Water-Data Report 2011

01094500 NORTH NASHUA RIVER NEAR LEOMINSTER, MA

MERRIMACK RIVER BASIN
NASHUA RIVER SUBBASIN

LOCATION.--Lat 42°29'42.23", long 71°43'18.96" referenced to North American Datum of 1983, Worcester County, MA, Hydrologic Unit 01070004, on right bank, 100 ft downstream from I-190 in Leominster.

DRAINAGE AREA.--110 mi^2.

SURFACE-WATER RECORDS

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. WDR MA-RI-92-1: 1978(M).

GAGE.--Water-stage recorder with satellite telemeter. Datum of gage is about 260 ft above National Geodetic Vertical Datum (NGVD) of 1929. Prior to Dec. 15, 2006, datum of gage was 270.04 ft above NGVD of 1929 at site 1,500 ft upstream.

COOPERATION.--Massachusetts Department of Conservation and Recreation, Office of Water Resources; and Massachusetts Department of Environmental Protection, Office of Watershed Management.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Regulation at low flow by mills and waste-water treatment plant upstream. Flow includes diversions 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. Total drainage area above gage is 110 mi^2; net drainage area above gage is 108 mi^2, excludes 2.1 mi^2 above outlet of Ashby (Fitchburg) Reservoir.

Suggested citation: U.S. Geological Survey, 2012, Water-resources data for the United States, Water Year 2011: U.S. Geological Survey Water-Data Report WDR-US-2011, site 01094500, accessed at http://wdr.water.usgs.gov/wy2011/pdfs/01094500.2011.pdf

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	293	89	179	105	e109	395	324	251	122	142	46	230
2	142	86	499	145	e116	296	355	230	146	127	46	168
3	65	68	265	169	e111	234	387	213	117	115	44	140
4	52	153	195	134	99	198	409	232	107	105	43	120
5	48	287	157	120	95	204	492	259	100	100	43	108
6	181	192	136	105	120	633	441	226	100	94	41	179
7	167	126	125	e94	111	4,370	383	203	97	87	51	625
8	88	170	111	e87	112	1,970	344	206	92	82	169	1,840
9	69	173	95	e83	101	1,070	316	197	132	87	77	1,150
10	57	169	90	e78	94	766	300	181	154	78	278	612
11	62	131	96	e77	88	1,420	289	154	131	74	103	416
12	59	111	380	e94	86	1,360	278	139	205	66	69	329
13	52	101	1,060	e100	84	1,040	372	136	150	61	59	254
14	48	95	575	92	91	851	393	129	139	64	56	211
15	313	89	405	89	103	682	326	248	117	58	223	189
16	228	96	306	92	93	828	289	496	103	54	330	173
17	137	456	250	81	100	1,020	1,320	463	107	50	151	149
18	103	297	177	104	176	1,000	811	454	110	51	105	132
19	85	201	156	127	290	1,000	557	454	94	52	86	123
20	74	159	142	115	231	752	500	428	83	50	74	118
21	67	141	125	106	175	625	423	385	81	48	71	117
22	63	130	118	98	e147	571	350	333	223	49	71	175
23	58	107	118	91	e133	517	412	306	634	54	64	360
24	55	96	114	103	e122	450	473	325	454	47	59	711
25	55	85	103	118	285	401	395	253	408	61	79	443
26	59	106	100	92	347	362	367	210	523	69	171	322
27	85	104	108	e104	254	332	349	180	351	56	195	237
28	93	89	e100	94	327	304	325	169	263	52	1,640	190
29	98	82	100	93	---	282	337	155	253	48	1,220	591
30	98	79	98	88	---	268	289	138	181	54	517	651
31	92	---	99	83	---	267	---	124	---	50	329	---
Total	3,146	4,268	6,582	3,161	4,200	24,468	12,606	7,877	5,777	2,185	6,510	11,063
Mean	101	142	212	102	150	789	420	254	193	70.5	210	369
Max	313	456	1,060	169	347	4,370	1,320	496	634	142	1,640	1,840
Min	48	68	90	77	84	198	278	124	81	47	41	108
Cfsm	0.92	1.29	1.93	0.93	1.36	7.18	3.82	2.31	1.75	0.64	1.91	3.35
In.	1.06	1.44	2.23	1.07	1.42	8.27	4.26	2.66	1.95	0.74	2.20	3.74

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	122	178	217	215	231	398	430	249	171	95.5	82.4	91.2
Max	625	520	682	485	650	1,289	1,126	524	642	433	286	595
(WY)	(2006)	(2007)	(1997)	(2006)	(2008)	(1936)	(1987)	(2006)	(1982)	(2009)	(1938)	(1938)
Min	37.5	33.7	58.0	50.3	63.7	140	133	85.4	46.6	36.5	30.2	32.6
(WY)	(2002)	(2002)	(2002)	(1981)	(1980)	(1965)	(1985)	(1965)	(1999)	(1993)	(2002)	(1995)

