	13.37
24	m13.53	12.83	12.86	13.25	12.83	13.31	11.79	10.91	11.69	12.34	12.87	13.38
25	---	12.80	12.87	13.26	12.79	13.31	11.77	10.93	11.72	12.35	12.91	13.38
26	---	12.77	12.87	13.28	12.78	13.23	11.75	10.96	11.75	12.37	12.94	13.40
27	---	12.76	12.88	13.29	12.77	13.15	11.74	10.98	11.78	12.40	12.96	13.40
28	---	12.75	12.89	13.31	12.79	13.09	11.72	11.01	11.81	12.41	12.93	13.39
29	13.54	12.72	12.89	13.32	---	13.06	11.72	11.05	11.84	12.44	12.93	13.39
30	13.54	12.70	12.89	13.33	---	13.03	11.70	11.08	11.86	12.46	12.96	13.40
31	13.54	---	12.90	13.35	---	12.99	---	11.11	---	12.49	12.98	---
MEAN	---	12.92	12.76	13.14	13.32	13.11	12.28	11.23	11.50	12.24	12.78	13.27
LOW	---	13.56	12.90	13.35	13.57	13.31	12.93	11.69	11.86	12.49	12.98	13.40
HIGH	---	12.70	12.66	12.92	12.77	12.82	11.70	10.89	11.14	11.90	12.52	13.01

WTR YR 1989 HIGH 10.89 MAY 21-23 LOW 13.58 FEB 15

m Measured

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 wooden recorder shelter, 1.95 ft above land-surface datum. Prior to October 1978, 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, 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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.32	9.83	6.23	7.49	8.71	---	6.07	4.82	5.47	6.87	7.78	8.87
2	9.37	9.17	6.21	7.51	8.76	---	5.94	4.70	5.55	6.96	7.82	8.92
3	9.41	7.99	6.20	7.51	8.79	8.19	5.88	4.47	5.63	7.05	7.87	8.98
4	9.46	7.46	6.22	7.54	8.80	8.23	5.84	4.52	5.71	7.15	7.93	9.05
5	9.50	7.31	6.28	7.58	8.81	8.24	5.81	4.60	5.81	7.23	7.99	9.11
6	9.53	7.30	6.33	7.66	8.83	8.24	5.75	4.56	5.89	7.28	8.06	9.16
7	9.57	7.36	6.35	7.75	8.86	8.27	5.53	4.53	5.97	7.32	8.12	9.20
8	9.59	7.44	6.42	7.77	8.88	8.31	5.31	4.62	6.03	7.32	8.18	9.25
9	9.60	7.53	6.50	7.81	8.92	8.33	5.04	4.73	6.08	7.35	8.25	9.30
10	9.60	7.59	6.54	7.89	8.95	8.36	4.93	4.80	6.08	7.40	8.32	9.35
11	9.60	7.62	6.59	7.94	8.99	8.38	4.93	4.74	6.05	7.28	8.38	9.41
12	9.62	7.69	6.64	7.99	9.02	8.39	4.96	4.30	6.11	7.23	8.39	9.48
13	9.67	7.73	6.72	7.99	9.07	8.42	5.00	4.13	6.16	7.26	8.34	9.54
14	9.71	7.68	6.77	8.06	9.11	8.43	5.04	4.17	6.21	7.32	8.12	9.59
15	9.75	7.64	6.83	8.09	9.12	8.43	5.09	4.26	6.27	7.39	8.04	9.59
16	9.79	7.63	6.91	8.13	8.97	8.43	4.87	4.34	6.20	7.46	8.05	9.53
17	9.82	7.59	6.97	8.18	8.93	8.43	4.09	4.42	6.09	7.48	8.10	9.52
18	9.85	7.57	7.01	8.22	8.94	8.41	4.04	4.53	6.04	7.33	8.18	9.53
19	9.87	7.57	7.10	8.26	8.97	8.39	4.10	4.62	6.03	7.30	8.23	9.57
20	9.91	7.53	7.19	8.30	9.00	8.38	4.16	4.67	6.07	7.32	8.27	9.55
21	9.95	7.14	7.24	8.33	---	8.33	4.23	4.74	6.13	7.37	8.30	9.44
22	9.94	6.72	7.34	8.39	---	8.26	4.29	4.80	6.20	7.41	8.35	9.30
23	9.80	6.45	7.42	8.44	---	8.20	4.37	4.87	6.27	7.38	8.40	9.24
24	9.73	6.32	7.45	8.47	---	8.14	4.44	4.92	6.33	7.36	8.45	9.23
25	9.71	6.29	7.41	8.53	---	7.84	4.52	4.98	6.39	7.39	8.52	9.24
26	9.72	6.33	7.42	8.57	---	7.16	4.59	5.05	6.44	7.43	8.57	9.23
27	9.74	6.39	7.47	8.56	---	6.79	4.65	5.12	6.52	7.48	8.63	9.13
28	9.76	6.41	7.46	8.59	---	6.62	4.71	5.19	6.60	7.52	8.69	9.05
29	9.77	6.35	7.46	8.61	---	6.55	4.78	5.26	6.69	7.58	8.75	9.00
30	9.79	6.29	7.48	8.64	---	6.53	4.81	5.33	6.78	7.64	8.78	8.99
31	9.82	---	7.46	8.67	---	6.32	---	5.40	---	7.71	8.82	---
MEAN	9.69	7.33	6.89	8.11	---	---	4.93	4.72	6.13	7.34	8.28	9.28
LOW	9.95	9.83	7.48	8.67	---	---	6.07	5.40	6.78	7.71	8.82	9.59
HIGH	9.32	6.29	6.20	7.49	---	---	4.04	4.13	5.47	6.87	7.78	8.87

WTR YR 1989 HIGH 4.02 APR 17, 18 LOW 9.97 OCT 22

425103070513401. Salisbury well SBW 9.

LOCATION.--Lat 42°51'03", long 70°51'34", Essex County, Hydrologic Unit 01070002, at intersection of Gerrish and Seabrook Roads 0.6 mi north of Salisbury.

Owner: Eugene G. Folsum.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 11 ft, cased with tile to 11 ft, open end.

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 inside lip of tile casing, 1.60 ft above land-surface datum.

