State of Rhode Island and Providence Plantations
Water Resources Board
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To: Public Drinking Water Protection Committee
Through: Juan Mariscal, P.E., General Manager
From: Beverly O'Keefe, Supervising Planner
Date: February 27, 2006
Subject: Drought Update: Current Water Conditions

BACKGROUND: Pursuant to State Guide Plan Element 724: The Rhode Island Drought Management Plan, the Water Resources Board is required to assess water conditions monthly. Staff has assembled climate information from a variety of sources to monitor the potential for drought conditions in Rhode Island.

The **USGS Water Conditions Statement** is summarized in three tables (Surface Water Runoff, Ground-water Level Conditions, and Summary of Rhode Island Ground-Water Levels) embedded in this memorandum.

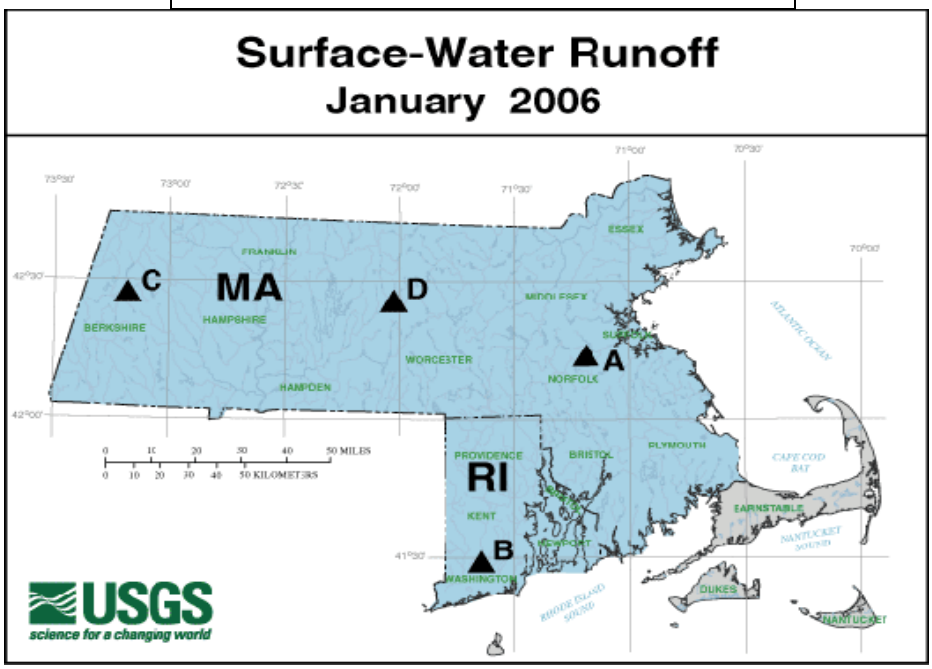
Surface-water flows at the end of January 2006 were above normal (highest 25 percent of flows for January) for Massachusetts and Rhode Island rivers. This was due in part to above-normal precipitation combined with above-normal air temperatures during the month. No new maximum or minimum monthly mean discharge values for January were recorded at any stream-gaging stations in Massachusetts and Rhode Island. This assessment is based on monthly flow statistics (30-year period from 1971 to 2000) from 22 near-real-time stations with 30 or more years of record.

Ground-water levels at the end of January 2006 were above normal (highest 25 percent of levels for January) in Massachusetts and Rhode Island. No measurements were available for the Tiverton 274 well . New record high ground-water levels for January were measured in 24 wells in Massachusetts and 13 wells in Rhode Island. A new record low ground-water level for January was measured for the second month in the Burrillville 395 well in Rhode Island. Communication with the US Geological Survey reveals probable measurement issues which will be investigated by Jim Campbell, District Chief.

Borden Brook/Cobble Mountain, Quabbin, and Scituate (Rhode Island) Reservoirs were 95-, 101-, and 104-percent full, respectively, at the end of January. In comparison, these reservoirs were 92-, 100-, and 104-percent full, respectively, at the end of December.

