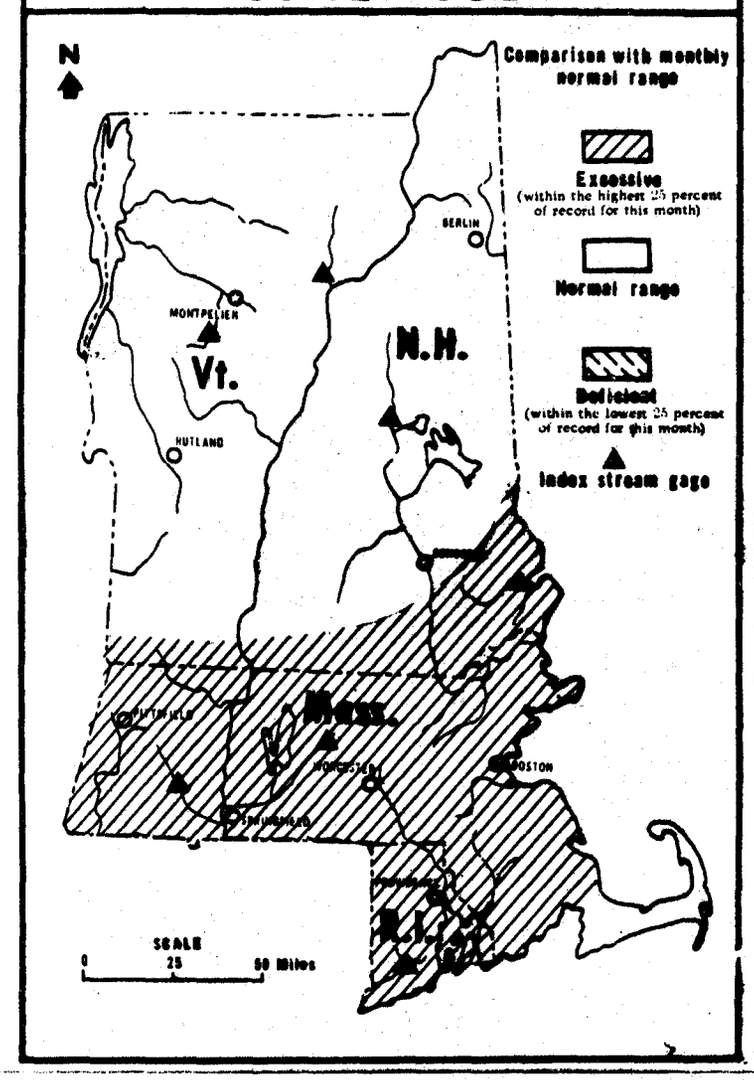
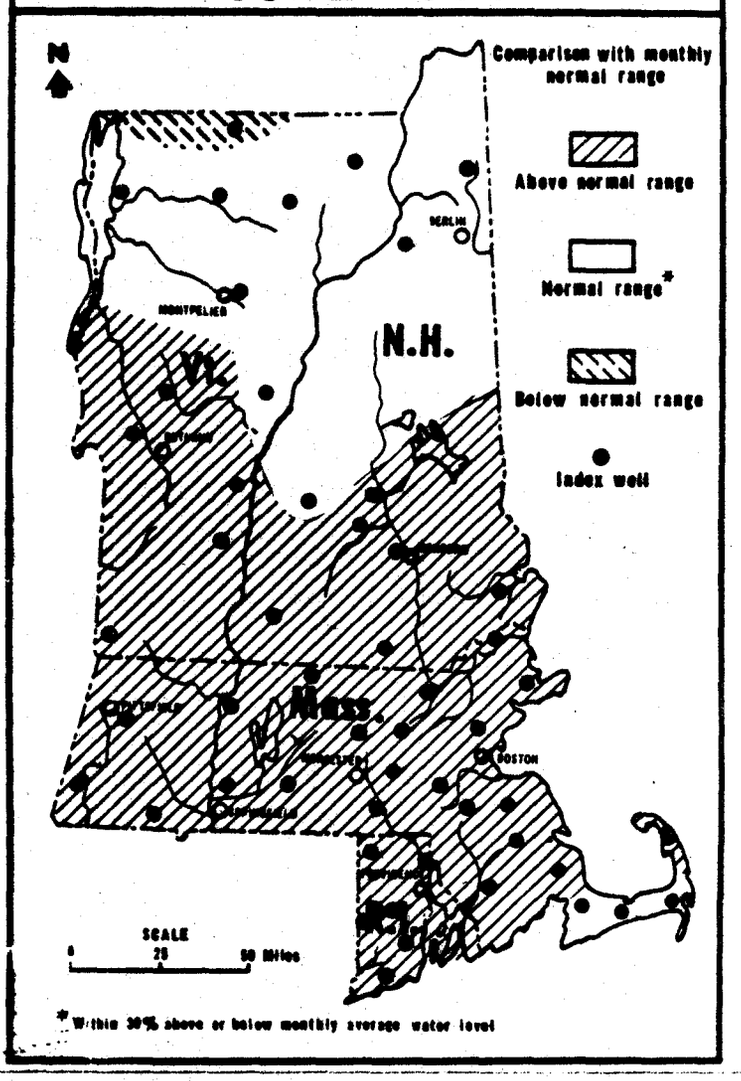
CURRENT WATER RESOURCES CONDITIONS IN CENTRAL NEW ENGLAND

