

## SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

### Remark Codes

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

PRINT 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).
V	Analyte was detected in both the environmental sample and the associated blanks.
&	Biological organism estimated as dominant.

### Dissolved Trace-Element Concentrations

**\*NOTE.**--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ( $\mu\text{g/L}$ ) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter ( $\text{ng/L}$ ). Data above the  $\mu\text{g/L}$  level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

### Change in National Trends Network Procedures

**\*NOTE.**--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

ANDROSCOGGIN RIVER BASIN

01052500 DIAMOND RIVER NEAR WENTWORTH LOCATION, NH

LOCATION.--Lat 44°52'39", long 71°03'28" (Revised), Coos County, Hydrologic Unit 01040001, on left bank 1.0 mi upstream from mouth and 1.6 mi north of Wentworth Location.

DRAINAGE AREA.--152 mi<sup>2</sup>.

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

REVISED RECORDS.--WDR ME-81-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,259.48 ft above sea level.

REMARKS.--Records good except for periods of ice effect, Nov. 30 to Mar. 23, which are fair. Satellite gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft<sup>3</sup>/s, March 31, 1998, gage height, 12.11 ft, from rating curve extended above 7,500 ft<sup>3</sup>/s; maximum gage height, 12.23 ft, February 21, 1981 (ice jam); minimum discharge, 6.8 ft<sup>3</sup>/s, August 27, 28, 1949, September 1, 1952, gage height, 0.81 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 28	2330	3,750	7.65	Apr. 9	1645	5,600	8.86
Apr. 5	0300	3,980	7.82	May 10	0645	*8,030	*10.11

Minimum discharge, 48 ft<sup>3</sup>/s, September 11,12, gage height, 2.01 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	626	282	e299	e101	e61	e527	696	693	210	102	70	53
2	299	246	e257	e100	e60	e360	913	829	193	86	60	52
3	216	255	e240	e201	e59	e284	1590	770	192	76	56	182
4	200	236	e228	e380	e58	e240	2700	709	168	201	172	181
5	258	200	e218	e440	e58	e202	3420	1010	159	196	126	153
6	285	182	e209	e303	e57	e180	1660	950	150	130	75	95
7	242	167	e203	e202	e57	e179	890	2700	158	93	61	74
8	191	156	e194	e150	e56	e187	763	2050	142	81	134	65
9	177	143	e188	e122	e54	e222	3460	2230	148	75	125	58
10	170	153	e178	e112	e53	e783	4070	5400	132	78	90	53
11	223	157	e255	e105	e63	e558	1350	4290	599	91	78	49
12	242	125	e215	e198	e65	e347	835	2190	637	83	97	48
13	177	136	e198	e189	e62	e281	618	1050	307	71	74	55
14	523	169	e188	e151	e64	e217	557	968	212	61	60	66
15	690	434	e178	e123	e62	e248	938	684	173	58	174	181
16	421	275	e175	e102	e63	e377	2110	528	154	67	123	450
17	334	197	e171	e92	e64	e381	1500	444	140	121	122	213
18	345	197	e124	e85	e63	e256	939	553	144	89	141	139
19	319	187	e94	e78	e62	e238	852	1010	123	163	98	106
20	258	187	e120	e74	e60	e219	793	554	108	137	87	87
21	273	783	e193	e71	e59	e210	1030	418	97	87	155	83
22	235	730	e184	e70	e57	e242	855	352	128	73	113	117
23	1360	899	e152	e68	e58	e340	1250	312	151	80	82	87
24	2160	820	e134	e67	e90	584	2240	367	115	70	217	97
25	1190	570	e128	e73	e527	680	1320	529	92	69	188	167
26	663	507	e123	e71	e643	753	970	705	95	61	113	110
27	536	1830	e120	e68	e246	772	788	544	52	52	83	87
28	420	1730	e115	e66	e608	1760	658	422	366	51	78	84
29	343	762	e111	e64	e839	3320	602	332	151	120	69	89
30	291	e410	e108	e63	---	1620	823	277	109	170	61	78
31	264	---	e105	e62	---	879	---	240	---	96	56	---
TOTAL	13931	13125	5405	4051	4328	17446	41190	34110	5735	2988	3238	3359
MEAN	449	438	174	131	149	563	1373	1100	191	96.4	104	112
MAX	2160	1830	299	440	839	3320	4070	5400	637	201	217	450
MIN	170	125	94	62	53	179	557	240	92	51	56	48
CFSM	2.96	2.88	1.15	.86	.98	3.70	9.03	7.24	1.26	.63	.69	.74
IN.	3.41	3.21	1.32	.99	1.06	4.27	10.08	8.35	1.40	.73	.79	.82

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2000, BY WATER YEAR (WY)

	MEAN	338	228	170	150	295	1071	928	316	172	138	151
MAX	869	733	739	575	783	936	1591	2115	804	703	492	836
(WY)	1991	1964	1974	1995	1981	1998	1954	1972	1943	1996	1988	1954
MIN	40.9	83.2	53.4	53.9	43.4	54.6	402	297	105	35.1	15.0	16.8
(WY)	1953	1979	1979	1948	1942	1967	1972	1998	1963	1952	1952	1952

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1941 - 2000

ANNUAL TOTAL	124340	148906	
ANNUAL MEAN	341	407	353
HIGHEST ANNUAL MEAN			524
LOWEST ANNUAL MEAN			225
HIGHEST DAILY MEAN	3790	Sep 17	9900
LOWEST DAILY MEAN	26	Sep 6	6.8
ANNUAL SEVEN-DAY MINIMUM	28	Sep 2	9.0
INSTANTANEOUS PEAK FLOW		8030	12800
INSTANTANEOUS PEAK STAGE		10.11	12.23
INSTANTANEOUS LOW FLOW		48	6.8
ANNUAL RUNOFF (CFSM)	2.24	2.68	2.32
ANNUAL RUNOFF (INCHES)	30.43	36.44	31.51
10 PERCENT EXCEEDS	829	903	850
50 PERCENT EXCEEDS	187	182	160
90 PERCENT EXCEEDS	67	63	52

e Estimated.



## ANDROSCOGGIN RIVER BASIN

## 01054000 ANDROSCOGGIN RIVER NEAR GORHAM, NH

**LOCATION.**--Lat 44°26'10", long 71°11'27", Coos County, Hydrologic Unit 01040001, on right bank at Pulsifer Rips, 2.2 mi downstream from Dead River, and 4.0 mi upstream from Gorham.

**DRAINAGE AREA.**--1,361 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Discharge records: October 1913 to current year. October 1922 to September 1928, monthly discharge only, published in WSP 1301. Discharges for water year 1918 not used in long-term statistics because of unknown discharge on December 25, 1917. Prior to October 1928, published as "at Berlin."

**REVISED RECORDS.**--WDR ME-81-1: Drainage area. WDR ME-97-1: 1913-28(M)

**GAGE.**--Water-stage recorder. Datum of gage is 832.88 ft above sea level. Prior to September 30, 1922, nonrecording gage showing head and tailwater elevations at site 3 mi upstream at different datum.

**REMARKS.**--No estimated daily discharges. Records good. Flow regulated by Rangeley, Mooselookmeguntic, Richardson, Azischohos, and Umbagog Lakes. These reservoirs have a combined usable capacity of about 28.1 billion ft<sup>3</sup> with final regulation at Errol Dam 35 mi upstream. Diurnal fluctuations caused by powerplant 0.8 mi upstream. Satellite gage-height telemeter at station.

**EXTREMES FOR PERIOD OF RECORD.**--Maximum discharge, 21,900 ft<sup>3</sup>/s, estimated, April 30, 1923; minimum daily discharge, leakage only, December 25, 1917, when gates in dam were closed.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 16,500 ft<sup>3</sup>/s, May 11, gage height, 9.26 ft; minimum daily discharge, 1,320 ft<sup>3</sup>/s, July 13.

**DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3380	3020	3180	2640	2970	3000	4510	5010	2040	1790	1560	1510
2	2700	2970	2750	2690	2920	2890	4650	4580	2090	1750	1540	1610
3	2420	4020	2770	2810	2910	2760	5670	3500	2140	1730	1490	1750
4	2330	3510	2790	2910	2920	2670	8650	3240	2110	1730	1640	1720
5	2460	3140	2850	3310	2920	2590	10700	3040	2000	1820	1460	1740
6	2450	2780	2840	3110	2920	2530	8630	3130	1980	1760	1490	1530
7	2390	2730	2810	2990	2920	2610	7480	3290	2010	1680	1500	1550
8	2250	2650	2770	2890	2890	2650	7060	4900	2110	1780	1960	1480
9	2240	2620	2720	2850	2950	2910	9960	6830	1880	1790	1600	1510
10	2310	2630	2680	2870	2960	3300	12100	11700	1820	1960	1490	1520
11	2330	2690	2790	3270	2930	3400	8840	15000	1870	1920	1580	1510
12	2330	2650	2780	3350	2680	3210	7610	16200	2810	1440	1660	1500
13	2250	2630	2710	3020	2610	3030	6240	15500	2750	1320	1580	1510
14	2360	2680	2720	2880	2680	2890	4780	15900	2120	1490	1560	1540
15	2910	2980	2840	2810	2650	2890	3990	14500	1670	1570	1920	1730
16	2430	2940	2860	3000	2640	3010	4590	12500	1620	1620	1750	2290
17	2180	2780	2900	3000	2630	3150	4340	11100	1830	1840	1500	1980
18	2110	2620	2820	3010	2600	2930	3810	9230	1740	1670	1540	1630
19	2070	2550	2550	2980	2650	2810	3610	10200	1730	1700	1510	1690
20	2310	2670	2660	2980	2650	2780	3510	7390	1690	1650	1460	1630
21	2330	3170	3070	3010	2640	2740	3640	6660	1660	1510	1490	1600
22	2260	3360	2960	2890	2640	2790	4440	6470	1680	1520	1480	1590
23	4210	2860	2790	2830	2390	3000	4960	6150	1650	1460	1530	1550
24	6180	2750	2630	3060	2420	3400	6890	4850	1640	1450	1560	1600
25	4410	2630	2550	3030	2480	3590	6770	4950	1720	1620	1550	1590
26	3770	2640	2680	2980	2500	3750	6000	4880	1620	1610	1520	1570
27	3350	3640	2700	2980	2550	3910	5590	4680	1700	1430	1510	1550
28	3010	4940	2550	2920	2800	5660	5470	4050	1790	1440	1500	1520
29	3150	4410	2620	2910	3220	8960	5280	3900	1660	1580	1510	1580
30	3090	4210	2640	2920	---	6190	5180	3800	1660	1680	1540	1520
31	3050	---	2600	2970	---	4920	---	2890	---	1600	1530	---
TOTAL	87020	91870	85580	91870	79640	106920	184950	230020	56790	50910	48510	48600
MEAN	2807	3062	2761	2964	2746	3449	6165	7420	1893	1642	1565	1620
MAX	6180	4940	3180	3350	3220	8960	12100	16200	2810	1960	1960	2290
MIN	2070	2550	2550	2640	2390	2530	3510	2890	1620	1320	1460	1480