The NOAA National Weather Service (NWS) Drought Severity Index for the period ending February 2006 shows extremely moist conditions for the region (Table 4). The Crop Moisture Index for the same time period shows wet conditions (Table 5). The RI Precipitation Report will be distributed at the Committee meeting.

Table 1: Surface Water Runoff



COMPARISON WITH MONTHLY NORMAL RANGE

- ABOVE NORMAL – within the highest 25 percent of record for this month
- NORMAL RANGE
- BELOW NORMAL – within the lowest 25 percent of record for this month
- NO STREAM DATA
- INDEX STREAM GAGE AND IDENTIFIER LETTER

NOTE: Additional sites from those shown are used to determine ranges

Table 2: Ground Water-Level Conditions

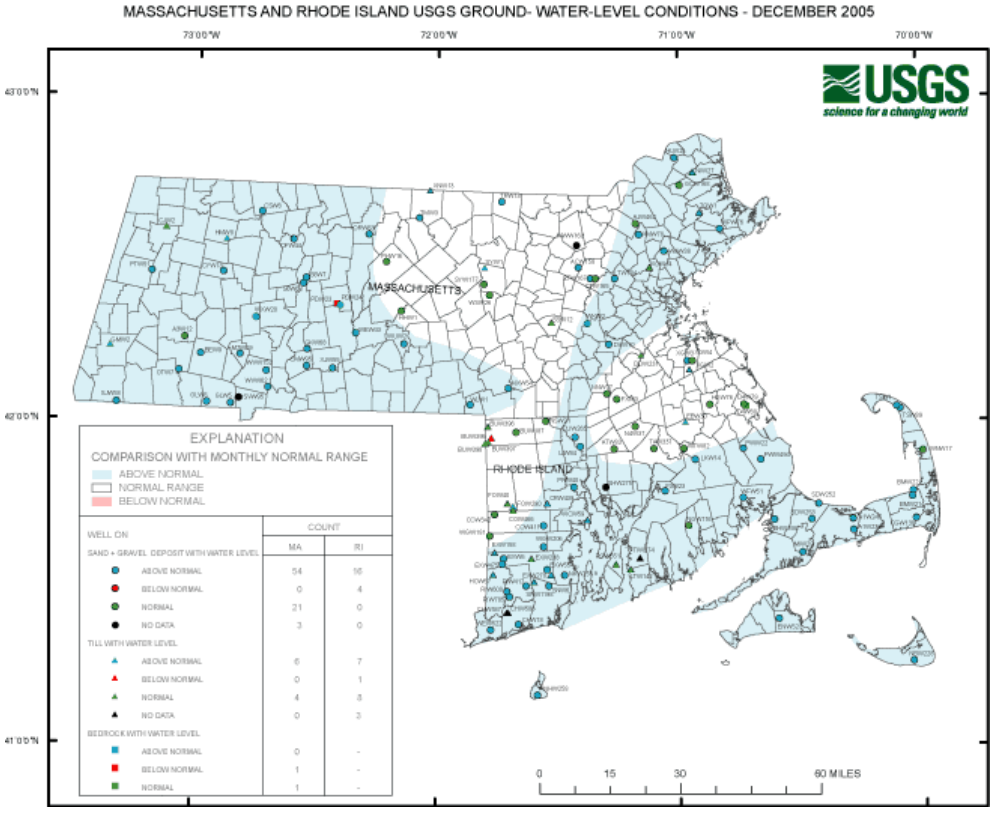


TABLE 3: SUMMARY OF GROUND-WATER LEVELS January 2006 PROVISIONAL
(NOTE: Wells with * also available in real-time at top of Ground-Water Data page;
OWc, monthly measured value used in high ground-water level estimation report,
USGS Open-File Report 80-1205.)