WATER RESOURCES DIVISION, U.S. GEOLOGICAL SURVEY
IN COOPERATION WITH THE STATES OF
MASSACHUSETTS, NEW HAMPSHIRE, RHODE ISLAND, AND VERMONT

SURFACE-WATER RUNOFF JUNE 1982



GROUND-WATER LEVELS JUNE 1982



Runoff was excessive in Massachusetts, Rhode Island, and southeastern New Hampshire, and in the normal range in all except extreme southern portions of New Hampshire and Vermont. Record amounts of rainfall for June occurred in much of Rhode Island and Massachusetts, and runoff was very high. With normal precipitaton during July, runoff is expected to be normal in New Hampshire and Vermont and excessive in Massachusetts and Rhode Island. See further discussion of streamflow on next page.

Ground-water levels had unseasonal rise, except in northern New Hampshire and Vermont. Water levels were above those of last year for June and above average except for Cape Cod, Massachusetts. More than 50 percent of wells set new highs for the period of record. If normal precipitation occurs, water levels are expected to be in the above normal range in Massachusetts and Rhode Island.

Storage in major reservoirs decreased slightly in the north and increased in the south, and ranged from about 95 to 153 percent of average for the end of June. Total contents of all index reservoirs was about 113 percent of that of a year ago. On June 6, Cobble Mountain Reservoir spilled for the first time since 1955. Quabbin Reservoir was 98 percent full on June 29, and filling.

Flooding in Massachusetts and Rhode Island

Much of Massachusetts, Rhode Island, and southeastern New Hampshire received record amounts of precipitation during June. Record runoff for June occurred at index gaging stations Pawcatuck River at Wood River Junction, Rhode Island (October 1940-), Ware River at Intake Works near Barre, Massachusetts (January 1928-), and Lamprey River near Newmarket, New Hampshire (July 1934-), and second highest runoff for June occurred at West Branch Westfield River at Huntington, Massachusetts (September 1935-).

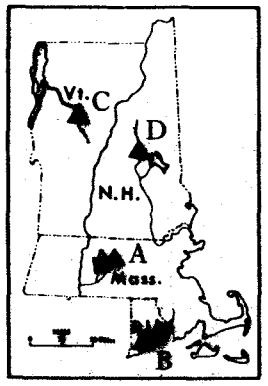
Heavy rainfall June 5, 6, in combination with ground saturated from previous rainfall, produced substantial flooding. Flooding was most severe in parts of Connecticut (reported on by Hartford, Connecticut, subdistrict office of the U.S. Geologial Survey) and in Rhode Island. A sampling of peak discharges at gaging stations in Massachusetts indicated that the storm produced peaks with recurrence intervals of 5-20 years. At the Massachusetts-Rhode Island border, peaks were in the 10-30-year range. In southern Rhode Island, peaks exceeded the 100-year flood event. Following is a table of peak discharges at selected gaging stations.