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2000, BY WATER YEAR (WY)**

	2057	2108	2147	2157	2173	2513	3942	4293	2794	2089	1934	1984
MEAN	2057	2108	2147	2157	2173	2513	3942	4293	2794	2089	1934	1984
MAX	4894	4292	5811	4044	4294	7684	6474	10050	10560	5840	2792	6387
(WY)	1955	1991	1974	1970	1996	1936	1976	1937	1917	1996	1990	1954
MIN	1374	1413	1257	1276	1299	1376	1755	1746	1545	1524	1462	1330
(WY)	1942	1922	1953	1953	1922	1922	1965	1941	1915	1980	1995	1995

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1914 - 2000
ANNUAL TOTAL	894690	1162680	
ANNUAL MEAN	2451	3177	2521
HIGHEST ANNUAL MEAN			4147
LOWEST ANNUAL MEAN			1689
HIGHEST DAILY MEAN	9730	Sep 17	20000
LOWEST DAILY MEAN	1430	Jul 2	795
ANNUAL SEVEN-DAY MINIMUM	1540	Aug 31	866
INSTANTANEOUS PEAK FLOW			16500
INSTANTANEOUS PEAK STAGE		9.26	May 11
10 PERCENT EXCEEDS	3270		5210
50 PERCENT EXCEEDS	2310		2690
90 PERCENT EXCEEDS	1580		1540
			2020
			1600
			1996
			1965
			1917
			1948
			1948
			1923

01064300 ELLIS RIVER NEAR JACKSON, NH

LOCATION.--Lat 44°13'08", long 71°14'59" (revised), Carroll County, Hydrologic Unit 01060002, in White Mountain National Forest, on right bank, 0.4 mi upstream from small left-bank tributary, 1.3 mi upstream from bridge on State Highway 16, and 6 mi northwest of Jackson.

DRAINAGE AREA.--10.9 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: December 1963 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,500 ft above sea level, from topographic map. Prior to October 14, 1969, at site 0.3 mi downstream at different datum.

REMARKS.--Records good except for estimated daily discharges and for Aug. 23 to Sept. 15, which are fair and for Dec. 19, Jan. 3-4, Feb. 27-28, and Sept. 16-30, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 3	0430	1,420	5.22	May 5	2200	817	4.16
Apr. 9	1100	* 1,600	* 5.52	Sept. 15	1430	1,080	4.64

Minimum discharge, 6.8 ft<sup>3</sup>/s, September 12, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	28	e35	e14	11	32	39	27	27	14	18	9.5
2	41	37	e34	e15	11	26	58	41	26	13	17	13
3	34	528	e34	e20	10	24	119	33	25	13	17	12
4	32	87	34	e31	10	23	329	48	24	14	15	12
5	29	59	33	e42	10	21	132	107	24	14	13	10
6	28	50	33	e27	9.9	20	58	88	24	13	13	9.5
7	25	43	35	e23	9.8	20	45	160	27	12	14	9.3
8	24	38	31	e20	9.6	23	58	127	25	12	13	8.9
9	25	36	28	19	9.5	45	620	353	24	12	15	8.5
10	24	37	28	17	9.5	84	80	195	22	13	14	8.0
11	24	33	29	22	9.6	46	43	119	25	11	17	8.0
12	22	30	29	e18	9.3	41	35	75	26	10	17	8.3
13	21	30	26	e18	9.1	e28	30	84	24	10	13	8.6
14	62	34	25	e16	9.6	e25	28	157	23	11	25	7.9
15	36	35	24	e15	9.3	22	43	57	22	11	29	203
16	30	29	25	e14	9.1	33	79	48	21	112	20	e43
17	28	e29	23	e14	9.0	30	41	43	19	52	17	e22
18	28	e27	e22	e15	8.8	e25	32	55	18	30	16	e18
19	25	26	e20	e15	8.9	e23	29	52	18	25	14	e16
20	25	32	e20	e15	8.8	e22	28	42	16	21	14	e14
21	24	51	e60	15	8.6	e21	29	35	16	18	13	e13
22	23	37	e35	13	8.6	23	27	31	15	16	13	e12
23	225	42	e30	13	8.8	31	93	30	15	15	14	e11
24	75	40	e23	13	12	40	73	46	14	14	20	e12
25	47	37	e20	13	16	37	41	55	17	13	14	e11
26	38	40	e19	13	12	72	44	55	18	13	13	e10
27	33	231	e18	12	e22	53	34	42	15	14	12	e9.8
28	30	72	e17	12	e109	331	27	36	14	15	11	e10
29	28	50	e16	11	49	132	30	33	14	26	11	e9.9
30	27	e40	e15	11	---	57	33	30	14	24	10	e9.7
31	29	---	e14	11	---	44	---	29	---	21	9.9	---
TOTAL	1209	1888	835	527	437.8	1454	2357	2333	612	612	471.9	557.9
MEAN	39.0	62.9	26.9	17.0	15.1	46.9	78.6	75.3	20.4	19.7	15.2	18.6
MAX	225	528	60	42	109	331	620	353	27	112	29	203
MIN	21	26	14	11	8.6	20	27	27	14	10	9.9	7.9
CFSM	3.58	5.77	2.47	1.56	1.39	4.30	7.21	6.90	1.87	1.81	1.40	1.71
IN.	4.13	6.44	2.85	1.80	1.49	4.96	8.04	7.96	2.09	2.09	1.61	1.90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2000, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
MEAN	30.8	36.8	24.9	18.2	15.6	27.8	69.3	85.0	42.5	23.5	19.6	19.5					
MAX	80.9	90.1	104	57.6	109	75.6	150	159	123	60.5	62.5	65.0					
(WY)	1996	1970	1974	1986	1981	1998	1987	1984	1998	1996	1990	1999					
MIN	9.15	9.29	6.54	4.34	3.07	6.05	23.1	45.7	16.1	10.5	7.46	6.98					
(WY)	1970	1979	1979	1977	1977	1969	1995	1993	1970	1980	1980	1978					

SUMMARY STATISTICS

	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1964 - 2000
ANNUAL TOTAL	14909.4	13294.6	
ANNUAL MEAN	40.8	36.3	
HIGHEST ANNUAL MEAN			53.0
LOWEST ANNUAL MEAN			21.6
HIGHEST DAILY MEAN	624	Sep 17	1160
LOWEST DAILY MEAN	7.2	Sep 4	a 2.2
ANNUAL SEVEN-DAY MINIMUM	7.6	Aug 31	2.3
INSTANTANEOUS PEAK FLOW		b 1600	Apr 9
INSTANTANEOUS PEAK STAGE		5.52	Apr 9
INSTANTANEOUS LOW FLOW		d 6.8	Sep 12
ANNUAL RUNOFF (CFSM)	3.75	3.33	f
ANNUAL RUNOFF (INCHES)	50.88	45.37	3.18
10 PERCENT EXCEEDS	65	58	43.24
50 PERCENT EXCEEDS	25	24	70
90 PERCENT EXCEEDS	12	10	18
			8.4

- a Also on March 3, 4, 1980.
- b From rating curve extended above 390 ft<sup>3</sup>/s on basis of slope-area measurements at gage height 10.34 ft.
- c Gage height 10.34 ft from recorder, affected by drawdown; 18.9 ft from floodmarks, site and datum then in use.
- d Also occurred on September 14.
- e Estimated.
- f Minimum not determined, occurred during ice effect in March 1980.



01064801 BEARCAMP RIVER AT SOUTH TAMWORTH, NH

LOCATION.--Lat 43°49'48", long 71°17'18", Carroll County, Hydrologic Unit 01060002, on right bank, 0.7 mi upstream of Sanger Brook, 0.8 mi east of South Tamworth, 1.0 mi downstream of Cold Brook, 1.1 mi west of Whittier.

DRAINAGE AREA.--67.6 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: April 1993 to current year. Published as "near South Tamworth" prior to October 1995.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft above sea level, from topographic map. Formerly published as Bear Camp River.

REMARKS.--Records good except those for estimated daily discharges, which are fair, and those for October 14, February 25-26, 28-29, and July 18-19, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 28	2130	Ice Jam	* 7.87	Apr. 4	1530	2,010	6.96
Mar. 28	1900	* 3,000	7.55	Apr. 9	1630	1,680	6.78

Minimum discharge, 8.5 ft<sup>3</sup>/s, September 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	91	153	e52	e50	e300	376	168	80	60	58	13
2	163	85	132	e53	e48	e240	361	180	71	45	52	12
3	120	241	123	e55	e46	e200	542	171	66	36	52	12
4	111	191	119	e68	43	e180	1480	151	59	31	54	13
5	119	137	114	e148	41	169	1130	159	60	28	39	12
6	102	114	108	e100	40	153	584	162	59	25	30	11
7	88	102	131	e85	39	148	402	145	161	22	36	11
8	77	108	137	e79	38	185	338	160	123	20	45	10
9	78	95	117	e75	37	257	1030	e185	90	19	37	9.8
10	78	90	108	74	38	668	783	e235	72	25	36	9.2
11	75	89	132	e225	38	442	464	351	65	24	33	8.8
12	69	80	120	e170	39	320	371	288	68	20	33	9.0
13	e63	79	107	e97	37	267	313	210	65	17	28	9.7
14	e78	87	99	e63	39	206	260	266	58	17	26	9.8
15	e112	128	94	e60	56	188	230	208	47	16	30	137
16	89	110	102	e59	55	233	248	164	45	149	30	139
17	77	95	113	e58	47	363	231	138	51	203	28	47
18	77	84	98	e54	42	258	187	133	64	e170	23	28
19	74	79	e78	e53	44	209	169	216	61	e170	21	21
20	78	79	e77	e50	44	181	159	160	54	e85	19	20
21	127	143	e210	e50	42	172	174	133	46	59	18	18
22	107	132	197	e51	41	191	310	121	48	45	16	16
23	571	113	e135	e50	41	250	646	112	57	35	16	14
24	563	106	e120	e50	49	365	760	290	45	28	39	15
25	316	102	e88	e49	e100	407	453	358	44	25	31	15
26	214	110	e75	e48	e200	468	320	276	79	21	22	14
27	167	524	e73	e46	e140	484	272	199	67	31	18	13
28	140	369	e68	e44	e380	1680	239	153	52	37	16	12
29	122	241	e63	e44	e390	1540	207	121	44	64	15	12
30	108	188	e60	e45	---	701	187	105	77	106	14	11
31	99	---	e58	e49	---	464	---	92	---	67	14	---
TOTAL	4530	4192	3409	2204	2244	11889	13226	5810	1978	1700	929	682.3
MEAN	146	140	110	71.1	77.4	384	441	187	65.9	54.8	30.0	22.7
MAX	571	524	210	225	390	1680	1480	358	161	203	58	139
MIN	63	79	58	44	37	148	159	92	44	16	14	8.8
CFSM	2.16	2.07	1.63	1.05	1.14	5.67	6.52	2.77	.98	.81	.44	.34
IN.	2.49	2.31	1.88	1.21	1.23	6.54	7.28	3.20	1.09	.94	.51	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2000, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	1993	1994	1995	1996	1997	1998	1999
MEAN	128	177	154	145	130	265	440	199	153	79.6	38.9	58.9			
MAX	258	302	410	331	242	436	632	398	811	178	91.0	243			
(WY)	1996	1996	1997	1996	1997	1998	1993	1996	1998	1996	1997	1999			
MIN	36.5	66.2	60.3	55.0	51.0	87.6	129	77.4	34.7	17.0	18.9	9.52			
(WY)	1998	1995	1998	1994	1994	1994	1995	1993	1999	1995	1995	1995			