WELL	LOT	LIT	START YEAR OF RECORD	NET CHANGE IN MONTH (FEET)	NET CHANGE IN ONE YEAR (FEET)	DEPARTURE FROM MONTHLY MEDIAN (FEET)	WATER LEVEL BELOW LAND-SURFACE DATUM (OWc) (FEET)		DAY
RHODE ISLAND									
BURRILLVILLE 187	TS		1968	+ 0.60	+ 0.50	+ 0.91	14.05		30
BURRILLVILLE 395	UT		1992	+ 1.00	- 3.87	- 3.71	10.02	<	30
BURRILLVILLE 396	VT		1992	+ 0.20	- 0.17	+ 0.31	4.88		27
BURRILLVILLE 397	HT		1992	+ 7.31	+ 3.19	+ 6.07	9.10	>	30
BURRILLVILLE 398	HT		1992	+ 0.16	-----	+ 0.34	7.05		30
CHARLESTOWN 18	FS		1946	+ 0.30	+ 0.73	+ 3.51	14.33		30
CHARLESTOWN 586	VT		1992	-----	-----	+ 0.59	3.07	>	25
CHARLESTOWN 587	ST		1992	-----	-----	+ 2.49	4.65		25
COVENTRY 342	VS		1991	+ 1.29	+ 0.66	+ 1.64	6.52		30
COVENTRY 411	SS		1961	+ 0.58	+ 0.73	+ 1.68	19.76		30
COVENTRY 466	VT		1992	- 0.01	+ 2.96	+ 0.05	2.59		27
CRANSTON CITY 439	ST		1992	+ 1.88	+ 1.09	+ 2.89	8.37	>	27
CUMBERLAND 265	SS		1946	- 1.66	+ 0.01	+ 0.96	10.97		30
EXETER 6	VS		1948	+ 0.59	+ 0.89	+ 1.51	4.09		30
EXETER 158	ST		1991	+ 0.16	+ 1.18	+ 1.47	4.92		30
EXETER 238	FT		1991	+ 0.17	+ 0.57	+ 0.58	11.23		30
EXETER 278	HT		1991	+ 0.59	+ 3.67	+ 5.68	6.25	>	30
EXETER 475	VS		1981	+ 1.16	+ 1.10	+ 1.55	12.35		30
EXETER 554	SS		1988	+ 0.06	+ 0.56	+ 0.64	8.69	>	30
FOSTER 40	HT		1991	+ 0.59	+ 1.72	+ 1.03	2.67		30
FOSTER 290	HT		1992	+ 0.40	+ 0.62	+ 1.58	4.13	>	27
HOPKINTON 67	ST		1991	+ 2.11	+ 2.89	+ 4.11	11.36	>	30
LINCOLN 84	VS		1946	+ 0.32	- 0.24	+ 1.38	3.75		30
LITTLE COMPTON 142	ST		1992	+ 2.98	-----	+ 2.93	7.52		30
NEW SHOREHAM 258	UT		1991	- 0.20	+ 0.15	+ 1.15	10.48	>	24
NORTH KINGSTOWN 255	VS		1954	- 0.17	+ 1.11	+ 1.93	6.28		30
NORTH SMITHFIELD 21	TS		1947	+ 0.51	+ 0.63	+ 1.27	6.04		30
PORTSMOUTH 551	HT		1992	+ 2.69	-----	+ 6.26	27.93		30
PROVIDENCE 48	TS		1944	- 0.20	+ 0.46	+ 3.04	3.43	>	30
RICHMOND 417	VS		1976	+ 0.15	+ 0.38	+ 0.81	5.58		30
RICHMOND 600*	TS		1977	+ 0.13	+ 1.10	+ 1.67	32.08	>	31
RICHMOND 785	FS		1989	+ 1.20	+ 2.01	+ 3.81	21.26	>	30
SOUTH KINGSTOWN 6	VS		1955	+ 0.31	+ 1.21	+ 2.37	9.49	>	30
SOUTH KINGSTOWN 1198	FS		1988	+ 0.33	+ 1.06	+ 2.15	6.11	>	30
TIVERTON 274	TT		1990	-----	-----	-----	-----		
WARWICK 59	ST		1991	- 0.02	+ 0.49	+ 0.37	4.45		30
WESTERLY 522	FS		1969	+ 0.28	+ 0.63	+ 0.91	10.83		30
WEST GREENWICH 181	US		1969	+ 0.50	+ 0.41	+ 1.03	14.22		30
WEST GREENWICH 206	ST		1991	+ 0.10	+ 0.33	+ 0.32	3.69		30