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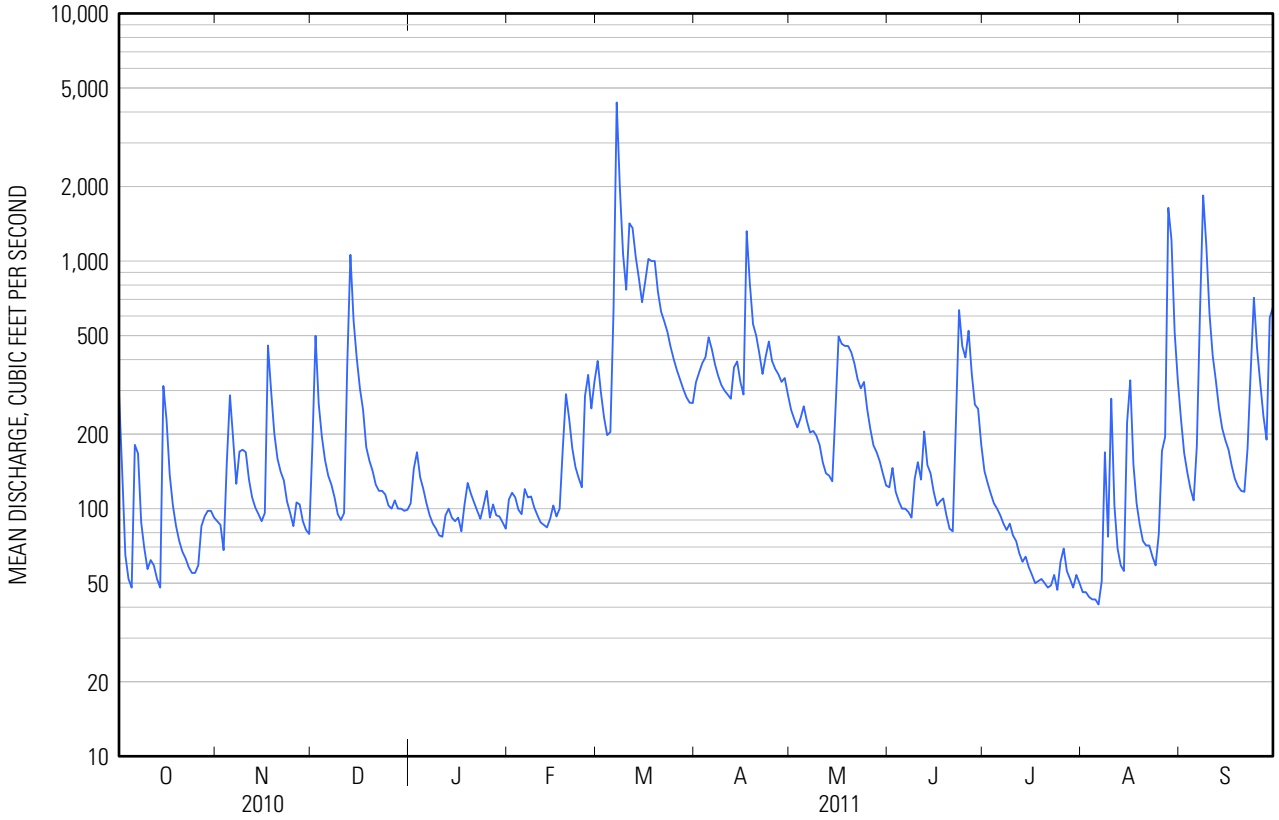
SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1935 - 2011	
Annual total	90,319		91,843			
Annual mean	247		252		206	
Highest annual mean					328	2006
Lowest annual mean					81.2	1965
Highest daily mean	5,500	Mar 15	4,370	Mar 7	7,530	Mar 18, 1936
Lowest daily mean	29	Sep 26	41	Aug 6	21	Aug 19, 2002
Annual seven-day minimum	31	Sep 21	45	Jul 31	22	Aug 16, 2002
Maximum peak flow			5,810	Mar 7	[a]16,300	Mar 18, 1936
Maximum peak stage			12.72	Mar 7	[b]20.53	Mar 18, 1936
Instantaneous low flow			38	Aug 6	11	Aug 29, 1948
Annual runoff (cfsm)	2.25		2.29		1.88	
Annual runoff (inches)	30.54		31.06		25.48	
10 percent exceeds	489		499		432	
50 percent exceeds	111		136		128	
90 percent exceeds	39		61		48	

[a] By computation of peak flow over dam.
[b] From floodmarks at datum then in use.