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1993 - 2000

ANNUAL TOTAL	54277	52793.3	
ANNUAL MEAN	149	144	165
HIGHEST ANNUAL MEAN			217
LOWEST ANNUAL MEAN			94.6
HIGHEST DAILY MEAN	2290	Sep 17	5370
LOWEST DAILY MEAN	10	Sep 5	8.8
ANNUAL SEVEN-DAY MINIMUM	11	Sep 1	9.5
INSTANTANEOUS PEAK FLOW			3000
INSTANTANEOUS PEAK STAGE			a 7.87
INSTANTANEOUS LOW FLOW			b 8.5
ANNUAL RUNOFF (CFSM)	2.20		2.13
ANNUAL RUNOFF (INCHES)	29.87		29.05
10 PERCENT EXCEEDS	343		317
50 PERCENT EXCEEDS	98		82
90 PERCENT EXCEEDS	20		19

- a Ice jam.
- b Also occurred September 12.
- c Also occurred September 8, 1995.
- e Estimated.

## PISCATAQUA RIVER BASIN

## 01072100 SALMON FALLS RIVER AT MILTON, NH

**LOCATION.**--Lat 43°24'48", long 70°59'15", Strafford County, Hydrologic Unit 01060003, on right bank, 200 ft downstream from Milton Pond Dam at Milton.

**DRAINAGE AREA.**--108 mi<sup>2</sup>.

**PERIOD OF RECORD.**--Discharge records: October 1968 to current year.

**GAGE.**--Water-stage recorder and concrete control. Elevation of gage is 405 ft above sea level, from topographic map.

**REMARKS.**--Records good except for the periods of shifting control due to gate openings, October 12-25, and April 23 to May 4, which are fair. Flow regulated by Great East and Lovell Lakes and Horn, Wilson, and Milton (also controls Northeast and Town House) Ponds. These reservoirs have a combined usable capacity of about 1.28 billion ft<sup>3</sup>.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 953 ft<sup>3</sup>/s, April 24, gage height, 4.66 ft; maximum gage height, 4.69 ft, March 29; minimum daily discharge 29 ft<sup>3</sup>/s, September 14.

**DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	268	329	128	86	265	513	350	140	53	311	40
2	126	273	291	128	87	318	424	316	131	58	291	38
3	127	292	282	128	86	334	377	332	125	54	261	38
4	133	324	280	128	86	333	420	274	113	52	205	37
5	140	326	282	129	86	322	497	228	107	46	163	36
6	146	310	283	129	85	307	470	220	108	39	147	35
7	145	291	285	130	85	291	410	209	132	38	145	34
8	136	295	287	130	85	287	355	169	156	37	145	34
9	132	282	289	129	85	299	374	165	167	37	140	33
10	131	269	293	129	85	347	449	188	157	38	116	32
11	130	289	285	182	85	378	433	227	140	38	81	31
12	212	286	280	228	85	388	384	262	133	37	79	31
13	271	290	280	228	84	376	333	271	124	37	76	31
14	290	287	236	227	85	355	255	273	118	37	79	29
15	282	292	267	223	88	335	195	254	101	36	81	30
16	281	281	267	221	88	339	199	233	93	61	83	30
17	288	291	265	220	89	467	200	168	92	150	86	30
18	289	278	257	168	88	484	200	144	94	198	85	30
19	283	258	254	85	89	439	201	166	94	186	85	30
20	283	245	222	86	89	383	200	172	90	166	81	30
21	291	256	185	86	89	348	204	170	72	150	77	31
22	294	252	166	86	89	332	358	166	63	135	57	32
23	293	266	160	86	89	331	757	157	69	118	46	32
24	312	262	161	85	89	339	922	271	67	102	48	36
25	338	250	161	86	116	341	849	326	61	91	47	38
26	300	248	161	87	151	338	679	324	63	149	46	46
27	308	260	172	87	152	330	615	314	63	240	44	52
28	288	286	181	86	154	442	618	281	61	154	43	50
29	271	288	179	86	179	845	584	251	57	110	41	48
30	251	332	158	86	---	833	537	173	55	162	41	46
31	236	---	130	86	---	653	---	139	---	255	40	---
TOTAL	7134	8427	7328	4103	2834	12179	13012	7193	3046	3064	3270	1070
MEAN	230	281	236	132	97.7	393	434	232	102	98.8	105	35.7
MAX	338	332	329	228	179	845	922	350	167	255	311	52
MIN	126	245	130	85	84	265	195	139	55	36	40	29

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2000, BY WATER YEAR (WY)**

MEAN	181	197	225	180	191	323	431	225	134	68.4	61.6	77.5
MAX	499	487	604	384	439	720	908	431	650	181	165	162
(WY)	1978	1996	1984	1978	1970	1979	1969	1984	1998	1996	1982	1999
MIN	81.4	77.9	40.5	59.7	60.8	108	103	55.4	35.5	26.1	24.2	22.3
(WY)	1969	1987	1979	1977	1977	1993	1985	1985	1999	1991	1999	1993

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1969 - 2000
ANNUAL TOTAL	67705	72660	
ANNUAL MEAN	185	199	191
HIGHEST ANNUAL MEAN			307
LOWEST ANNUAL MEAN			98.6
HIGHEST DAILY MEAN	1020	922	3220
LOWEST DAILY MEAN	16	29	16
ANNUAL SEVEN-DAY MINIMUM	17	30	17
INSTANTANEOUS PEAK FLOW		a 953	4000
INSTANTANEOUS PEAK STAGE		4.69	6.70
10 PERCENT EXCEEDS	339	343	404
50 PERCENT EXCEEDS	136	164	135
90 PERCENT EXCEEDS	26	41	38

a Shifting control due to gate openings.

PISCATAQUA RIVER BASIN

01072800 COCHECO RIVER NEAR ROCHESTER, NH

LOCATION.--Lat 43°16'06", long 70°58'27", Strafford County, Hydrologic Unit 01060003, on right bank, directly behind Rochester Country Club, 0.6 mi south by southeast of Gonic, 2.5 mi south of Rochester City Hall, approximately 3.3 mi upstream from mouth of Isinglass River, and approximately 12.6 mi above mouth.

DRAINAGE AREA.-- 85.7 mi<sup>2</sup>

REVISED RECORDS.-- WDR NH-VT-97-1: Drainage area.

PERIOD OF RECORD.--Discharge records: March 1995 to current year. Published as "at Rochester" prior to October 1996.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 125 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation by small hydro plants, Sunrise and Baxter Lakes, City Dam No. 1, and the Rochester Reservoirs. Low flows diverted from Berrys River (tributary to Isinglass River) to Rochester Reservoir (head of Howard Brook) then into the Rochester City water supply system. Unknown amount of diverted flow enters the Cocheco River Basin above the gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,250 ft<sup>3</sup>/s, April 23, gage height, 8.50 ft; maximum gage height, 8.57 ft, March 29; minimum daily discharge, 11 ft<sup>3</sup>/s, September 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	113	128	60	e62	450	318	251	81	27	225	16
2	89	107	116	62	e61	389	263	220	73	25	179	15
3	69	134	109	63	e59	354	236	199	68	24	136	16
4	76	196	95	79	e57	320	324	182	60	23	106	19
5	109	160	94	154	e57	290	429	172	56	22	83	17
6	101	137	93	e150	e55	266	330	160	56	21	66	14
7	83	122	142	126	e55	241	265	150	116	19	58	13
8	71	112	182	101	e55	245	224	151	152	18	73	13
9	66	107	145	85	e54	268	277	194	116	17	72	12
10	68	104	121	e87	e56	326	425	192	92	21	61	12
11	79	144	119	e195	e55	326	324	255	71	20	50	12
12	77	153	110	e195	e55	285	274	282	76	17	42	11
13	70	139	103	e160	e53	352	249	220	78	15	37	17
14	106	139	95	e130	e72	327	214	211	71	17	47	16
15	94	149	88	e105	e107	289	190	191	65	23	64	21
16	92	141	97	e91	e113	311	176	158	63	114	67	29
17	88	131	109	e78	e105	504	163	136	63	178	59	29
18	98	118	100	e72	e90	494	149	130	65	115	49	25
19	105	107	84	e73	e87	369	142	153	63	78	43	21
20	112	104	77	e71	e86	306	142	150	57	57	41	27
21	168	116	158	e70	e81	282	149	135	49	44	37	27
22	157	121	190	e67	e78	281	650	128	49	38	33	24
23	240	115	146	e66	e76	290	1180	120	53	36	29	19
24	407	109	116	e63	e82	293	917	185	50	32	34	29
25	307	111	e95	e66	e140	279	632	361	42	27	32	31
26	205	112	e80	e67	e215	255	416	339	45	27	31	26
27	170	173	80	e66	e240	236	438	233	40	56	28	24
28	148	218	e68	e63	372	372	436	175	36	66	27	22
29	133	180	e60	e61	482	1020	367	141	31	72	24	18
30	125	147	e61	e59	---	590	308	108	28	121	20	15
31	116	---	64	e60	---	404	---	93	---	143	17	---
TOTAL	3935	4019	3325	2845	3160	11014	10607	5775	1965	1513	1870	590
MEAN	127	134	107	91.8	109	355	354	186	65.5	48.8	60.3	19.7
MAX	407	218	190	195	482	1020	1180	361	152	178	225	31
MIN	66	104	60	59	53	236	142	93	28	15	17	11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2000, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
MEAN	116	153	148	182	199	310	288	157	131	67.5	23.5	34.2
MAX	286	329	409	359	295	415	508	268	568	161	60.3	112
(WY)	1997	1996	1997	1996	1996	1998	1997	1996	1998	1996	2000	1999
MIN	20.3	50.0	50.7	91.8	109	227	127	71.9	18.8	11.6	6.61	4.85
(WY)	1998	1999	1999	2000	2000	1996	1999	1995	1999	1995	1999	1995

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1995 - 2000

ANNUAL TOTAL	44590.3	50618		
ANNUAL MEAN	122	138		159
HIGHEST ANNUAL MEAN				197
LOWEST ANNUAL MEAN				104
HIGHEST DAILY MEAN	928	Mar 5	1180	Apr 23
LOWEST DAILY MEAN	2.5	Sep 5	11	Sep 12
ANNUAL SEVEN-DAY MINIMUM	3.0	Sep 1	12	Sep 6
INSTANTANEOUS PEAK FLOW			1250	Apr 23
INSTANTANEOUS PEAK STAGE			8.57	Mar 29
10 PERCENT EXCEEDS	263		307	
50 PERCENT EXCEEDS	95		99	
90 PERCENT EXCEEDS	7.5		24	

e Estimated.