>> SET NEW HIGH OR EQUALED HIGHEST RECORDED WATER LEVEL FOR PERIOD OF RECORD
> SET NEW HIGH OR EQUALED HIGHEST RECORDED WATER LEVEL FOR END OF NOVEMBER
<< SET NEW LOW OR EQUALED LOWEST RECORDED WATER LEVEL FOR PERIOD OF RECORD
< SET NEW LOW OR EQUALED LOWEST RECORDED WATER LEVEL FOR END OF NOVEMBER
------ - DATA NOT AVAILABLE

TOPOGRAPHIC (TOPO) SETTING: F=FLAT, G=FLOOD PLAIN, H=HILLTOP, S=HILLSIDE,
T=TERRACE, U=UNDULATING, V=VALLEY, W=UPLAND DRAW
Table LITHOLOGY (LITHO): G=GRAVEL, R=ROCK, S=SAND, T=TILL

Table 4: Drought Severity Index by Division

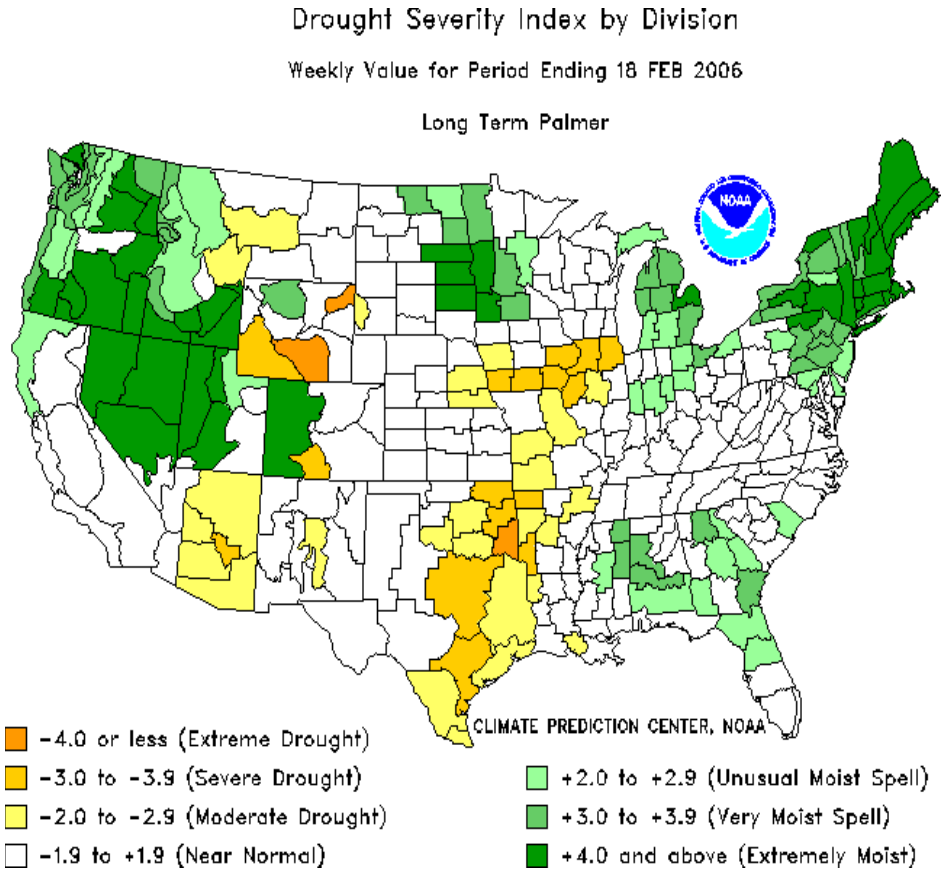
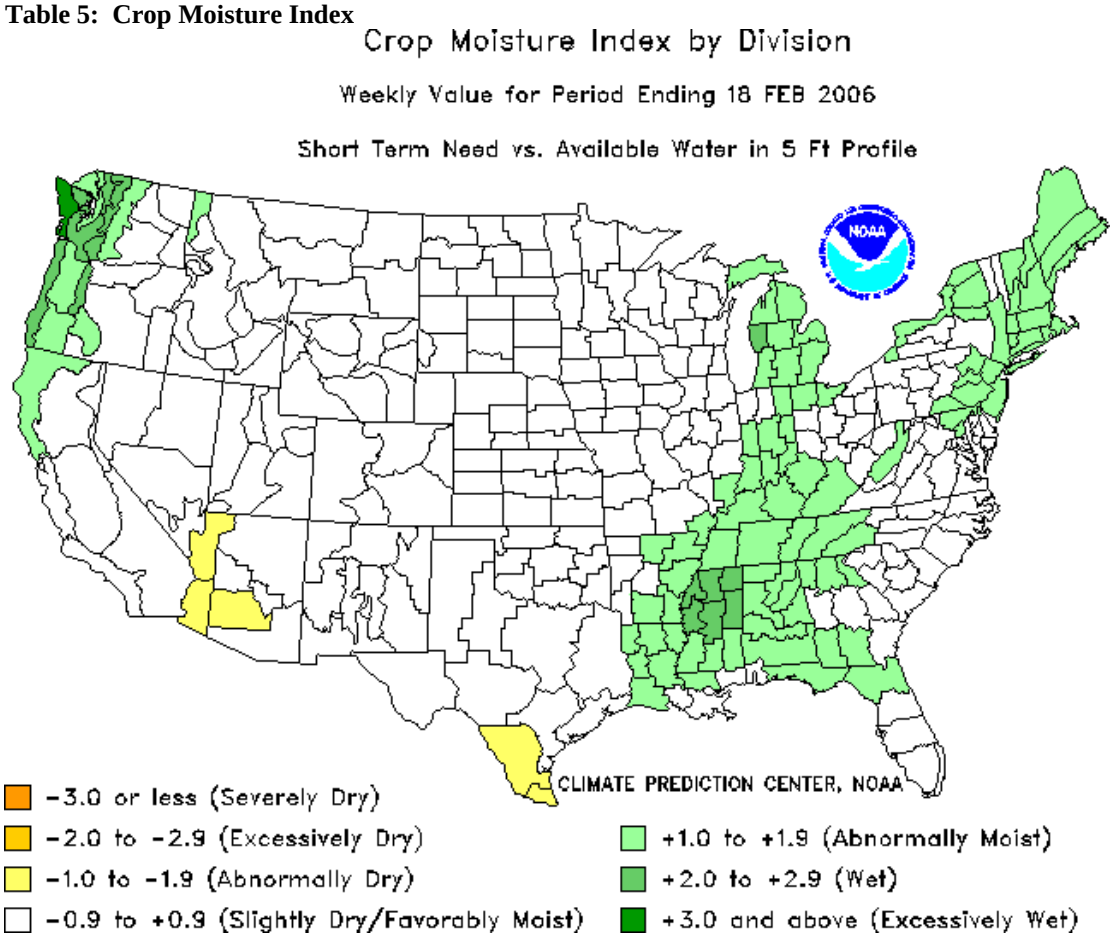


Table 5: Crop Moisture Index



DISCUSSION

Water conditions for Rhode Island have remained wet during this winter period of water recharge and includes 25.5 inches of snowfall received between December 1, 2005 through February 27, 2006, a 0.7 inch departure from normal. Water conditions will continue to be monitored over the next month.

RECOMMENDATIONS : Information only.

Additional Information on Water Conditions:

NOAA NWS Climate Report http://www.erh.noaa.gov/box/fcsts/BOSESFBOX.html
NOAA Drought Severity Index by Division
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif
Crop Moisture Index by Division
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/cmi.gif