PERIOD OF RECORD.--August 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.90 ft below land-surface datum, Mar. 23, 1983; lowest measured, 8.37 ft below land-surface datum, Sept. 22, 1983.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	5.44	DEC 26	4.76	FEB 20	5.07	APR 22	4.09	JUN 28	4.15	AUG 29	5.38
NOV 27	4.58	JAN 22	5.65	MAR 25	3.94	MAY 21	4.08	JUL 26	6.04		

GROUND-WATER LEVELS IN MASSACHUSETTS

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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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	15.50	DEC 26	14.53	FEB 20	14.04	APR 22	7.17	JUN 28	7.92	AUG 29	12.48
NOV 27	15.23	JAN 22	14.11	MAR 25	12.38	MAY 21	6.57	JUL 26	12.35	SEP 24	12.65

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.67	DEC 26	3.44	FEB 20	3.60	APR 22	1.87	JUN 28	2.47	AUG 29	3.34
NOV 27	3.11	JAN 22	3.59	MAR 25	2.45	MAY 21	1.86	JUL 26	3.08	SEP 24	3.34

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	21.47	DEC 21	19.02	FEB 22	19.90	APR 24	18.34	JUN 22	16.89	AUG 23	19.75
NOV 21	20.22	JAN 23	19.60	MAR 23	20.63	MAY 23	17.02	JUL 23	18.49	SEP 23	20.77

GROUND-WATER LEVELS IN MASSACHUSETTS

FRANKLIN COUNTY--Continued

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.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	2.93	DEC 22	2.96	FEB 23	2.85	APR 22	2.68	JUN 21	2.58	AUG 22	2.52
NOV 22	2.30	JAN 25	3.16	MAR 22	2.77	MAY 22	2.83	JUL 22	2.69	SEP 23	2.57

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, 3.80 ft below land-surface datum, June 22, 1989; lowest measured, 6.45 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22, 1986	5.62	AUG 22, 1987	6.45	MAY 22, 1988	5.04	APR 24, 1989	4.17
NOV 23	5.28	SEP 21	4.70	JUN 22	4.83	MAY 23	3.91
DEC 21	5.24	OCT 21	5.12	SEP 23	4.80	JUN 22	3.80
JAN 22, 1987	5.39	NOV 22	5.07	OCT 22	4.36	JUL 23	4.39
MAR 22	5.32	DEC 21	5.19	NOV 22	4.06	AUG 23	4.48
APR 23	4.94	JAN 21, 1988	5.02	DEC 21	4.33	SEP 25	4.64
MAY 21	5.24	FEB 21	5.13	JAN 23, 1989	4.68		
JUN 22	5.79	MAR 24	5.12	FEB 22	4.46		
JUL 22	5.00	APR 21	4.93	MAR 23	4.84		

423305072320301. Montague well MSW 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	4.83	JAN 02	2.80	MAR 22	5.08	JUN 21	1.92	SEP 23	2.59		
NOV 23	3.23	25	4.63	APR 22	2.68	JUL 22	2.23				
DEC 22	3.85	FEB 24	4.71	MAY 22	2.49	AUG 22	2.35				

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	8.00	DEC 22	7.57	FEB 23	8.25	APR 22	7.21	JUN 21	5.20	AUG 22	6.10
NOV 21	7.75	JAN 23	8.07	MAR 22	8.44	MAY 22	6.04	JUL 22	6.43	SEP 23	7.14

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, 6.85 ft below land-surface datum, Apr. 25, 1973; lowest measured, 23.26 ft below land-surface datum, Feb. 24, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	17.91	DEC 22	18.67	FEB 24	15.61	MAY 22	10.10	JUL 22	11.67	SEP 23	14.34
NOV 23	18.75	JAN 25	16.00	APR 22	8.46	JUN 21	8.55	AUG 22	11.54		

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, 1.75 ft below land-surface datum, June 21, 1989; 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 1983 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25, 1983	2.10	APR 23, 1985	2.85	JAN 22, 1987	3.28	JUL 22, 1988	3.50
NOV 22	2.66	MAY 22	2.96	FEB 21	3.83	AUG 22	4.63
DEC 19	2.63	JUN 21	3.07	MAR 21	2.55	SEP 21	4.09
JAN 24, 1984	2.59	JUL 22	4.94	APR 22	1.89	OCT 24	4.25
FEB 23	2.56	AUG 23	5.00	MAY 22	2.89	NOV 23	3.20
MAR 22	2.49	SEP 22	5.00	JUN 23	4.30	DEC 22	3.88
APR 24	2.26	OCT 21	4.54	JUL 22	3.99	JAN 02, 1989	2.49
MAY 22	2.16	NOV 22	3.69	AUG 23	4.58	25	4.27
JUN 22	2.01	DEC 22	3.84	SEP 23	3.24	FEB 24	3.76
JUL 27	1.99	JAN 24, 1986	3.76	OCT 23	3.42	MAR 22	4.18
AUG 22	2.07	FEB 23	2.81	NOV 24	3.22	APR 22	2.92
SEP 22	2.26	MAR 22	1.86	DEC 21	3.39	MAY 22	2.40
OCT 22	2.55	APR 22	2.74	JAN 22, 1988	3.75	JUN 21	1.75
NOV 24	2.64	MAY 23	3.56	FEB 22	3.22	JUL 22	2.55
DEC 22	2.70	JUN 21	3.26	MAR 23	3.14	AUG 22	2.73
JAN 23, 1985	2.77	JUL 21	3.79	APR 22	3.33	SEP 23	2.76
FEB 22	2.85	AUG 22	3.77	MAY 22	3.35		
MAR 22	2.82	OCT 24	4.41	JUN 24	4.14		

GROUND-WATER LEVELS IN MASSACHUSETTS

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.--Augered 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, 2.11 ft below land-surface datum, Nov. 21, 1988; lowest measured, 3.85 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23, 1986	2.60	AUG 22, 1987	3.85	JUN 23, 1988	3.20	MAR 23, 1989	2.97
NOV 23	2.51	SEP 23	2.60	JUL 22	2.35	APR 24	2.46
DEC 22	2.51	OCT 21	2.39	AUG 24	3.53	MAY 23	2.56
JAN 25, 1987	2.80	NOV 22	2.40	SEP 22	2.81	JUN 22	2.57
FEB 23	2.92	DEC 23	2.44	OCT 22	2.43	JUL 24	3.00
MAR 23	2.76	JAN 22, 1988	2.73	NOV 21	2.11	AUG 23	2.97
APR 24	2.62	FEB 21	2.48	DEC 22	2.55	SEP 25	2.64
MAY 21	2.80	MAR 25	2.35	JAN 02, 1989	2.50		
JUN 23	2.86	APR 22	2.28	23	2.90		
JUL 24	3.42	MAY 24	2.38	FEB 22	2.34		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	23.30	DEC 23	23.37	FEB 24	23.42	APR 22	23.23	JUN 21	20.85	AUG 22	21.47
NOV 25	23.46	JAN 22	23.50	MAR 22	23.62	MAY 22	22.27	JUL 22	21.00	SEP 23	21.84