PISCATAQUA RIVER BASIN

01073000 OYSTER RIVER NEAR DURHAM, NH

LOCATION.--Lat 43°08'55", long 70°57'56", Strafford County, Hydrologic Unit 01060003, on left bank, 200 ft upstream from highway bridge, 2.5 mi west of Durham, and 7 mi upstream from mouth.

DRAINAGE AREA.--12.1 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: October 1934 to current year. October and November 1934 monthly discharge only, published in WSP 1301.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 70 ft above sea level, from topographic map. Prior to October 1, 1964, at datum 1.00 ft higher.

REMARKS.--Records good except those below 1.0 ft<sup>3</sup>/s, which are fair, and those for the period of Nov. 4 to Dec. 22 and for estimated daily discharges, which are poor.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 170 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 22	1000	* 254	* 3.79	No other peak greater than base discharge.			
Minimum discharge, 0.71 ft <sup>3</sup> /s, September 11.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	15	16	7.1	8.8	97	35	36	9.9	3.6	6.9	.87
2	4.6	13	14	7.5	8.5	82	30	33	8.1	3.0	6.7	1.1
3	3.9	17	14	9.1	7.8	70	30	29	6.9	2.6	5.6	1.3
4	6.2	17	14	14	7.7	59	60	25	5.5	2.5	4.9	1.3
5	7.4	15	14	32	7.5	52	58	23	4.8	2.4	3.6	1.3
6	5.2	13	14	e19	7.5	46	43	21	4.7	1.9	2.8	1.1
7	4.0	12	27	16	7.6	39	35	19	23	1.8	4.4	1.0
8	3.6	12	27	13	7.1	38	30	18	20	1.8	6.2	1.0
9	4.8	11	22	12	6.9	37	58	16	15	1.7	4.5	.99
10	5.7	11	20	21	6.9	41	50	18	11	3.5	4.2	1.0
11	7.8	17	19	69	7.0	35	37	36	8.1	2.6	3.2	.83
12	8.7	16	18	42	6.8	59	34	27	21	1.9	2.7	.84
13	9.3	16	16	29	6.1	80	29	22	19	1.6	2.4	1.8
14	17	16	16	20	12	62	25	26	15	1.4	7.4	1.5
15	15	16	15	e16	24	57	23	21	14	1.4	12	4.7
16	15	15	17	e14	19	61	21	17	12	12	8.7	6.3
17	21	13	17	e12	17	92	19	13	11	8.7	6.4	3.2
18	33	12	16	e10	15	70	18	12	12	5.5	4.7	2.1
19	35	12	14	e10	13	53	18	19	12	4.3	3.9	1.6
20	33	11	13	e9.7	13	46	18	17	9.9	3.1	3.3	4.7
21	20	12	25	9.1	12	43	24	13	8.0	2.3	2.6	3.9
22	13	12	23	e8.7	11	42	226	13	8.2	2.0	2.3	2.6
23	54	12	18	e8.4	12	39	170	11	9.0	1.7	1.9	2.3
24	45	12	14	e8.4	17	35	119	35	7.5	1.5	2.2	4.5
25	30	12	11	e8.4	38	32	78	48	6.4	1.3	2.0	3.6
26	23	12	9.8	8.5	47	30	63	42	7.1	1.2	1.7	2.6
27	18	22	9.3	8.2	51	27	79	30	6.8	7.0	1.5	2.3
28	15	26	8.2	7.7	86	82	65	23	6.1	7.7	1.4	2.1
29	13	20	7.6	7.1	103	89	53	20	5.1	5.2	1.2	2.2
30	12	18	7.4	e7.2	---	61	43	16	4.2	3.7	1.0	2.0
31	14	---	7.4	8.3	---	44	---	13	---	5.7	.91	---
TOTAL	503.2	438	483.7	472.4	586.2	1700	1591	712	311.3	106.6	123.21	66.63
MEAN	16.2	14.6	15.6	15.2	20.2	54.8	53.0	23.0	10.4	3.44	3.97	2.22
MAX	54	26	27	69	103	97	226	48	23	12	12	6.3
MIN	3.6	11	7.4	7.1	6.1	27	18	11	4.2	1.2	.91	.83
CFSM	1.34	1.21	1.29	1.26	1.67	4.53	4.38	1.90	.86	.28	.33	.18
IN.	1.55	1.35	1.49	1.45	1.80	5.23	4.89	2.19	.96	.33	.38	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2000, BY WATER YEAR (WY)

MEAN	7.59	18.1	22.2	19.4	22.1	47.9	48.7	24.8	12.4	5.05	3.47	4.35
MAX	65.2	62.7	55.6	58.1	84.5	122	104	97.5	71.1	33.7	22.7	52.6
(WY)	1997	1952	1997	1958	1981	1936	1956	1954	1998	1938	1991	1954
MIN	.89	1.58	2.73	2.25	3.47	13.5	13.7	8.85	2.07	.65	.52	.58
(WY)	1942	1979	1966	1981	1980	1967	1999	1957	1936	1949	1999	1995

SUMMARY STATISTICS FOR 1999 CALENDAR YEAR FOR 2000 WATER YEAR WATER YEARS 1935 - 2000

ANNUAL TOTAL	5691.59	7094.24	
ANNUAL MEAN	15.6	19.4	19.6
HIGHEST ANNUAL MEAN			32.3
LOWEST ANNUAL MEAN			9.09
HIGHEST DAILY MEAN	137	Mar 1	856
LOWEST DAILY MEAN	.01	Sep 6	.01
ANNUAL SEVEN-DAY MINIMUM	.04	Sep 2	.04
INSTANTANEOUS PEAK FLOW			1160
INSTANTANEOUS PEAK STAGE			8.45
INSTANTANEOUS LOW FLOW			a .01
ANNUAL RUNOFF (CFSM)	1.29	1.60	1.62
ANNUAL RUNOFF (INCHES)	17.50	21.81	22.04
10 PERCENT EXCEEDS	36	46	48
50 PERCENT EXCEEDS	11	12	10
90 PERCENT EXCEEDS	.56	2.0	1.2

a Also occurred September 7, 1999.

e Estimated.

PISCATAQUA RIVER BASIN

01073500 LAMPREY RIVER NEAR NEWMARKET, NH

LOCATION.--Lat 43°06'09", long 70°57'11", Rockingham County, Hydrologic Unit 01060003, on right bank, 200 ft upstream from Packers Falls, 2 mi northwest of Newmarket, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--183 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: July 1934 to current year.  
Water-quality records: Water year 1954.

REVISED RECORDS.--WSP 1231: 1936-37, 1997 (datum correction)

GAGE.--Water-stage recorder. Datum of gage is 38.28 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Some regulation by Pawtuckaway and Mendums Ponds. These reservoirs have a usable capacity of about 600 million ft<sup>3</sup>.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,310 ft<sup>3</sup>/s, April 24, gage height, 7.62 ft; minimum daily discharge, e12 ft<sup>3</sup>/s, September 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	180	310	e170	163	1260	727	677	181	57	102	23
2	62	163	271	165	163	1310	573	579	151	50	104	25
3	65	228	249	175	153	1160	505	504	133	47	104	33
4	66	283	239	213	144	1040	590	441	113	46	102	e26
5	83	291	231	359	139	863	664	391	100	42	90	e22
6	88	268	227	337	135	733	636	351	93	37	75	e21
7	91	236	327	368	131	649	564	319	224	33	77	e20
8	81	209	412	314	127	595	497	289	325	33	122	e19
9	80	182	430	257	120	545	569	260	344	32	112	e18
10	73	168	398	259	119	556	668	248	286	38	110	e16
11	81	201	363	515	119	541	680	358	217	40	90	e14
12	84	208	323	573	e117	638	603	406	196	33	73	e12
13	78	242	294	523	e115	828	510	393	195	31	61	18
14	82	235	272	e425	140	812	456	374	186	27	80	26
15	132	236	258	e380	237	764	410	338	177	24	137	38
16	125	229	268	e325	286	713	370	285	163	70	126	64
17	118	212	275	e285	307	894	332	247	148	119	118	49
18	133	190	259	e260	301	1040	295	219	166	133	100	e39
19	142	229	236	e240	269	1030	293	247	190	142	85	e30
20	200	254	206	216	243	831	283	271	164	121	72	44
21	306	247	308	195	227	721	303	269	140	96	60	50
22	282	234	e330	180	211	662	1420	249	124	77	50	39
23	386	227	e335	167	201	631	2080	226	118	64	44	34
24	451	227	e290	160	224	591	2250	312	113	56	43	34
25	429	225	e260	152	363	547	1840	443	106	46	41	38
26	404	222	239	159	530	507	1380	527	101	40	37	35
27	358	286	257	171	648	465	1190	468	92	60	34	32
28	296	379	e195	e165	890	647	1070	364	82	111	32	e29
29	250	373	e184	e155	1080	1040	960	290	72	112	30	e27
30	217	355	e184	150	---	1180	812	247	64	93	26	e26
31	198	---	e178	152	---	997	---	209	---	97	24	---
TOTAL	5503	7219	8608	8165	7902	24790	23530	10801	4764	2007	2361	901
MEAN	178	241	278	263	272	800	784	348	159	64.7	76.2	30.0
MAX	451	379	430	573	1080	1310	2250	677	344	142	137	64
MIN	62	163	178	150	115	465	283	209	64	24	24	12
CFSM	.97	1.31	1.52	1.44	1.49	4.37	4.29	1.90	.87	.35	.42	.16
IN.	1.12	1.47	1.75	1.66	1.61	5.04	4.78	2.20	.97	.41	.48	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2000, BY WATER YEAR (WY)