Provisional stages and discharges for the flood of June 5-9, 1982, at selected sites in Massachusetts and Rhode Island

Station number	Stream and place of determination	Drainage area (sq.mi.)	Period of known floods	Maximum flood previously known: Date	Gage height (feet)	Discharge (cfs)	Maximum during present flood: Date	Gage height (feet)	Discharge, cfs	Discharge, cfs per sq. mi.	Recurrence interval (years)
MERRIMACK RIVER BASIN											
01094500	North Nashua River near Leominster, Mass.	110	(1850) 1935-	3/18/36	20.53	16,300	6/6/82	7.35	4,200	38.2	7
01096500	Nashua River at East Pepperell, Mass.	316	1935-	3/20/36	19.1	20,900	6/8/82	11.40	6,660	21.1	--
CHARLES RIVER BASIN											
01103500	Charles River at Dover, Mass.	184	(1886) 1937-	8/23/55	9.24	3,220	6/9/82	7.32	2,420	13.2	20
				3/22/68	8.72	3,220					
BLACKSTONE RIVER BASIN											
01111300	Nipmuc River near Harrisville, R.I.	16.0	1964-	1/25/79	8.53	1,840	6/6/82	7.17	1,150	71.9	10
01111500	Branch River at Forestdale, R.I.	91.2	(1886) 1940-	3/19/36	--	5,800					
				1/25/79	11.80	5,470	6/6/82	11.15	4,800	52.6	30
01112500	Blackstone River at Woonsocket, R.I.	416	1929-	8/19/55	21.8	32,900	6/7/82	13.16	12,600	30.3	20
PAWTUXET RIVER BASIN											
01116500	Pawtuxet River at Cranston, R.I.	200	1939-	1/26/79	13.26	4,000	6/7/82	a14.5	a5,000	25	--
PAWCATUCK RIVER BASIN											
01117500	Pawcatuck River at Wood River Junction, R.I.	100	1940-	3/19/68	7.80	1,700	6/7/82	8.75	1,860	18.6	125
01118000	Wood River at Hope Valley, R.I.	72.4	(1711) 1927 1936 1941-	2/1886	12.4						
				11/1927	11.7						
				3/1936	--	1,540					
				3/22/80	8.67	1,770	6/6/82	10.26	2,500	34.5	150
01118500	Pawcatuck River at Westerly, R.I.	295	(1886) 1936 1940-	11/1927 discharge possibly twice that of March 1936							
				3/1936	--	3,150					
				3/18/68	10.49	4,470	6/6/82	12.86	6,740	22.8	250
CONNECTICUT RIVER BASIN											
01171500	Mill River at Northampton, Mass.	54.0	1938-	8/19/55	11.78	6,300	6/6/82	b9.9	4,150	76.9	20
01181000	West Branch Westfield River at Huntington, Mass.	93.7	1935-	8/19/55	15.27	26,100	6/6/82	8.43	7,820	83.5	5

a = estimated.
b = from unchecked floodmarks.