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	35.01	DEC 22	34.32	FEB 22	34.45	APR 25	34.33	JUN 23	32.09	AUG 24	31.88
NOV 21	34.88	JAN 24	34.26	MAR 24	34.52	MAY 25	33.47	JUL 24	31.50	SEP 24	32.44

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.59	DEC 22	5.48	FEB 23	5.06	APR 25	3.86	JUN 23	3.91	AUG 25	6.45
NOV 22	3.16	JAN 24	6.11	MAR 24	6.41	MAY 25	2.73	JUL 25	6.33	SEP 24	5.86

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, 0.57 ft below land-surface datum, July 23, 1989; lowest measured, 5.86 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23, 1986	3.41	AUG 22, 1987	5.86	JUN 23, 1988	2.28	MAR 23, 1989	2.10
NOV 23	2.48	SEP 23	2.24	JUL 22	2.18	APR 24	1.16
DEC 22	1.75	OCT 21	2.47	AUG 24	3.03	MAY 23	.91
JAN 24, 1987	1.86	NOV 22	2.30	SEP 23	2.99	JUN 22	.88
FEB 23	2.05	DEC 23	2.13	OCT 22	2.76	JUL 23	.57
MAR 23	1.43	JAN 22, 1988	2.05	NOV 21	1.55	AUG 23	1.00
APR 24	.84	FEB 21	1.85	DEC 22	1.78	SEP 25	1.18
MAY 21	1.47	MAR 25	1.57	JAN 02, 1989	1.65		
JUN 23	1.96	APR 22	1.44	23	2.00		
JUL 24	2.88	MAY 24	1.47	FEB 22	1.82		

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 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22, 1986	4.87	JUL 23, 1987	2.88	APR 21, 1988	2.57	JAN 24, 1989	4.73
NOV 22	4.14	AUG 21	3.84	MAY 23	2.41	FEB 22	4.20
DEC 21	3.33	SEP 22	2.84	JUN 22	3.47	MAR 24	4.64
JAN 25, 1987	3.74	OCT 21	3.66	JUL 21	3.69	APR 25	3.78
FEB 22	3.94	NOV 22	3.75	AUG 24	4.68	MAY 25	1.78
MAR 22	2.44	DEC 22	3.64	SEP 22	4.80	JUN 23	1.53
APR 23	1.09	JAN 22, 1988	3.64	OCT 23	4.71	JUL 24	.66
MAY 21	1.43	FEB 23	3.13	NOV 22	3.61	AUG 24	2.21
JUN 22	1.93	MAR 25	2.43	DEC 22	4.42	SEP 24	2.41

GROUND-WATER LEVELS IN MASSACHUSETTS

HAMPDEN COUNTY--Continued

420646072420101. Westfield well WVW 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	9.05	DEC 22	8.17	FEB 22	9.13	APR 22	7.90	JUN 21	4.66	AUG 22	6.64
NOV 21	7.27	JAN 23	8.89	MAR 22	9.60	MAY 22	5.73	JUL 22	6.19	SEP 24	7.10

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 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22, 1986	4.10	JUL 24, 1987	4.21	APR 22, 1988	3.65	JAN 23, 1989	3.78
NOV 22	3.27	AUG 22	4.27	MAY 24	3.85	FEB 22	3.60
DEC 21	4.72	SEP 21	3.24	JUN 23	4.24	MAR 22	3.76
JAN 24, 1987	4.72	OCT 22	3.69	JUL 22	3.18	APR 22	3.61
FEB 23	3.48	NOV 22	3.72	AUG 24	4.07	MAY 22	3.52
MAR 23	3.78	DEC 23	3.67	SEP 23	4.00	JUN 21	2.20
APR 24	3.23	JAN 21, 1988	3.57	OCT 24	3.47	JUL 22	3.60
MAY 22	3.72	FEB 22	3.26	NOV 21	2.62	AUG 22	3.62
JUN 23	3.91	MAR 25	3.34	DEC 22	3.73	SEP 24	3.56

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	43.47	DEC 23	43.30	FEB 24	43.30	JUN 21	31.68	AUG 22	38.43		
NOV 25	43.38	JAN 22	43.39	MAR 22	43.36	JUL 22	36.18	SEP 23	40.23		

GROUND-WATER LEVELS IN MASSACHUSETTS

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HAMPSHIRE COUNTY

422733072532601. Cumington 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 Cumington center.

Owner: Cumington 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, 3.04 ft below land-surface datum, Apr. 23, 1987; lowest measured, 6.12 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1986 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22, 1986	5.85	JUL 22, 1987	5.57	APR 21, 1988	4.10	JAN 23, 1989	5.21
NOV 23	4.58	AUG 22	6.12	MAY 22	4.37	FEB 22	4.85
DEC 21	4.79	SEP 21	3.83	JUN 22	5.40	MAR 23	5.54
JAN 22, 1987	5.08	OCT 21	4.70	JUL 21	5.57	APR 24	4.21
FEB 22	5.60	NOV 22	4.68	AUG 21	5.77	MAY 23	3.48
MAR 22	4.80	DEC 21	4.74	SEP 23	5.78	JUN 22	3.61
APR 23	3.04	JAN 21, 1988	4.82	OCT 22	5.70	JUL 23	4.83
MAY 21	4.86	FEB 21	4.56	NOV 21	3.54	AUG 23	5.00
JUN 22	5.66	MAR 24	4.56	DEC 21	4.92	SEP 25	5.46

421355072322001. Granby well GKW 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	10.00	DEC 23	8.30	FEB 24	8.12	APR 22	6.78	JUN 21	5.55	AUG 22	7.24
NOV 23	8.65	JAN 22	8.40	MAR 22	8.52	MAY 22	6.01	JUL 22	7.08	SEP 23	7.82