MEAN	130	263	332	289	311	611	689	351	190	94.4	71.9	71.8
MAX	879	742	851	796	811	1866	1756	1400	1117	599	621	650
(WY)	1997	1952	1997	1956	1970	1936	1987	1954	1998	1938	1938	1954
MIN	11.1	15.9	45.9	46.4	49.7	210	170	105	27.0	12.2	4.79	3.44
(WY)	1948	1942	1942	1944	1980	1989	1985	1985	1999	1993	1999	1957

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1934 - 2000

ANNUAL TOTAL	76068.5	106551	
ANNUAL MEAN	208	291	283
HIGHEST ANNUAL MEAN			441
LOWEST ANNUAL MEAN			137
HIGHEST DAILY MEAN	947	Mar 2	7360
LOWEST DAILY MEAN	2.3	Sep 7	a .66
ANNUAL SEVEN-DAY MINIMUM	2.5	Sep 3	2.0
INSTANTANEOUS PEAK FLOW			7570
INSTANTANEOUS PEAK STAGE			15.14
ANNUAL RUNOFF (CFSM)	1.14		1.59
ANNUAL RUNOFF (INCHES)	15.46		21.02
10 PERCENT EXCEEDS	510	648	654
50 PERCENT EXCEEDS	152	212	170
90 PERCENT EXCEEDS	6.4	38	23

a During refilling after repairs at Wiswell Dam.  
e Estimated.

PISCATAQUA RIVER BASIN

01073587 EXETER RIVER AT HAIGH ROAD NEAR BRENTWOOD, NH

LOCATION.--Lat 42°59'04", long 71°02'20", Rockingham County, Hydrologic Unit 01060003, on right bank, 10 ft downstream of Haigh Road bridge over the Exeter River, 0.8 mi upstream from mouth of the Little River, 1.3 mi southwest of Marshall Corner, 1.8 mi east of Brentwood, and 3.4 mi north of Kingston.

DRAINAGE AREA.--63.5 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: June 27, 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 60.16 ft above sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Low flow regulation by power plant upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 29	----	e 570	Ice Jam	Apr. 23	0845	* 828	* 7.96

Minimum daily discharge, 5.9 ft<sup>3</sup>/s, September 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	65	104	59	e59	e520	266	268	81	26	59	8.9
2	34	59	94	57	e58	e450	224	199	75	24	60	6.2
3	29	67	86	64	e55	e390	202	203	69	22	54	7.5
4	34	81	82	77	e54	e335	205	176	49	23	51	11
5	41	92	80	119	e54	312	236	157	47	21	46	11
6	44	88	79	e140	e53	226	221	142	48	18	44	9.7
7	42	83	108	138	e52	217	201	133	103	18	44	8.4
8	39	76	153	118	e52	197	188	121	146	19	24	7.6
9	39	70	153	106	e51	180	196	114	134	16	32	6.8
10	41	67	143	105	e50	174	215	115	122	22	33	6.2
11	42	69	137	170	e54	176	206	149	107	22	28	5.9
12	41	71	126	199	e52	210	190	166	93	19	24	5.9
13	43	75	113	e160	e51	277	176	154	78	16	21	9.6
14	39	80	106	e110	e66	e285	143	160	71	14	29	10
15	34	80	103	e98	e110	279	142	147	70	12	41	19
16	33	77	102	e88	e120	266	124	126	65	36	41	24
17	34	73	102	e75	e105	302	119	116	58	50	36	20
18	45	69	99	e70	e97	346	114	106	58	45	31	17
19	51	66	90	e71	e92	312	109	106	63	46	28	15
20	58	66	e82	e68	e86	274	106	108	60	39	25	19
21	75	69	106	e66	e81	254	113	105	51	35	23	20
22	84	67	114	e64	e77	235	474	101	47	33	20	17
23	97	66	107	e62	e75	220	792	98	47	30	18	15
24	122	65	e100	e60	e82	189	735	105	42	25	19	24
25	122	69	e90	e62	e130	179	639	150	38	21	19	18
26	110	70	e81	e64	e190	174	513	158	35	20	17	13
27	104	84	e82	e62	e230	172	454	142	35	41	15	12
28	84	109	e74	e60	e390	204	409	119	34	56	13	11
29	80	122	e65	e58	e550	339	351	106	30	55	12	9.3
30	73	112	63	e56	---	342	306	92	28	50	11	8.4
31	72	---	62	e58	---	299	---	80	---	50	9.8	---
TOTAL	1818	2307	3086	2764	3176	8335	8369	4222	1984	924	927.8	376.4
MEAN	58.6	76.9	99.5	89.2	110	269	279	136	66.1	29.8	29.9	12.5
MAX	122	122	153	199	550	520	792	268	146	56	60	24
MIN	29	59	62	56	50	172	106	80	28	12	9.8	5.9

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2000, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000		
MEAN	105	68.0	121	116	172	239	196	122	117	32.4	9.47	17.6
MAX	335	132	304	133	252	304	321	169	361	80.4	29.9	55.4
(WY)	1997	1997	1997	1998	1998	1998	1997	1998	1998	1998	2000	1999
MIN	1.94	29.4	36.9	89.2	110	172	80.2	54.6	12.8	5.60	1.47	1.58
(WY)	1998	1999	1999	2000	2000	1997	1999	1999	1999	1999	1997	1997

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1996 - 2000

ANNUAL TOTAL	28901.4	38289.2	
ANNUAL MEAN	79.2	105	109
HIGHEST ANNUAL MEAN			142
LOWEST ANNUAL MEAN			67.2
HIGHEST DAILY MEAN	410	Feb 5	2630
LOWEST DAILY MEAN	1.2	Sep 2	.73
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 31	.77
INSTANTANEOUS PEAK FLOW			3060
INSTANTANEOUS PEAK STAGE			7.96
10 PERCENT EXCEEDS	185	220	11.44
50 PERCENT EXCEEDS	64	72	255
90 PERCENT EXCEEDS	2.9	18	59
			2.7

a Also occurred September 12.  
e Estimated.

01074520 EAST BRANCH PEMIGEWASSET RIVER AT LINCOLN, NH

LOCATION.--Lat 44°02'51", long 71°39'37", Grafton County, Hydrologic Unit 01070001, on right bank at old crib dam, locally known as "the old hole", 800 ft upstream of bridge, 1900 ft downstream of Pollard Brook, 1.8 mi above mouth, east of the center of Lincoln.

DRAINAGE AREA.--115 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: March 1993 to current year. Records for November 1928 to March 1953 at site 2.7 mi upstream published as "near Lincoln" (station 01045000) are not equivalent because of difference in drainage areas.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 830 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, those below 200 ft<sup>3</sup>/s, and those for May 23 and Sept. 15, which are fair.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 19, 1936, reached a stage of 9.80 ft, former site and datum, discharge, 17,000 ft<sup>3</sup>/s. Flood in October 1959 reached a discharge of 24,200 ft<sup>3</sup>/s, by computation of peak flow over dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 28	1745	4,750	5.01	Apr. 9	1300	*a 11,800	* 7.88
Apr. 4	1030	5,060	5.16				

Minimum discharge, 49 ft<sup>3</sup>/s, September 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	589	251	e365	e128	e101	234	506	399	283	104	98	59
2	363	239	e340	e132	96	184	535	571	267	93	93	59
3	306	1590	316	e160	95	157	1170	517	247	91	103	70
4	293	614	299	e190	97	141	3360	533	225	101	105	65
5	281	418	283	e370	97	130	2350	1150	215	125	81	59
6	254	356	273	177	94	121	1150	1150	217	95	69	56
7	231	315	275	197	90	116	778	1270	327	86	79	55
8	213	286	253	145	90	124	710	1360	237	84	77	53
9	225	271	226	e139	91	150	5270	1750	214	82	75	51
10	211	268	223	154	91	361	2040	1410	195	93	80	50
11	208	257	266	190	91	261	1170	1470	196	82	70	49
12	190	224	220	e160	90	225	851	996	204	74	89	51
13	176	223	205	e141	88	e193	658	747	187	70	74	61
14	327	245	194	e106	94	174	594	1530	177	68	73	55
15	285	310	184	e114	100	174	678	e790	165	70	133	509
16	245	235	190	e119	89	188	1120	e590	158	256	100	283
17	250	206	180	e111	84	e197	832	504	154	277	100	123
18	228	196	150	e127	83	e159	594	846	159	152	88	90
19	212	190	103	e110	89	e156	526	1190	162	117	78	77
20	215	193	142	e109	85	e153	490	681	139	99	74	72
21	234	418	e395	e107	83	155	528	571	129	90	72	68
22	205	302	239	e105	82	169	480	517	139	86	68	64
23	1130	302	182	e103	81	201	731	441	121	84	68	61
24	912	294	141	e101	e86	261	921	622	112	81	115	66
25	554	287	e84	e101	142	281	568	630	121	78	83	68
26	427	310	e130	e101	126	400	524	555	224	76	71	61
27	373	1930	e135	e99	115	406	488	474	144	78	68	58
28	327	956	e108	e97	e340	2370	440	418	124	82	67	57
29	301	582	e124	e95	e500	2050	407	366	104	130	63	56
30	277	456	e133	e95	---	901	479	333	114	159	62	55
31	263	---	e126	e100	---	604	---	307	---	109	61	---
TOTAL	10305	12724	6484	4183	3390	11396	30948	24688	5460	3272	2537	2561
MEAN	332	424	209	135	117	368	1032	796	182	106	81.8	85.4
MAX	1130	1930	395	370	500	2370	5270	1750	327	277	133	509
MIN	176	190	84	95	81	116	407	307	104	68	61	49
CFSM	2.89	3.69	1.82	1.17	1.02	3.20	8.97	6.93	1.58	.92	.71	.74
IN.	3.33	4.12	2.10	1.35	1.10	3.69	10.01	7.99	1.77	1.06	.82	.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2000, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
MEAN	319	394	240	284	168	286	784	741	315	209	123	180
MAX	740	760	509	564	389	535	1093	1323	646	525	167	655
(WY)	1996	1996	1997	1996	1996	1998	1993	1996	1996	1996	1994	1999
MIN	96.4	139	83.5	116	90.5	95.2	264	412	179	105	81.8	67.7
(WY)	1998	1995	1998	1994	1994	1994	1995	1993	1999	1993	2000	1996

SUMMARY STATISTICS

	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1993 - 2000	
ANNUAL TOTAL	129511		117948			
ANNUAL MEAN	355		322		339	
HIGHEST ANNUAL MEAN					507	
LOWEST ANNUAL MEAN					202	
HIGHEST DAILY MEAN	7150	Sep 17	5270	Apr 9	7150	Sep 17 1999
LOWEST DAILY MEAN	52	Sep 5	49	Sep 11	46	Sep 24 1996
ANNUAL SEVEN-DAY MINIMUM	54	Aug 31	52	Sep 6	52	Sep 6 2000
INSTANTANEOUS PEAK FLOW			a 11800	Apr 9	a 16500	Oct 22 1995
INSTANTANEOUS PEAK STAGE			7.88	Apr 9	11.07	Oct 22 1995
INSTANTANEOUS LOW FLOW			b 49	Sep 10	45	Sep 24 1996
ANNUAL RUNOFF (CFSM)	3.09		2.80		2.95	
ANNUAL RUNOFF (INCHES)	41.89		38.15		40.10	
10 PERCENT EXCEEDS	676		679		744	
50 PERCENT EXCEEDS	231		177		186	
90 PERCENT EXCEEDS	93		71		78	

a From rating curve extended above 5,800 ft<sup>3</sup>/s.  
b Also occurred on September 11, 12.  
e Estimated.