STREAMFLOW AT SELECTED INDEX GAGES

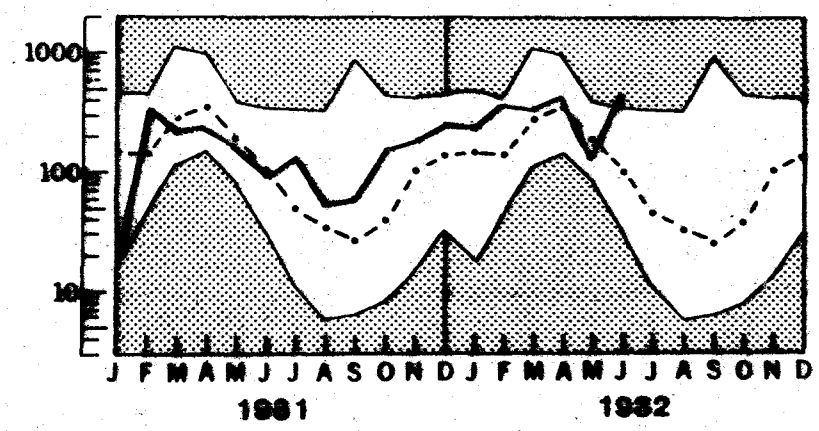


UNSHADED AREA SHOWS RANGE
BETWEEN HIGHEST AND LOWEST
MONTHLY MEAN DISCHARGES OF RECORD

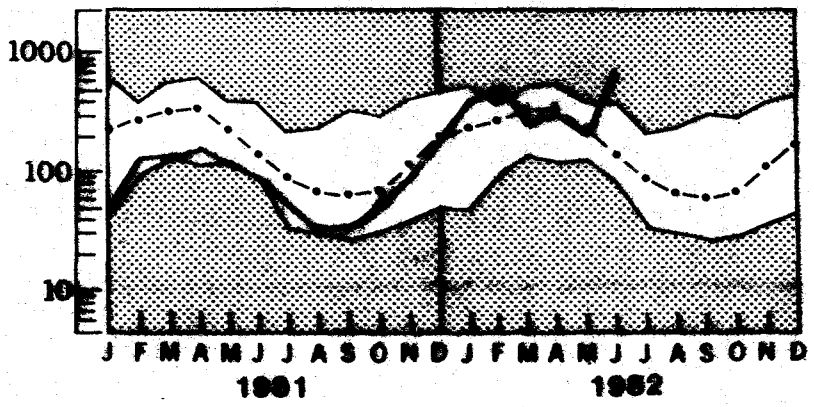
CURRENT RECORD ——— MEDIAN -·-·-·-

MONTHLY MEAN DISCHARGE, IN CUBIC FEET PER SECOND

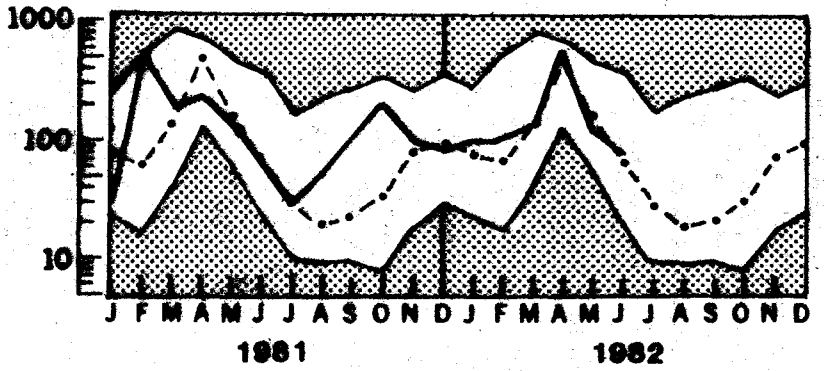
WARE RIVER AT
INTAKE WORKS NEAR BARRE, MASS. (A)



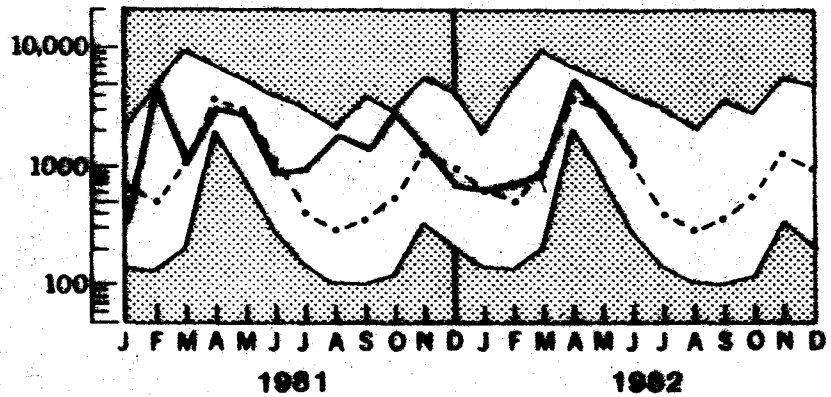
PAWCATUCK RIVER
AT WOOD RIVER JUNCTION, R.I. (B)