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 1988 TO SEPTEMBER 1989
HIGH FOR DAY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.50	12.10	11.21	11.36	11.72	11.52	11.28	11.65	11.69	11.98	12.58	12.90
10	13.49	11.90	11.20	11.49	11.76	11.69	11.09	11.51	11.54	12.13	12.82	13.08
15	13.58	11.81	11.21	11.50	11.83	11.63	11.27	11.48	11.50	12.30	12.38	13.23
20	13.18	11.40	11.34	11.47	11.72	11.70	11.44	11.52	11.52	12.32	12.45	13.02
25	12.65	11.34	11.32	11.89	11.45	11.58	11.50	11.36	11.56	12.45	12.41	12.54
EOM	12.56	11.24	11.35	11.62	11.41	11.35	11.69	11.37	11.69	12.55	12.62	12.01

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, 2.74 ft below land-surface datum, Mar. 22, 1986; 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.10	DEC 23	4.65	FEB 24	4.52	APR 22	3.33	JUN 21	3.19	AUG 22	4.22
NOV 23	3.70	JAN 25	4.99	MAR 22	4.92	MAY 22	3.33	JUL 22	4.17	SEP 23	3.83

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	9.80	DEC 23	9.66	FEB 24	10.10	APR 22	9.27	JUN 21	8.70	AUG 22	8.92
NOV 25	9.51	JAN 22	9.91	MAR 22	9.89	MAY 22	8.94	JUL 22	9.09	SEP 23	9.11

422048072484001. Westhampton well WXW 20.

LOCATION.--Lat 42°20'48", long 72°48'40", 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 1987 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 23, 1987	12.84	MAY 22, 1988	10.84	NOV 21, 1988	15.13	MAY 23, 1989	8.44
SEP 21	15.52	JUN 23	11.96	DEC 21	11.88	JUN 22	5.30
OCT 21	14.99	JUL 22	12.77	JAN 23, 1989	12.79	JUL 23	8.31
NOV 22	14.78	AUG 21	14.46	FEB 22	13.72	AUG 23	11.15
MAR 25, 1988	13.97	SEP 23	15.45	MAR 23	14.89	SEP 25	13.34
APR 22	10.53	OCT 22	15.49	APR 24	13.88		

GROUND-WATER LEVELS IN MASSACHUSETTS

201

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	20.31	DEC 22	19.93	FEB 22	20.38	APR 24	19.57	JUN 22	18.56	AUG 23	19.38
NOV 22	20.32	JAN 20	20.08	MAR 22	20.46	MAY 24	18.60	JUL 24	19.17	SEP 21	19.79

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, 13.11 ft below land-surface datum, Oct. 27, 1978.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	11.31	DEC 22	8.48	FEB 22	8.67	APR 24	3.50	JUN 22	5.91	AUG 23	7.71
NOV 22	8.30	JAN 20	9.03	MAR 22	8.50	MAY 24	4.56	JUL 24	8.36	SEP 21	9.36

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	9.10	DEC 22	8.41	FEB 22	8.24	APR 24	5.91	JUN 22	6.81	AUG 23	8.85
NOV 22	7.25	JAN 20	8.08	MAR 22	7.88	MAY 24	6.57	JUL 24	9.47	SEP 22	7.95

GROUND-WATER LEVELS IN MASSACHUSETTS

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	16.76	DEC 22	16.57	FEB 22	17.05	APR 24	16.07	JUN 22	15.89	AUG 23	15.91
NOV 22	15.83	JAN 20	16.83	MAR 22	17.08	MAY 24	15.90	JUL 24	16.46	SEP 22	16.02

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	42.74	DEC 22	43.34	FEB 22	43.83	APR 24	43.82	JUN 22	42.95	AUG 23	43.09
NOV 22	43.03	JAN 20	43.45	MAR 22	44.09	MAY 24	43.30	JUL 24	42.96	SEP 21	43.44

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	9.10	DEC 22	7.91	FEB 22	8.29	APR 24	6.46	JUN 22	6.53	AUG 23	7.45
NOV 22	7.59	JAN 20	8.20	MAR 22	8.17	MAY 24	6.68	JUL 24	7.54	SEP 21	7.93

MIDDLESEX COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	3.04	DEC 22	2.98	FEB 22	2.36	APR 24	2.01	JUN 22	2.56	AUG 23	3.05
NOV 22	2.30	JAN 20	2.78	MAR 22	2.33	MAY 24	2.30	JUL 24	3.01	SEP 21	2.72

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	14.35	DEC 22	13.83	FEB 22	14.13	APR 24	13.61	JUN 22	12.50	AUG 23	13.15
NOV 22	14.11	JAN 20	13.94	MAR 22	14.30	MAY 24	12.78	JUL 22	12.50	SEP 22	13.66

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	8.47	DEC 22	7.52	FEB 22	7.41	APR 24	5.98	JUN 22	6.66	AUG 23	7.31
NOV 22	6.79	JAN 20	7.76	MAR 22	7.23	MAY 24	6.34	JUL 24	7.57	SEP 21	7.42

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	17.39	DEC 22	17.12	FEB 22	16.99	APR 24	15.78	JUN 22	16.04	AUG 23	15.95
NOV 22	16.90	JAN 20	17.00	MAR 22	16.78	MAY 24	15.80	JUL 24	16.33	SEP 21	16.23