MERRIMACK RIVER BASIN

01079602 POORFARM BROOK AT ELLACOYA STATE PARK NEAR GILFORD, NH

LOCATION.--Lat 43°34'22", long 71°21'20", Belknap County, Hydrologic Unit 01070002, on right bank at old highway 11 bridge, 250 ft downstream from State highway 11 bridge, 950 ft upstream from mouth, 3.1 mi northeast of Gilford, and 5.9 mi southeast of Weirs Beach.

DRAINAGE AREA.--6.38 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: June 1998 to current year.

GAGE.--Water-stage recorder and crest stage gage. Elevation of gage is 515 ft above sea level, from topographic map.

REMARKS.--Records good except those for estimated daily discharges and for Mar. 21-23 and 29, which are fair, and Mar. 28, which is poor.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 110 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 28	0615	Ice Jam	* 5.70	Mar. 28	1715	* 165	4.67

Minimum discharge, 0.85 ft<sup>3</sup>/s, September 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	6.4	8.5	e3.7	3.0	25	33	23	6.8	4.2	25	1.3
2	13	5.3	7.2	3.6	2.4	22	32	21	6.7	3.3	21	1.3
3	10	9.1	8.1	5.1	2.3	19	37	14	5.9	2.7	16	1.3
4	16	7.2	7.9	8.1	2.2	16	60	12	5.6	2.7	10	2.6
5	18	6.4	8.0	e15	2.2	15	46	13	6.3	3.2	7.8	2.7
6	12	6.1	8.0	e7.5	2.3	13	39	11	6.2	2.1	6.5	1.9
7	10	5.6	13	e7.0	2.2	13	35	11	19	1.8	7.9	1.7
8	8.9	5.6	12	5.8	2.2	16	32	11	10	1.7	8.5	1.4
9	9.4	5.5	8.8	5.5	2.2	27	52	11	8.1	1.7	6.4	1.3
10	8.5	5.9	8.6	19	2.2	46	39	11	6.1	2.4	5.9	1.2
11	8.2	7.0	8.0	23	2.6	32	33	25	5.4	1.9	5.5	1.0
12	7.1	4.6	6.6	14	2.9	27	33	21	6.6	1.5	4.1	.91
13	6.7	5.8	6.8	e8.0	3.0	21	29	14	6.1	1.4	3.6	1.2
14	7.8	6.2	6.6	e5.0	4.5	e18	26	15	6.1	1.3	5.2	1.0
15	7.3	6.3	6.4	e4.2	5.9	e23	24	12	5.5	1.3	8.5	3.5
16	6.4	4.8	8.2	e4.1	4.4	38	19	10	5.1	12	7.2	3.6
17	6.3	3.9	7.5	e3.7	3.9	39	15	9.3	6.8	6.7	5.7	2.1
18	8.9	3.7	e5.5	e3.3	3.5	e28	13	10	7.1	9.2	4.6	1.5
19	8.8	3.8	e4.8	e3.1	4.0	e26	13	12	6.4	7.6	4.1	1.3
20	9.0	5.3	e5.5	e3.0	3.7	e24	12	9.9	4.6	4.5	3.5	2.5
21	9.5	7.1	e14	e2.8	3.4	27	15	9.4	3.7	3.2	3.1	2.2
22	9.3	6.0	9.9	e2.8	3.3	30	32	8.6	3.8	2.8	2.9	1.5
23	40	6.0	8.0	e2.7	3.7	31	47	7.9	4.0	2.2	2.8	1.4
24	40	7.7	e7.0	e2.7	6.0	32	43	20	3.1	1.8	3.0	2.3
25	29	8.3	e5.8	2.6	e20	32	33	23	7.6	1.7	2.7	2.0
26	16	10	e5.3	2.5	e14	36	31	20	15	1.5	2.5	1.6
27	12	29	e5.0	2.5	e11	35	33	15	12	5.1	2.1	1.4
28	8.0	27	e4.1	2.4	e27	73	29	11	6.9	5.1	1.9	1.2
29	8.1	17	e3.9	2.3	e40	56	27	9.9	4.9	18	1.8	1.1
30	7.6	11	e4.0	2.3	---	38	25	8.6	5.4	21	1.7	1.0
31	7.3	---	e3.9	2.6	---	35	---	7.7	---	28	1.6	---
TOTAL	391.1	243.6	226.9	179.9	190.0	913	937	417.3	206.8	163.6	193.1	51.01
MEAN	12.6	8.12	7.32	5.80	6.55	29.5	31.2	13.5	6.89	5.28	6.23	1.70
MAX	40	29	14	23	40	73	60	25	19	28	25	3.6
MIN	6.3	3.7	3.9	2.3	2.2	1.3	1.2	7.7	3.1	1.3	1.6	.91
CFSM	1.98	1.27	1.15	.91	1.03	4.62	4.90	2.11	1.08	.83	.98	.27
IN.	2.28	1.42	1.32	1.05	1.11	5.32	5.46	2.43	1.21	.95	1.13	.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2000, BY WATER YEAR (WY)

	1998	1999	2000	1999	2000	2000	1999	2000	1999	2000	1999	2000
MEAN	10.8	6.86	6.34	9.17	9.51	30.0	26.7	10.3	20.3	6.71	3.12	10.8
MAX	12.6	8.12	7.32	12.5	12.6	30.6	31.2	13.5	52.0	13.9	6.23	29.1
(WY)	2000	2000	2000	1999	1999	1999	2000	2000	1998	1998	2000	1999
MIN	8.95	5.60	5.35	5.80	6.55	29.5	22.1	7.15	1.88	.99	.60	1.50
(WY)	1999	1999	1999	2000	2000	2000	1999	1999	1999	1999	1999	1998

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1998 - 2000

ANNUAL TOTAL	4415.49	4113.31	
ANNUAL MEAN	12.1	11.2	11.3
HIGHEST ANNUAL MEAN			11.4
LOWEST ANNUAL MEAN			11.2
HIGHEST DAILY MEAN	264	Sep 17	73
LOWEST DAILY MEAN	.23	Sep 4	.91
ANNUAL SEVEN-DAY MINIMUM	.24	Sep 3	1.1
INSTANTANEOUS PEAK FLOW			165
INSTANTANEOUS PEAK STAGE			b 5.70
INSTANTANEOUS LOW FLOW			.85
ANNUAL RUNOFF (CFSM)	1.90	1.76	1.78
ANNUAL RUNOFF (INCHES)	25.75	23.98	24.12
10 PERCENT EXCEEDS	29	29	30
50 PERCENT EXCEEDS	7.2	6.9	5.8
90 PERCENT EXCEEDS	.55	2.0	1.2

- a Also occurred on September 5,6, and 9.
- b Ice jam.
- c Maximum observed gage height.
- e Estimated.

MERRIMACK RIVER BASIN

01079900 SHANNON BROOK NEAR MOULTONBOROUGH, NH

LOCATION.--Lat 43°43'49", long 71°21'28", Carroll County, Hydrologic Unit 01070002, on left bank 20 ft downstream from State Highway 109 bridge, 1.4 mi upstream from mouth, 2.5 mi southeast of Moultonborough, and 4.0 mi northwest of Melvin Village.

DRAINAGE AREA.--6.99 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: August 1998 to current year.

GAGE.--Water-stage recorder and crest stage gage. Elevation of gage is 545 ft above sea level, from topographic map.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 120 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 28	1715	* 214	* 6.52	Apr. 4	1245	124	5.84

Minimum discharge, 0.63 ft<sup>3</sup>/s, September 10-12, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	8.7	12	e5.5	e5.2	33	26	15	7.5	3.1	9.7	1.1
2	11	8.2	11	5.8	e4.6	28	25	16	6.8	2.4	7.9	1.0
3	9.3	13	10	6.8	e4.6	24	34	14	6.1	2.8	6.7	1.2
4	10	11	10	8.3	e4.5	22	97	13	5.4	2.4	5.7	1.3
5	11	9.0	10	e14	e4.4	21	74	13	5.4	2.2	4.4	1.2
6	8.8	8.7	9.9	e8.5	e4.5	19	41	11	5.3	1.6	3.6	.89
7	7.4	7.5	15	8.3	e4.4	21	31	11	21	1.8	5.1	.82
8	6.5	6.9	13	7.4	e4.3	27	26	9.8	11	1.4	4.8	.77
9	7.5	6.5	11	6.8	e4.2	35	53	13	8.4	1.4	4.1	.73
10	7.4	6.8	10	12	e4.2	71	41	14	6.6	3.3	4.6	.66
11	6.9	10	12	30	e4.3	37	28	34	6.0	2.0	3.4	.63
12	5.7	8.0	10	15	4.2	33	28	25	7.0	1.4	2.9	e.67
13	5.3	8.5	9.6	10	4.2	30	24	19	6.1	1.2	2.8	1.1
14	7.5	11	9.2	6.4	e6.9	25	20	26	5.3	1.5	3.1	.87
15	6.9	15	8.8	6.5	e8.3	24	18	18	5.2	2.6	3.8	2.7
16	6.1	11	9.8	e6.3	6.5	31	17	15	5.0	12	3.5	3.3
17	5.8	9.1	9.4	e6.0	5.4	43	15	13	5.5	8.6	3.0	1.6
18	7.0	8.3	8.0	e5.6	5.9	30	13	13	6.4	18	2.5	1.3
19	6.1	7.9	e6.9	e5.4	6.0	27	13	14	6.0	23	2.7	1.1
20	7.6	7.9	e7.1	e5.2	5.3	22	12	13	4.5	10	2.4	1.3
21	11	13	28	e5.1	4.9	21	15	11	3.9	6.6	2.0	1.2
22	8.3	10	17	e5.1	4.6	24	30	11	5.7	5.0	1.8	.90
23	47	9.4	e12	e5.0	5.1	28	46	9.7	9.2	3.8	1.8	.83
24	39	9.7	e10	e5.0	7.5	33	60	27	5.0	3.1	2.6	1.8
25	22	9.4	e8.5	e4.9	21	33	35	26	4.2	2.8	1.9	e1.4
26	17	10	e7.9	e4.7	20	37	27	20	5.1	2.5	1.5	1.0
27	14	29	e7.4	e4.8	15	35	29	15	4.1	5.6	1.4	.88
28	13	26	e6.7	e4.6	54	109	24	13	3.3	5.0	1.3	.83
29	11	18	6.3	e4.6	48	82	20	11	2.8	5.8	1.3	.72
30	10	14	6.6	e4.6	---	43	17	9.9	4.4	15	1.2	.77
31	9.5	---	6.1	e4.9	---	31	---	8.5	---	12	1.2	---
TOTAL	363.6	331.5	319.2	233.1	282.0	1079	939	481.9	188.2	169.9	104.7	34.57
MEAN	11.7	11.1	10.3	7.52	9.72	34.8	31.3	15.5	6.27	5.48	3.38	1.15
MAX	47	29	28	30	54	109	97	34	21	23	9.7	3.3
MIN	5.3	6.5	6.1	4.6	4.2	19	12	8.5	2.8	1.2	1.2	.63
CFSM	1.68	1.58	1.47	1.08	1.39	4.98	4.48	2.22	.90	.78	.48	.16
IN.	1.94	1.76	1.70	1.24	1.50	5.74	5.00	2.56	1.00	.90	.56	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2000, BY WATER YEAR (WY)