DOG RIVER AT NORTHFIELD FALLS, VT. (C)



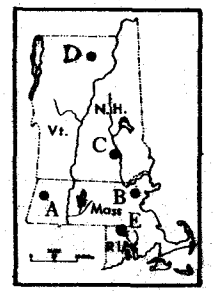
PEMIGEWASSET RIVER AT PLYMOUTH, N.H. (D)

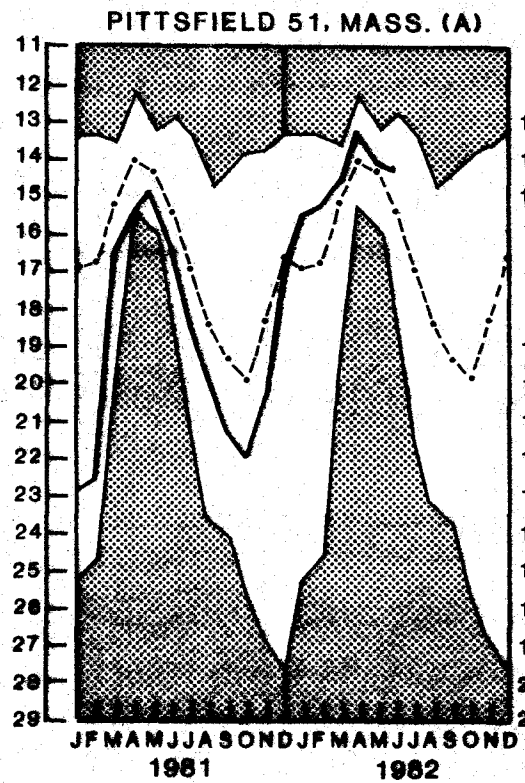


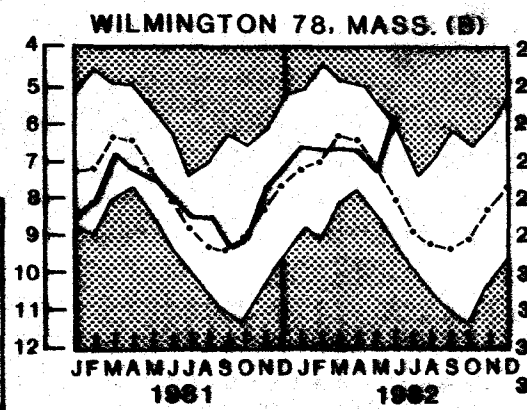
GROUND-WATER LEVELS IN SELECTED OBSERVATION WELLS

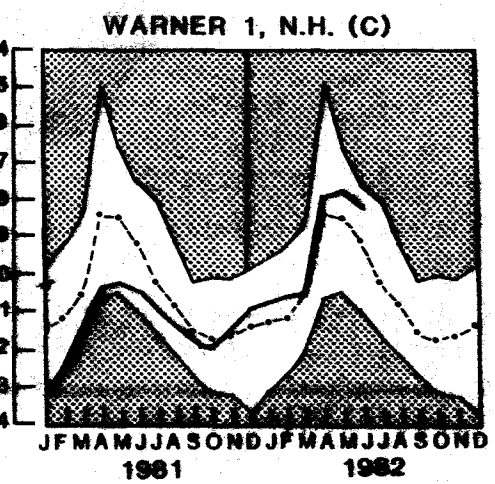
UNSHADED AREA SHOWS RANGE BETWEEN HIGHEST AND LOWEST MONTH-END WATER LEVEL OF RECORD