423401071093801. Wilmington well XMW 78.

LOCATION.--Lat 42°34'01", long 71°09'38", 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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.38	7.98	8.57	8.94	8.60	8.25	7.34	7.79	8.30	9.02	9.00
2	---	8.77	7.97	8.58	8.96	8.60	8.21	7.26	7.79	8.33	9.04	9.03
3	---	8.97	7.96	8.59	8.96	8.60	8.17	7.26	7.81	8.37	9.07	9.06
4	---	8.90	7.97	8.60	8.97	8.60	8.12	7.31	7.87	8.40	9.09	9.09
5	---	8.82	7.97	8.61	8.98	8.60	8.08	7.33	7.92	8.43	9.12	9.11
6	---	8.77	7.98	8.64	8.99	8.60	7.95	7.29	7.96	8.45	9.12	9.13
7	---	8.73	7.98	8.66	8.99	8.62	7.86	7.30	7.99	8.46	9.14	9.15
8	---	8.70	8.02	8.67	9.00	8.65	7.79	7.34	8.00	8.46	9.15	9.17
9	---	8.67	8.05	8.69	9.01	8.66	7.71	7.36	7.99	8.51	9.18	9.20
10	---	8.66	8.07	8.71	9.02	8.68	7.63	7.38	7.91	8.54	9.20	9.22
11	---	8.64	8.11	8.73	9.03	8.70	7.60	7.32	7.96	8.55	9.22	9.24
12	---	8.64	8.15	8.74	9.04	8.72	7.58	7.17	8.01	8.59	9.19	9.27
13	---	8.62	8.17	8.76	9.05	8.74	7.54	7.15	8.02	8.61	8.95	9.29
14	---	8.56	8.19	8.78	9.06	8.75	7.52	7.11	8.05	8.64	8.76	9.31
15	---	8.58	8.22	8.78	9.05	8.75	7.51	7.10	8.07	8.67	8.78	9.18
16	---	8.58	8.26	8.79	9.01	8.77	7.39	7.09	7.99	8.70	8.75	9.24
17	---	8.57	8.28	8.80	9.02	8.77	7.33	7.11	8.00	8.65	8.72	9.26
18	---	8.55	8.30	8.82	9.03	8.77	7.26	7.16	7.99	8.67	8.70	9.27
19	---	8.55	8.33	8.83	9.03	8.78	7.19	7.22	8.00	8.71	8.69	9.29
20	9.79	8.46	8.36	8.84	9.05	8.77	7.13	7.26	8.01	8.73	8.68	9.28
21	9.80	8.29	8.38	8.86	8.87	8.74	7.09	7.32	8.04	8.76	8.68	9.25
22	9.53	8.32	8.42	8.87	8.69	8.72	7.06	7.37	8.07	8.78	8.70	9.23
23	9.52	8.26	8.44	8.88	8.69	8.68	7.05	7.42	8.09	8.80	8.72	9.22
24	9.57	8.19	8.44	8.89	8.67	8.65	7.06	7.45	8.11	8.83	8.76	9.21
25	9.52	8.14	8.41	8.90	8.65	8.60	7.10	7.49	8.13	8.85	8.81	9.21
26	9.50	8.10	8.47	8.90	8.63	8.55	7.14	7.54	8.15	8.87	8.85	9.17
27	9.49	8.07	8.49	8.89	8.61	8.49	7.18	7.58	8.18	8.90	8.89	9.15
28	9.48	8.01	8.50	8.91	8.60	8.44	7.24	7.63	8.20	8.92	8.92	9.14
29	9.46	7.99	8.52	8.92	---	8.40	7.29	7.67	8.24	8.95	8.95	9.12
30	9.46	7.99	8.53	8.93	---	8.36	7.31	7.71	8.27	8.97	8.94	9.12
31	9.45	---	8.55	8.94	---	8.29	---	7.75	---	9.00	8.98	---
MEAN	---	8.52	8.24	8.78	8.91	8.63	7.51	7.35	8.02	8.66	8.93	9.19
LOW	---	9.38	8.55	8.94	9.06	8.78	8.25	7.75	8.27	9.00	9.22	9.31
HIGH	---	7.99	7.96	8.57	8.60	8.29	7.05	7.09	7.79	8.30	8.68	9.00

WTR YR 1989 HIGH 7.05 APR 22, 23 LOW 9.80 OCT 20-22

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	13.90	DEC 22	10.33	FEB 22	11.34	APR 24	7.26	JUN 22	9.79	AUG 23	11.52
NOV 24	8.92	JAN 20	11.04	MAR 22	9.64	MAY 24	9.35	JUL 24	12.27	SEP 21	12.97

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	25.95	JAN 25	26.70	MAR 29	26.94	MAY 25	25.50	JUL 24	24.30	SEP 25	24.87
DEC 26	26.57	FEB 23	26.85	APR 21	26.72	JUN 23	24.40	AUG 30	24.60		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	11.6	DEC 25	7.26	FEB 20	8.21	APR 23	4.39	JUN 25	7.10	AUG 27	6.45
NOV 26	10.78	JAN 22	8.23	MAR 26	5.49	MAY 21	4.62	JUL 23	7.20	SEP 24	7.51

GROUND-WATER LEVELS IN MASSACHUSETTS

NORFOLK COUNTY--Continued

421435071165701. Dover well DWV 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	34.61	DEC 25	34.32	FEB 20	34.67	APR 23	33.47	JUN 25	32.63	AUG 27	32.45
NOV 26	34.71	JAN 22	34.43	MAR 26	34.58	MAY 21	32.52	JUL 23	33.06	SEP 27	32.91

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	20.54	DEC 25	19.72	FEB 20	20.14	APR 23	18.62	JUN 25	18.98	AUG 27	19.08
NOV 26	19.61	JAN 22	20.00	MAR 26	19.45	MAY 21	18.36	JUL 23	19.44	SEP 24	19.45

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.23	DEC 25	5.57	FEB 20	5.96	APR 23	4.92	JUN 25	4.98	AUG 27	5.34
NOV 26	4.53	JAN 22	5.88	MAR 26	5.15	MAY 21	4.88	JUL 23	5.38	SEP 24	5.32

GROUND-WATER LEVELS IN MASSACHUSETTS

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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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	19.09	DEC 25	14.66	FEB 20	15.60	APR 23	8.85	JUN 25	10.48	AUG 27	12.37
NOV 26	16.97	JAN 22	15.13	MAR 26	11.90	MAY 21	7.94	JUL 23	12.33	SEP 24	13.74

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.90	DEC 25	4.78	FEB 20	5.29	APR 23	4.64	JUN 25	5.15	AUG 27	5.13
NOV 26	4.47	JAN 22	5.02	MAR 26	4.18	MAY 21	4.48	JUL 23	4.64	SEP 24	4.70

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	7.32	JAN 22	7.38	MAR 26	5.85	MAY 21	5.66	JUL 23	6.23	SEP 24	6.29
DEC 25	7.87	FEB 20	7.29	APR 23	6.21	JUN 25	6.89	AUG 27	6.46		

GROUND-WATER LEVELS IN MASSACHUSETTS

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	8.77	DEC 26	8.11	FEB 20	8.16	APR 23	7.82	JUN 25	8.39	AUG 28	8.19
NOV 20	8.60	JAN 21	8.13	MAR 20	8.15	MAY 20	7.70	JUL 26	8.28	SEP 22	8.19

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	22.61	DEC 26	21.56	FEB 20	21.27	APR 23	21.36	JUN 25	21.83	AUG 28	22.04
NOV 20	22.21	JAN 21	21.26	MAR 20	21.73	MAY 20	21.31	JUL 26	21.86	SEP 22	21.65