	1998	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000
MEAN	11.1	10.4	8.60	10.7	11.3	33.7	22.9	10.8	3.88	3.33	2.82	7.35
MAX	11.7	11.1	10.3	13.8	13.0	34.8	31.3	15.5	6.27	5.48	3.99	18.1
(WY)	2000	2000	2000	1999	1999	2000	2000	2000	2000	2000	1998	1999
MIN	10.5	9.82	6.91	7.52	9.72	32.5	14.6	6.02	1.49	1.18	1.08	1.15
(WY)	1999	1999	1999	2000	2000	1999	1999	1999	1999	1999	1999	2000

SUMMARY STATISTICS FOR 1999 CALENDAR YEAR FOR 2000 WATER YEAR WATER YEARS 1998 - 2000

ANNUAL TOTAL	4096.95	4526.67	
ANNUAL MEAN	11.2	12.4	11.5
HIGHEST ANNUAL MEAN			12.4
LOWEST ANNUAL MEAN			10.7
HIGHEST DAILY MEAN	190	109	190
LOWEST DAILY MEAN	.20	.63	.20
ANNUAL SEVEN-DAY MINIMUM	.29	.74	.29
INSTANTANEOUS PEAK FLOW		214	333
INSTANTANEOUS PEAK STAGE		6.52	7.22
INSTANTANEOUS LOW FLOW		a .63	.15
ANNUAL RUNOFF (CFSM)	1.61	1.77	1.65
ANNUAL RUNOFF (INCHES)	21.80	24.09	22.45
10 PERCENT EXCEEDS	25	28	26
50 PERCENT EXCEEDS	7.6	7.9	6.4
90 PERCENT EXCEEDS	.68	1.5	1.1

a Also occurred September 11, 12, 29.  
e Estimated.

## MERRIMACK RIVER BASIN

## 01080000 LAKE WINNIPESAUKEE AT WEIRS BEACH, NH

**LOCATION.**--Lat 43°36'27", long 71°27'32, Belknap County, Hydrologic Unit 01070002, 600 ft east of Weirs Beach Post Office, 1,600 ft north of US Highway 3 bridge at Weirs Beach, 5.3 mi north of Laconia Post Office.

**DRAINAGE AREA.**--363 mi<sup>2</sup>, at outlet at Lakeport.

**PERIOD OF RECORD.**--Gage heights: September 1933 to current year. Prior to November 1937, monthend contents only, published in WSP 1301. Prior to October 1970, published as "at The Weirs."

**REVISED RECORDS.**--WDR NH-VT-78-1: 1938-77 (datum correction). WDR NH-VT-99-1: 1998 (†).

**GAGE.**--Water-stage recorder. Datum of gage is 499.92 ft above sea level. Prior to November 1937, nonrecording gage at lake outlet at Lakeport at datum 0.63 ft, (corrected) higher. November 24, 1937 to November 7, 1965, water-stage recorder at site 500 ft southeast at present datum.

**REMARKS.**--Lake used for recreation and conservation for development of water power. Usable capacity, 7.22 billion ft<sup>3</sup> between elevations 500.57 ft and 504.24 ft above sea level. Stage regulated at outlet and by Wentworth, Merrymeeting, and other lakes. Contents given herein are computed from gage height at 2400 on last day of month.

Capacity table (gage height, in feet, and contents,  
in millions of cubic feet), furnished by State of New Hampshire,  
Department of Environmental Services

2.0	13,880
3.0	15,840
4.0	17,840
5.0	19,850

**EXTREMES FOR PERIOD OF RECORD.**--Maximum daily gage height, 5.94 ft, June 4, 1984; minimum daily gage height, 0.63 ft, December 11, 1941.

**EXTREMES FOR CURRENT YEAR.**--Maximum daily gage height, 4.32 ft, April 11; minimum daily gage height, 2.27 ft, February 13.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.35	3.23	2.81	2.69	2.46	2.62	4.12	3.97	4.16	4.05	4.07	3.30
2	3.34	3.22	2.79	2.67	2.43	2.65	4.14	3.95	4.15	4.04	4.05	3.31
3	3.32	3.22	2.79	2.66	2.42	2.66	4.16	3.94	4.11	4.03	4.03	3.28
4	3.34	3.17	2.78	2.69	2.40	2.69	4.25	3.92	4.12	4.02	4.00	3.27
5	3.32	3.15	2.79	2.67	2.38	2.72	4.27	3.90	4.10	4.00	3.97	3.24
6	3.26	3.12	2.79	2.69	2.36	2.74	4.28	3.91	4.10	3.97	3.94	3.21
7	3.21	3.07	2.78	2.68	2.34	2.76	4.27	3.90	4.13	3.95	3.94	3.18
8	3.19	3.03	2.78	2.66	2.31	2.80	4.26	3.91	4.12	3.91	3.91	3.15
9	3.16	3.01	2.79	2.65	2.30	2.83	4.30	3.94	4.10	3.91	3.89	3.14
10	3.16	2.99	2.78	2.67	2.29	2.91	4.30	3.96	4.11	3.92	3.86	3.13
11	3.12	3.00	2.69	2.72	2.29	2.98	4.32	4.01	4.09	3.88	3.86	3.10
12	3.10	2.98	2.72	2.69	2.28	3.11	4.30	4.04	4.07	3.86	3.83	3.08
13	3.11	2.96	2.73	2.69	2.27	3.15	4.28	4.05	4.05	3.85	3.80	3.06
14	3.08	2.94	2.73	2.62	2.34	3.20	4.26	4.06	4.04	3.86	3.79	3.05
15	3.10	2.89	2.73	2.65	2.37	3.23	4.22	4.05	4.02	3.87	3.78	3.07
16	3.11	2.85	2.72	2.66	2.38	3.27	4.17	4.05	4.00	3.96	3.75	3.04
17	3.11	2.83	2.70	2.63	2.37	3.38	4.13	4.05	4.01	3.96	3.71	3.00
18	3.13	2.83	2.69	2.62	2.38	3.44	4.08	4.05	4.03	3.96	3.69	2.98
19	3.14	2.82	2.69	2.61	2.43	3.48	4.03	4.07	4.04	3.96	3.66	2.97
20	3.15	2.81	2.69	2.59	2.44	3.51	3.97	4.07	4.02	3.97	3.60	2.99
21	3.16	2.82	2.75	2.56	2.44	3.53	3.95	4.07	4.02	3.96	3.55	2.95
22	3.19	2.81	2.76	2.53	2.44	3.55	4.01	4.06	4.03	3.96	3.54	2.92
23	3.26	2.80	2.77	2.53	2.43	3.57	4.04	4.05	4.03	3.94	3.51	2.92
24	3.33	2.79	2.75	2.51	2.43	3.59	4.07	4.12	4.03	3.94	3.49	2.91
25	3.33	2.79	2.75	2.51	2.47	3.63	4.08	4.15	4.02	3.93	3.46	2.89
26	3.34	2.82	2.75	2.53	2.50	3.66	4.07	4.17	4.08	3.93	3.44	2.88
27	3.32	2.84	2.72	2.51	2.52	3.69	4.08	4.18	4.08	3.96	3.41	2.85
28	3.31	2.85	2.73	2.49	2.55	3.84	4.07	4.20	4.07	3.96	3.39	2.81
29	3.29	2.86	2.72	2.48	2.58	4.00	4.04	4.20	4.06	3.96	3.36	2.80
30	3.28	2.85	2.71	2.46	---	4.06	4.00	4.19	4.06	4.02	3.33	2.77
31	3.24	---	2.70	2.47	---	4.10	---	4.17	---	4.05	3.32	---
MEAN	3.22	2.94	2.74	2.61	2.40	3.27	4.15	4.04	4.07	3.95	3.71	3.04
MAX	3.35	3.23	2.81	2.72	2.58	4.10	4.32	4.20	4.16	4.05	4.07	3.31
MIN	3.08	2.79	2.69	2.46	2.27	2.62	3.95	3.90	4.00	3.85	3.32	2.77
(†)	16,200	15,550	15,270	14,820	15,040	18,060	17,780	18,180	17,920	17,960	16,420	15,350
(‡)	-119	-251	-105	-168	+88	+1,130	-108	+149	-100	+15	-575	-413

CAL YR 1999 MEAN 3.04 MAX 3.62 MIN 2.38 (†) -8.2

WTR YR 2000 MEAN 3.35 MAX 4.32 MIN 2.27 (†) -37

(†) Millions of cubic feet at 2400 on last day of month.

(‡) Change in contents equivalent in cubic feet per second.







MERRIMACK RIVER BASIN

01089100 SOUCCOOK RIVER AT PEMBROKE ROAD NEAR CONCORD, NH

LOCATION.--Lat 43°12'47", long 71°28'49", Merrimack County, Hydrologic Unit 01070002, on left bank, 100 ft upstream of Pembroke Road bridge, 500 ft east of State Highway 106, 1.4 mi downstream from U.S. Highways 4 and 202, and State Highway 9.