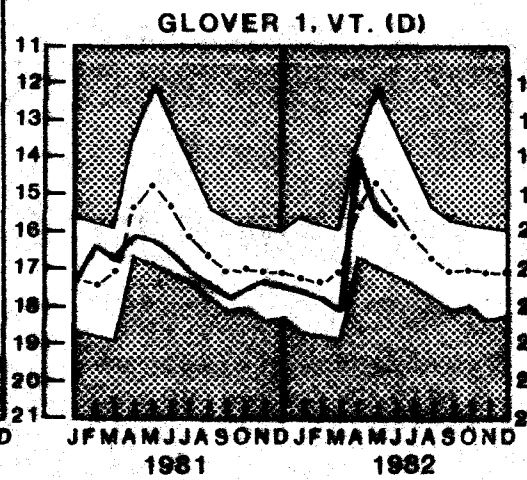
CURRENT RECORD ——— AVERAGE —·—·—

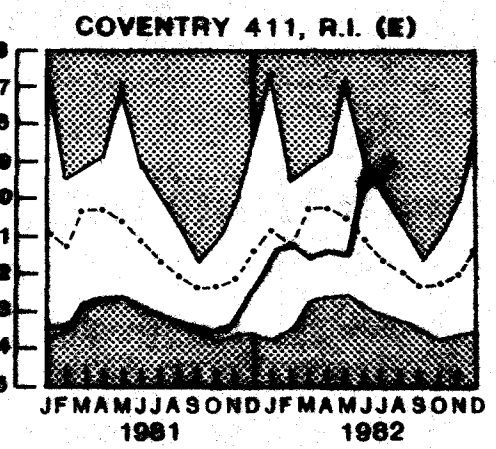












PROVISIONAL
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SUMMARY OF GROUND-WATER LEVELS, JUNE 1962

WELL	START OF RECORD	NET CHANGE IN MONTH (FEET)	NET CHANGE IN ONE YEAR (FEET)	DEPARTURE FROM JUNE AVERAGE* (FEET)	WATER LEVEL BELOW LAND-SURFACE DATUM (FEET)
MASSACHUSETTS					
ACTON 158	1965	+ 1.92	+ 3.62	+ 2.15	16.00 &&
BARNSTABLE 230	1957	+ 0.20	+ 0.31	- 0.72	23.95
BARNSTABLE 247	1962	+ 0.11	+ 0.96	- 1.17	25.08
BOURNE 198	1962	+ 0.13	+ 0.29	- 0.65	33.50
BREWSTER 21	1962	+ 0.41	+ 1.14	- 1.45	10.85
CHATHAM 138	1962	+ 0.08	+ 1.15	- 0.27	23.55
DEDHAM 231	1965	+ 1.75	+ 4.84	+ 3.42	4.13 #
DOVER 10	1965	+ 1.98	+ 3.53	+ 2.12	30.31 #
EAST BRIDGEWATER 30	1958	+ 2.20	+ 6.30	+ 4.50	4.38 #
FREETOWN 23	1964	+ 1.56	+ 2.44	+ 0.86	12.03
GRANVILLE 5	1965	+ 1.92	+ 3.31	+ 2.06	29.98 #
GREAT BARRINGTON 2	1951	+ 1.52	+ 2.72	+ 2.19	9.14
HAVERHILL 23	1960	+ 1.28	+ 3.07	+ 2.64	9.05 #
LOWELL 14	1939	+ 1.48	+ 3.97	+ 2.94	9.06 #
MONTAGUE 5	1942	- 0.01	+ 2.68	+ 1.63	1.93
NORTHBOROUGH 38	1962	+ 1.95	+ 2.92	+ 2.93	3.12 #
NORTHBRIDGE 1	1965	+ 0.67	+ 0.99	+ 0.77	2.14 #
PITTSFIELD 51	1963	+ 0.04	+ 2.00	+ 1.17	14.17
PLYMOUTH 22	1956	+ 1.68	+ 4.01	+ 1.02	22.35
SANDWICH 252	1962	+ 0.32	+ 0.53	+ 0.02	47.02
SANDWICH 253	1962	+ 0.29	+ 0.48	- 1.42	50.65
STERLING 1	1947	+ 0.01	- 0.03	+ 2.09	3.13
TRURO 89	1962	+ 0.67	+ 0.62	+ 0.37	11.58
WELLFLEET 17	1962	+ 0.69	+ 1.47	+ 0.07	9.63
WENHAM 76	1965	+ 0.73	+ 1.91	+ 1.65	1.34 #
WEST BROOKFIELD 10	1970	+ 3.19	+ 3.64	+ 4.04	2.32 #
WEYMOUTH 2	1965	+ 2.69	+ 7.32	+ 3.93	7.96
WILMINGTON 76	1951	+ 1.31	+ 1.99	+ 1.89	6.06 #
WINCHENDON 13	1939	+ 0.18	+ 0.41	+ 1.33	4.92