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	14.76	DEC 26	11.65	FEB 20	11.54	APR 23	4.61	JUN 25	6.37	AUG 28	9.25
NOV 20	14.87	JAN 21	11.72	MAR 20	9.70	MAY 20	4.47	JUL 26	8.30	SEP 22	10.98

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	5.62	DEC 26	4.46	FEB 20	4.45	APR 23	3.46	JUN 25	3.95	AUG 28	4.28
NOV 20	4.97	JAN 21	4.44	MAR 20	3.97	MAY 20	3.49	JUL 26	3.96	SEP 22	4.25

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	5.19	DEC 26	4.57	FEB 20	4.57	APR 23	3.83	JUN 25	4.39	AUG 28	4.55
NOV 20	4.53	JAN 21	4.57	MAR 20	4.06	MAY 20	3.74	JUL 26	4.41	SEP 22	4.32

GROUND-WATER LEVELS IN MASSACHUSETTS

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.--Augured 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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	20.06	19.27	18.73	19.28	19.43	---	16.75	---	---	---	---
2	---	20.06	19.20	18.73	19.30	19.40	---	16.70	---	---	---	---
3	---	20.08	19.13	18.73	19.30	19.36	---	16.68	---	---	---	---
4	---	20.09	19.07	18.75	19.32	19.33	---	16.67	---	---	---	---
5	---	20.10	19.01	18.79	19.33	19.28	---	16.68	---	---	---	---
6	---	20.11	18.95	18.82	19.35	19.26	---	16.67	---	---	---	---
7	---	20.11	18.90	18.84	19.37	19.25	m18.12	16.63	---	---	---	---
8	---	20.11	18.86	18.84	19.37	19.24	18.08	16.61	---	---	---	---
9	---	m20.11	18.81	18.88	19.39	19.21	18.04	16.59	---	---	---	---
10	---	---	18.77	18.91	19.40	19.20	18.01	16.52	---	---	---	---
11	---	---	18.73	18.94	19.41	19.17	17.96	16.47	---	---	---	---
12	---	---	18.71	18.96	19.43	19.14	17.89	16.43	---	---	m18.18	---
13	---	---	18.67	18.96	19.45	19.13	17.82	16.39	---	---	---	---
14	---	---	18.64	19.00	19.46	19.11	17.76	16.33	---	---	---	---
15	---	---	18.62	19.00	19.47	19.08	17.71	16.27	---	---	---	---
16	19.73	---	18.61	19.01	19.48	19.07	17.66	16.18	m16.10	---	---	---
17	19.75	---	18.60	19.04	19.49	19.05	17.59	16.09	---	---	---	---
18	19.77	---	18.58	19.06	19.50	19.03	17.50	16.01	---	---	---	---
19	19.78	---	18.58	19.06	19.51	19.02	17.41	15.92	---	---	---	---
20	19.81	20.12	18.58	19.08	19.53	19.02	17.31	15.85	---	---	---	---
21	19.83	20.09	18.57	19.11	19.53	18.99	17.23	15.78	---	---	---	m18.46
22	19.84	20.02	18.57	19.12	19.53	18.99	17.21	15.73	---	---	---	18.45
23	19.86	19.89	18.57	19.14	19.54	---	17.19	15.69	---	---	---	18.46
24	19.88	19.78	18.57	19.16	19.54	---	17.13	15.67	---	---	---	18.46
25	19.90	19.69	18.57	19.18	19.55	---	17.08	15.64	m16.32	---	---	18.46
26	19.93	19.60	18.60	19.20	19.53	---	17.02	15.57	---	m17.11	---	18.46
27	19.97	19.53	18.63	19.20	19.48	---	16.89	---	---	---	---	18.46
28	19.98	19.45	18.63	19.23	19.47	---	16.84	---	---	---	m17.78	18.46
29	20.00	19.40	18.66	19.23	---	---	16.81	---	---	---	---	18.46
30	20.02	19.33	18.68	19.24	---	---	16.77	---	---	---	---	18.46
31	20.04	---	18.70	19.26	---	---	---	---	---	---	---	---
MEAN	---	---	18.74	19.01	19.44	---	---	---	---	---	---	---
LOW	---	---	19.27	19.26	19.55	---	---	---	---	---	---	---
HIGH	---	---	18.57	18.73	19.28	---	---	---	---	---	---	---

WTR YR 1989 HIGH 15.57 MAY 26 LOW 20.13 NOV 20

m Measured

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.--Augured 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	16.97	DEC 26	10.87	FEB 20	12.32	APR 23	4.28	JUN 25	6.79	AUG 28	9.08
NOV 20	16.64	JAN 21	11.11	MAR 20	9.21	MAY 20	3.72	JUL 26	9.69	SEP 22	11.89

PLYMOUTH COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	25.62	DEC 26	25.75	FEB 20	26.40	APR 23	25.85	JUN 25	25.18	AUG 28	23.75
NOV 20	24.98	JAN 21	25.94	MAR 20	25.58	MAY 20	24.98	JUL 26	24.39	SEP 22	24.05

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, 31.57 ft below land-surface datum, Sept. 22, 1989.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1985 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
AUG 06, 1985	29.04	MAY 14, 1987	27.24	JUN 25, 1989	31.04	AUG 28, 1989	31.04
OCT 01	28.90	MAY 20, 1989	31.26	JUL 26	31.33	SEP 22	31.57

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	10.02	DEC 24	8.72	FEB 20	9.04	APR 23	8.29	JUN 25	6.35	AUG 28	7.37
NOV 20	9.74	JAN 21	8.99	MAR 20	8.54	MAY 20	6.08	JUL 26	7.46	SEP 22	8.06

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	22.65	FEB 24	22.86	APR 25	22.75	JUN 28	22.73	AUG 29	22.47		
DEC 28	22.52	MAR 28	23.20	MAY 30	22.52	JUL 21	22.61	SEP 27	22.50		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	16.20	DEC 19	15.09	FEB 22	15.67	APR 21	12.63	JUN 19	11.94	AUG 21	13.70
NOV 21	15.76	JAN 25	15.64	MAR 22	15.78	MAY 22	12.35	JUL 20	14.76	SEP 22	14.91

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, 10.55 ft below land-surface datum, Apr. 22, 1987; lowest measured, 12.00 ft below land-surface datum, Nov. 25, 1984.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	11.38	DEC 23	11.29	FEB 24	11.08	APR 22	10.80	JUN 21	10.60	AUG 22	11.07
NOV 25	11.16	JAN 22	11.34	MAR 22	11.20	MAY 22	10.54	JUL 22	10.91	SEP 23	11.01