DRAINAGE AREA.--81.9 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: March 1988 to current year. Records for October 1951 to September 1987, at site 0.9 mi upstream, published "near Concord" (station 01089000) are not equivalent because of difference in drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 270 ft above sea level, from topographic map.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1951, 14.50 ft, former site and datum, March 17, 1977, discharge 3,700 ft<sup>3</sup>/s. Minimum discharge since 1951, 1.5 ft<sup>3</sup>/s, former site and datum, August 7, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 29	0700	* 1,000	* 8.60	No other peak greater than base discharge.			
Minimum discharge, 14 ft <sup>3</sup> /s, September 12, 13.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	91	126	69	e57	426	288	233	100	65	214	22
2	127	88	109	68	e56	387	246	207	90	56	154	22
3	101	136	104	73	e54	352	239	184	84	49	115	21
4	108	161	103	92	e52	317	363	174	76	46	96	22
5	161	133	106	e140	e51	292	421	155	72	43	80	20
6	135	113	105	e150	e50	270	325	140	72	38	66	19
7	108	100	157	114	e50	248	268	130	176	35	65	17
8	92	93	195	95	50	257	233	124	190	33	89	16
9	101	85	159	85	49	289	383	175	136	32	78	16
10	92	87	138	87	51	366	569	179	109	43	65	16
11	103	102	132	193	50	335	384	279	93	41	56	15
12	99	107	119	195	50	309	321	316	110	34	49	15
13	103	102	106	158	48	350	290	234	122	30	44	19
14	119	105	104	e125	e59	297	245	209	103	29	47	20
15	105	122	101	e100	e95	277	216	184	94	30	80	24
16	90	117	107	e86	e102	300	194	156	83	85	79	40
17	83	106	112	e73	e90	525	175	134	86	115	71	33
18	93	91	104	e67	e78	436	161	126	111	79	59	27
19	92	86	e94	e68	75	351	157	174	105	60	50	23
20	92	85	e92	e66	73	301	149	169	89	49	43	50
21	129	94	163	e64	69	282	154	149	73	41	38	54
22	125	95	181	e62	66	285	416	138	72	41	35	38
23	162	89	146	e60	64	293	543	127	97	38	33	31
24	295	89	e130	e58	70	299	570	180	78	34	38	45
25	223	88	e115	e60	127	290	412	331	64	31	35	51
26	174	89	e110	e62	203	277	321	308	91	29	31	41
27	145	138	e92	e60	228	264	391	226	98	49	29	34
28	125	222	81	e58	352	435	384	175	83	80	27	30
29	110	182	e76	e56	473	877	323	147	69	58	25	27
30	101	147	75	e54	---	529	271	125	70	64	23	24
31	95	---	73	e55	---	366	---	109	---	152	22	---
TOTAL	3840	3343	3615	2753	2892	10882	9412	5697	2896	1609	1936	832
MEAN	124	111	117	88.8	99.7	351	314	184	96.5	51.9	62.5	27.7
MAX	295	222	195	195	473	877	570	331	190	152	214	54
MIN	83	85	73	54	48	248	149	109	64	29	22	15
CFSM	1.51	1.36	1.42	1.08	1.22	4.29	3.83	2.24	1.18	.63	.76	.34
IN.	1.74	1.52	1.64	1.25	1.31	4.94	4.28	2.59	1.32	.73	.88	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 2000, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	84.4	130	137	133	130	234	265	164	94.7	44.3	37.1	38.6	
MAX	168	289	368	420	350	417	429	333	441	127	95.4	140	
(WY)	1992	1996	1997	1996	1996	1998	1993	1996	1998	1998	1990	1999	
MIN	12.7	30.6	35.2	35.8	34.6	134	120	55.5	16.1	11.6	13.0	8.33	
(WY)	1998	1995	1999	1989	1993	1992	1999	1999	1999	1993	1999	1995	

SUMMARY STATISTICS

	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1988 - 2000
ANNUAL TOTAL	38552.2	49707	
ANNUAL MEAN	106	136	125
HIGHEST ANNUAL MEAN			198
LOWEST ANNUAL MEAN			84.3
HIGHEST DAILY MEAN	750 Sep 17	877 Mar 29	2020 Apr 17 1996
LOWEST DAILY MEAN	7.4 Aug 7	a 15 Sep 11	6.4 Sep 15 1995
ANNUAL SEVEN-DAY MINIMUM	8.1 Aug 2	16 Sep 6	6.7 Sep 10 1995
INSTANTANEOUS PEAK FLOW		1000 Mar 29	2320 Apr 17 1996
INSTANTANEOUS PEAK STAGE		8.60 Mar 29	11.59 Apr 17 1996
INSTANTANEOUS LOW FLOW		b 14 Sep 12	c 6.2 Sep 15 1995
ANNUAL RUNOFF (CFSM)	1.29	1.66	1.52
ANNUAL RUNOFF (INCHES)	17.51	22.58	20.70
10 PERCENT EXCEEDS	230	300	284
50 PERCENT EXCEEDS	89	100	75
90 PERCENT EXCEEDS	11	34	15

a Also occurred September 12.  
b Also occurred September 13.  
c Also occurred September 16, 1995 and October 4, 1995.  
e Estimated.





MERRIMACK RIVER BASIN

010965852 BEAVER BROOK AT NORTH PELHAM, NH

LOCATION.--Lat 42°46'59", long 71°21'14", Rockingham County, Hydrologic Unit 01070002, on right bank, 10 ft downstream from highway bridge at the Windham-Pelham town line, 0.7 mi north of North Pelham, 1.3 mi south of West Windham (junction of State Routes 128 and 111), and 4.7 mi north of Pelham.

DRAINAGE AREA.--47.8 mi<sup>2</sup>.

PERIOD OF RECORD.--Discharge records: October 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 170 ft above sea level, from topographic map.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 29	0145	410	8.81	Apr. 22	2030	* 710	* 10.14

Minimum discharge, 4.00 ft<sup>3</sup>/s, September 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	38	42	31	e32	323	165	176	44	19	52	5.5
2	20	39	42	31	e32	270	138	152	43	12	43	6.9
3	17	67	42	33	e31	227	122	136	47	14	39	16
4	20	79	42	e38	e31	193	141	123	37	15	43	12
5	36	60	41	e80	e30	167	156	109	34	15	35	9.6
6	26	53	42	e90	e30	145	145	97	43	13	29	8.1
7	19	48	79	83	e30	127	133	87	149	12	27	7.3
8	16	45	109	70	e30	114	115	77	166	10	25	6.8
9	20	43	96	61	e29	105	153	77	129	11	24	6.4
10	29	42	83	e55	e30	113	189	73	126	23	16	5.5
11	24	50	77	e130	34	110	162	114	88	19	10	4.7
12	18	51	66	e125	e32	176	144	118	81	15	12	4.6
13	9.4	48	60	e105	e29	249	128	106	77	14	12	7.9
14	10	46	54	e80	e46	229	111	119	64	12	22	10
15	20	46	55	e65	e110	208	99	106	57	9.7	30	21
16	17	43	60	e58	127	187	87	88	53	29	30	30
17	13	40	59	e50	e100	237	78	73	48	37	27	22
18	25	39	54	e45	e82	260	73	68	48	32	21	19
19	27	37	50	e42	e80	231	76	85	53	30	18	17
20	28	35	47	e41	77	202	77	84	47	23	16	12
21	51	33	65	e40	e62	182	101	77	39	20	14	13
22	45	31	70	e38	e55	164	549	69	37	31	12	14
23	50	29	64	36	e52	146	664	64	45	20	11	13
24	67	27	56	e35	e75	133	590	80	38	16	12	18
25	56	19	e49	e36	e150	120	421	107	34	15	12	16
26	54	21	e43	e37	273	108	326	107	31	13	10	5.5
27	44	53	e40	e36	273	99	328	95	31	33	9.5	5.2
28	37	78	e35	e34	340	167	292	79	35	51	8.1	6.9
29	37	59	e33	e32	386	287	250	64	30	35	7.1	7.8
30	33	48	33	e31	---	254	209	57	27	31	6.4	7.3
31	37	---	33	e33	---	207	---	50	---	48	6.1	---
TOTAL	931.4	1347	1721	1701	2688	5740	6222	2917	1781	677.7	639.2	339.0
MEAN	30.0	44.9	55.5	54.9	92.7	185	207	94.1	59.4	21.9	20.6	11.3
MAX	67	79	109	130	386	323	664	176	166	51	52	30
MIN	9.4	19	33	31	29	99	73	50	27	9.7	6.1	4.6
CFSM	.63	.94	1.16	1.15	1.94	3.87	4.34	1.97	1.24	.46	.43	.24
IN.	.72	1.05	1.34	1.32	2.09	4.47	4.84	2.27	1.39	.53	.50	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2000, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	46.3	73.9	94.0	87.0	95.3	150	163	92.8	51.0	20.8	21.1	21.1		
MAX	186	148	228	223	181	281	406	145	241	50.2	80.1	86.5		
(WY)	1997	1996	1987	1996	1996	1994	1987	1989	1998	1998	1991	1991		
MIN	5.15	15.4	15.8	27.5	41.4	56.5	56.9	34.4	7.27	3.53	1.52	2.71		
(WY)	1998	1999	1999	1989	1987	1989	1999	1999	1999	1993	1999	1997		

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR

FOR 2000 WATER YEAR

WATER YEARS 1987 - 2000

ANNUAL TOTAL	17970.35	26704.3		
ANNUAL MEAN	49.2	73.0	76.2	
HIGHEST ANNUAL MEAN			99.9	1996
LOWEST ANNUAL MEAN			41.9	1999
HIGHEST DAILY MEAN	242	Mar 2	664	Apr 23
LOWEST DAILY MEAN	.83	Sep 4	4.6	Sep 12
ANNUAL SEVEN-DAY MINIMUM	.92	Sep 2	6.2	Sep 7
INSTANTANEOUS PEAK FLOW			710	Apr 22
INSTANTANEOUS PEAK STAGE			10.14	Apr 22
INSTANTANEOUS LOW FLOW			4.0	Sep 12
ANNUAL RUNOFF (CFSM)	1.03	1.53	1.59	
ANNUAL RUNOFF (INCHES)	13.99	20.78	21.67	
10 PERCENT EXCEEDS	127	164	170	
50 PERCENT EXCEEDS	35	44	49	
90 PERCENT EXCEEDS	1.7	12	6.1	

a Also occurred September 5, 8, 1999.  
e Estimated.