WINCHESTER 14	1940	+ 2.64	+ 3.97	+ 3.14	7.96 #
NEW HAMPSHIRE					
CONCORD 2	1963	+ 0.29	+ 2.46	- 0.13	40.13
CONCORD 3	1966	+ 0.05	+ 1.44	+ 0.33	56.52
CONCORD 4	1966	+ 0.05	+ 2.81	+ 1.21	15.39
ERROL 1	1966	- 0.90	+ 0.60	+ 0.04	11.50
FRANKLIN 1	1966	- 0.42	+ 4.39	+ 1.48	8.99
KEENE 2	1963	+ 0.54	+ 0.52	+ 0.65	3.38
LEE 1	1953	+ 0.31	+ 0.73	+ 0.45	30.57
MERRIMACK 22	1958	+ 1.20	+ 2.44	+ 1.94	6.13
MILFORD 36	1962	+ 0.85	+ 1.46	+ 1.66	7.20 #
NASHUA 218	1964	+ 1.19	+ 1.33	+ 1.10	26.43 &&
NEW LONDON 1	1947	- 0.94	- 0.05	+ 0.13	8.70
WARNER 1	1965	- 0.59	+ 2.16	+ 0.81	28.30
RHODE ISLAND					
BURRILLVILLE 187	1968	+ 1.96	+ 3.48	+ 2.05	12.52 #
CHARLESTOWN 18	1946	+ 4.49	+ 6.92	+ 4.92	12.33 #
COVENTRY 411	1961	+ 2.32	+ 3.53	+ 1.62	19.36
EXETER 16	1946	+ 1.58	+ 4.29	+ 2.69	7.82 #
PAWTUCKET 136	1962	+ 1.14	+ 2.29	+ 1.10	3.44
WEST GREENWICH 181	1969	+ 1.00	+ 1.33	+ 1.20	15.03
VERMONT					
BERKSHIRE 1	1966	- 0.80	- 0.62	- 0.35	15.07
BRIGHTON 1	1966	+ 0.09	- 0.15	- 0.01	3.87
CHESTER 1	1966	+ 0.50	+ 0.88	+ 0.59	4.77
GLOVER 1	1966	- 0.58	+ 0.71	- 0.42	15.89
HARTLAND 54	1969	- 0.64	+ 0.59	+ 0.13	8.52
MILTON 3	1956	- 0.88	+ 5.20	+ 1.74	27.27
MONTPELIER 2	1966	- 1.23	- 0.13	- 0.53	15.75
MORRISTOWN 1	1966	- 0.45	+ 0.24	+ 0.14	18.52
PITTSFORD 8	1957	- 0.32	+ 1.42	+ 1.43	35.16
POWNAL 1	1964	+ 0.03	+ 0.34	+ 0.30	13.44
WEST FAIRLEE 1	1966	- 0.88	+ 0.12	+ 0.27	3.30

&& SET NEW HIGH FOR PERIOD OF RECORD
# SET NEW HIGH OR EQUALED HIGHEST RECORDED WATER LEVEL FOR END OF JUNE
* - MONTHLY AVERAGE INCLUDES CURRENT MEASUREMENT

A MONTHLY REPORT PREPARED BY THE
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION
150 CAUSEWAY STREET, BOSTON, MA 02114

IN COOPERATION WITH THE STATES OF
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