WORCESTER COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	4.87	DEC 19	4.49	FEB 22	4.56	APR 21	4.03	JUL 20	4.35	SEP 22	4.22
NOV 21	4.25	JAN 25	4.67	MAR 22	4.62	MAY 22	3.95	AUG 21	4.04		

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	14.93	DEC 23	13.36	FEB 24	14.50	APR 22	11.25	JUN 21	11.81	AUG 22	13.54
NOV 25	13.41	JAN 22	14.11	MAR 22	14.70	MAY 22	9.87	JUL 22	14.30	SEP 23	14.69

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	10.60	DEC 19	3.56	FEB 22	3.10	APR 21	3.11	JUN 19	3.13	AUG 21	4.10
NOV 21	3.10	JAN 25	3.14	MAR 22	3.11	MAY 22	3.12	JUL 20	3.71	SEP 22	3.68

GROUND-WATER LEVELS IN MASSACHUSETTS

WORCESTER COUNTY--Continued

423717072043101. Templeton well TMW 3.

LOCATION.--Lat 42°37'17", long 72°04'31", 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, 2.45 ft below land-surface datum, Mar. 21, 1986; lowest measured, 5.10 ft below land-surface datum, Sept. 29, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.92	DEC 19	3.67	FEB 22	3.30	APR 21	3.23	JUN 19	3.40	AUG 21	3.63
NOV 21	2.97	JAN 25	3.71	MAR 22	3.75	MAY 22	3.44	JUL 20	3.80	SEP 22	3.71

420314071514001. Webster well WLW 1.

LOCATION.--Lat 42°03'14", long. 71°51'40", 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	15.56	DEC 19	13.95	FEB 22	15.50	APR 21	13.53	JUN 19	13.31	AUG 21	13.45
NOV 21	14.70	JAN 25	14.62	MAR 22	15.35	MAY 22	12.86	JUL 20	14.03	SEP 22	14.72

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	20.13	DEC 19	19.92	FEB 22	20.20	APR 21	19.94	JUN 19	18.47	AUG 21	18.40
NOV 21	20.20	JAN 25	20.07	MAR 22	20.38	MAY 22	19.25	JUL 20	18.32	SEP 22	18.67

WORCESTER COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	11.70	DEC 19	7.54	FEB 22	7.16	APR 21	2.60	JUN 19	2.57	AUG 21	4.88
NOV 21	9.68	JAN 25	7.95	MAR 22	7.99	MAY 22	2.78	JUL 20	6.57	SEP 22	6.50

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	11.39	DEC 19	6.08	FEB 22	5.43	APR 21	3.59	JUN 19	3.87	AUG 21	7.52
NOV 21	8.10	JAN 25	6.30	MAR 22	6.94	MAY 22	3.79	JUL 20	7.44	SEP 22	10.43

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	24.13	DEC 19	23.93	FEB 22	23.54	APR 21	23.43	JUN 19	23.57	AUG 21	23.68
NOV 21	23.24	JAN 25	23.95	MAR 22	23.86	MAY 22	23.57	JUL 20	23.86	SEP 22	23.79

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	22.64	DEC 28	22.25	FEB 23	20.93	APR 26	21.33	JUN 28	21.89	AUG 29	22.24
NOV 24	22.34	JAN 26	22.36	MAR 25	21.43	MAY 25	21.58	JUL 26	22.12	SEP 29	22.65

413907071465001. West Greenwich well WGW 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	16.55	DEC 28	15.45	FEB 23	14.06	APR 26	15.72	JUN 28	16.15	AUG 29	16.40
NOV 24	15.99	JAN 26	15.44	MAR 25	15.55	MAY 25	15.75	JUL 26	16.07	SEP 29	16.65

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	15.09	DEC 28	14.55	FEB 23	13.97	APR 26	13.96	JUN 28	14.76	AUG 29	15.44
NOV 24	14.79	JAN 26	14.50	MAR 25	14.06	MAY 25	13.87	JUL 26	14.84	SEP 30	15.99

GROUND-WATER LEVELS IN RHODE ISLAND

217

PROVIDENCE COUNTY--Continued

415626071254601. Cumberland well COW 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	12.89	DEC 28	11.69	FEB 23	9.71	APR 26	12.43	JUN 28	13.69	AUG 29	14.76
NOV 24	11.80	JAN 26	11.55	MAR 25	12.09	MAY 25	12.16	JUL 26	13.94	SEP 30	15.30

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	5.38	DEC 28	5.37	FEB 23	3.67	APR 26	5.10	JUN 28	5.01	AUG 29	5.40
NOV 24	5.46	JAN 26	5.02	MAR 25	5.11	MAY 25	4.12	JUL 26	2.69	SEP 30	5.61

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	9.91	DEC 28	8.27	FEB 23	5.42	APR 26	7.66	JUN 28	9.10	AUG 29	9.95
NOV 24	10.18	JAN 26	8.06	MAR 25	7.36	MAY 25	7.36	JUL 26	9.10	SEP 30	10.60

GROUND-WATER LEVELS IN RHODE ISLAND

PROVIDENCE COUNTY--Continued

415318071220401. Pawtucket well PAW 136.

LOCATION.--Lat 41°53'18", long 71°22'04", 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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.97	DEC 28	4.84	FEB 23	3.96	APR 26	4.41	JUN 28	5.35	AUG 29	5.95
NOV 24	5.00	JAN 26	4.80	MAR 25	4.37	MAY 25	4.75	JUL 26	5.21	SEP 30	6.15

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 Tectron.

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.70	DEC 28	4.50	FEB 23	3.95	MAY 25	4.34	AUG 29	4.89		
NOV 25	4.38	JAN 25	4.55	MAR 25	4.35	JUN 28	4.68	SEP 30	5.05		
DEC 25	4.50	26	4.55	APR 26	4.38	JUL 26	4.47				

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 1988 TO SEPTEMBER 1989
(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	-0.09	DEC 28	-0.15	FEB 23	-0.17	APR 26	-0.01	JUN 28	-0.03	AUG 29	0.08
NOV 24	-0.12	JAN 26	-0.17	MAR 25	-0.01	MAY 25	0.01	JUL 26	0.05	SEP 30	0.07

GROUND-WATER LEVELS IN RHODE ISLAND

219

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	20.35	DEC 28	20.06	FEB 23	15.09	APR 26	16.12	JUN 28	18.17	AUG 29	19.66
NOV 24	20.83	JAN 26	19.62	MAR 25	15.95	MAY 25	17.16	JUL 26	19.13	SEP 29	20.38

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	6.92	DEC 28	6.21	FEB 23	4.75	MAY 25	5.39	AUG 29	6.76		
NOV 25	6.59	JAN 25	5.32	MAR 25	5.51	JUN 28	6.20	SEP 29	6.94		
DEC 25	6.21	26	5.32	APR 26	5.44	JUL 26	5.62				

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, 5.98 ft below land-surface datum, May 21, 1983; lowest measured, 15.40 ft below land-surface datum, Oct. 30, 1957.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	12.40	DEC 28	11.74	FEB 23	10.03	APR 26	9.38	JUL 26	8.06	SEP 29	11.66
NOV 24	11.52	JAN 26	11.32	MAR 25	9.85	JUN 28	9.86	AUG 29	10.39		

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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	h16.17	h16.40	---	---	h15.26	h14.13	h13.40	h13.71	---	15.04	15.47	16.07
10	h16.21	h16.44	---	---	h15.15	h14.06	h13.39	h13.81	---	15.18	15.57	16.15
15	h16.25	h16.42	---	---	e14.91	h14.04	h13.46	h13.88	---	15.32	15.68	16.22
20	h16.30	h16.34	---	h15.59	e14.61	h14.04	h13.55	---	---	15.46	15.80	16.30
25	h16.35	h16.30	---	h15.52	h14.36	h14.12	h13.68	---	14.65	15.31	15.89	16.35
EOM	h16.37	h16.26	m15.74	h15.41	h14.23	h13.58	h13.67	m14.08	14.89	15.34	16.01	16.43

WTR YR 1988 HIGH 13.38 APR 9 LOW 16.45 NOV 10

e Estimated

h High for the day

m Measured Dec. 28, May 25

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.21	DEC 28	9.34	FEB 23	7.18	APR 26	8.39	JUN 28	8.85	AUG 29	9.55
NOV 24	9.61	JAN 26	9.02	MAR 25	8.31	MAY 25	8.28	JUL 26	7.80	SEP 29	9.96

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	DRY	DEC 28	14.14	FEB 23	11.79	APR 26	12.36	JUN 28	13.14	AUG 29	14.08
NOV 24	16.93	JAN 26	13.64	MAR 25	12.35	MAY 25	12.63	JUL 26	13.11	SEP 29	14.66

GROUND-WATER LEVELS IN RHODE ISLAND

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WASHINGTON COUNTY--Continued

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	26.83	DEC 28	DRY	MAR 25	26.84	MAY 25	26.05	JUL 26	26.46	SEP 29	27.02
NOV 24	27.44	JAN 26	DRY	APR 26	26.03	JUN 28	26.70	AUG 29	26.61		

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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	h7.72	h7.84	---	---	h6.97	h6.24	h6.14	h6.55	---	7.19	7.25	7.44
10	h7.79	h7.81	h7.67	---	h7.01	h6.34	h6.27	h6.64	6.79	7.27	7.35	7.61
15	h7.81	h7.72	h7.48	---	h6.40	h6.39	h6.41	h6.68	6.91	7.34	7.43	7.66
20	h7.83	h7.65	h7.42	---	h6.09	h6.48	h6.51	---	7.00	7.29	7.51	7.71
25	h7.85	h7.69	h7.45	---	h6.12	h6.58	h6.62	---	6.98	6.83	7.46	7.71
EOM	h7.77	h7.71	h7.46	h7.16	---	h6.01	h6.36	m6.50	7.08	7.12	7.57	7.77

WTR YR 1988 HIGH 5.93 MAR 28 LOW 7.87 OCT 26, NOV 8-10

h High for the day
m Measured May 25

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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	h34.91	h35.23	h35.20	---	---	h33.61	h33.17	h33.45	---	---	34.05	34.46
10	h34.95	h35.28	h35.23	---	---	h33.57	h33.15	h33.52	33.72	---	34.05	34.49
15	h35.00	h35.28	h35.20	---	---	h33.58	h33.23	h33.58	33.80	---	34.08	34.55
20	h35.07	h35.27	---	---	---	h33.59	h33.30	---	33.87	34.27	34.12	34.61
25	h35.13	h35.26	---	---	h33.71	h33.65	h33.39	---	33.95	34.04	34.13	34.63
EOM	h35.19	h35.29	m34.97	m34.81	h33.64	h33.30	h33.41	m33.68	34.02	33.97	34.42	34.69

WTR YR 1988 HIGH 33.14 APR 8 LOW 35.31 NOV 30

h High for the day
m Measured Dec. 28, Jan. 26, May 25

GROUND-WATER LEVELS IN RHODE ISLAND

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 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	h13.79	h14.20	h13.93	h13.48	h12.82	h11.17	h10.87	h11.55	---	12.60	12.04	12.85
10	h13.83	h14.27	h13.93	h13.51	h12.68	h11.15	h10.90	h11.69	---	12.68	12.11	12.91
15	h13.91	h14.25	h13.88	h13.56	h12.02	h11.23	h11.09	h11.81	---	12.77	12.06	13.05
20	h14.01	h14.12	h13.56	h13.45	h11.48	h11.29	h11.24	---	---	12.70	12.33	13.17
25	h14.10	h14.07	h13.51	h13.20	h11.23	h11.38	h11.37	---	12.61	12.04	12.55	13.27
EOM	h14.15	h14.12	h13.48	h13.00	h11.17	h10.94	h11.51	m11.97	12.46	12.03	12.71	13.38

WTR YR 1988 HIGH 10.87 APR 5 LOW 14.29 NOV 11-14

h High for the day

m Measured May 25

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	DRY	DEC 28	28.27	FEB 23	26.39	APR 26	26.88	JUN 28	27.74	AUG 29	28.49
NOV 24	DRY	JAN 28	27.98	MAR 25	26.77	MAY 25	27.09	JUL 26	27.86	SEP 29	29.11

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 1988 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	13.78	DEC 28	12.50	FEB 23	11.19	APR 26	11.76	JUN 28	12.68	AUG 29	13.51
NOV 24	13.32	JAN 26	11.99	MAR 25	11.57	MAY 25	12.24	JUL 26	12.62	SEP 29	13.65

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Wendell Depot, Mass., Whetstone Brook at Depot Road at	128	Woonasquatucket River at Centerdale, R.I.	84
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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

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