



**July 24, 2007**

To subscribe: please email [coop@icprb.org](mailto:coop@icprb.org)

*The ICPRB, through its Section for Cooperative Water Supply Operations on the Potomac (CO-OP), coordinates water supply operations during times of drought and recommends releases of stored water. These operations ensure adequate water supplies for the major Washington metropolitan area water users and for environmental flow levels.*

**Summary/conclusions:**

The probability of releases this summer and fall from the Washington metropolitan area’s back-up water supply reservoirs remains about the same as it was at the beginning of the month. For now, this drought is affecting agricultural demands but not water supply. Flow slowly continues to drop in the Potomac River, and ICPRB and the water suppliers have begun daily monitoring of river flow and water demands. Groundwater levels are in relatively good shape, and the Potomac flow has been receding more slowly than it would if groundwater levels were lower.

Generally, the use of Potomac reservoirs is triggered by low flows brought about by a combination of low summer rainfall, low precipitation in the prior 12 months, and low groundwater levels. Precipitation in the prior year has been slightly below average in the Potomac basin, and July precipitation to date has been well below normal. In the event that low-flow conditions develop this summer, the metro area is well-protected from a water supply shortage because of carefully designed drought-contingency plans.

**ICPRB outlook:**

There is a 12 to 21 percent conditional probability that Potomac flow will drop below 600 to 700 million gallons per day (MGD) at Little Falls through December 31 of this year. At these flow levels, water supply releases from Jennings Randolph and Little Seneca Reservoirs may occur. Releases occur when predicted flow is less than demand. Typical summer demand during droughts is equal to about 500 to more than 700 MGD (plus a 100 MGD minimum flow recommendation at Little Falls) and most of the demand is met with water withdrawn from the Potomac.

The conditional probability is estimated by analyzing the historical stream flow records and giving consideration to recent stream flow values, precipitation totals for the prior 9 to 12 months, current groundwater levels, and the current Palmer Drought Index. Past years in which watershed conditions most closely resemble current conditions are weighted more heavily in the determination of conditional probability. The historical probability is based on an analysis of the historical stream flow record without weighting for current conditions. The conditional probability of 12 to 21 percent compares to a historical probability of 10 to 14 percent and is considered the more reliable indicator.

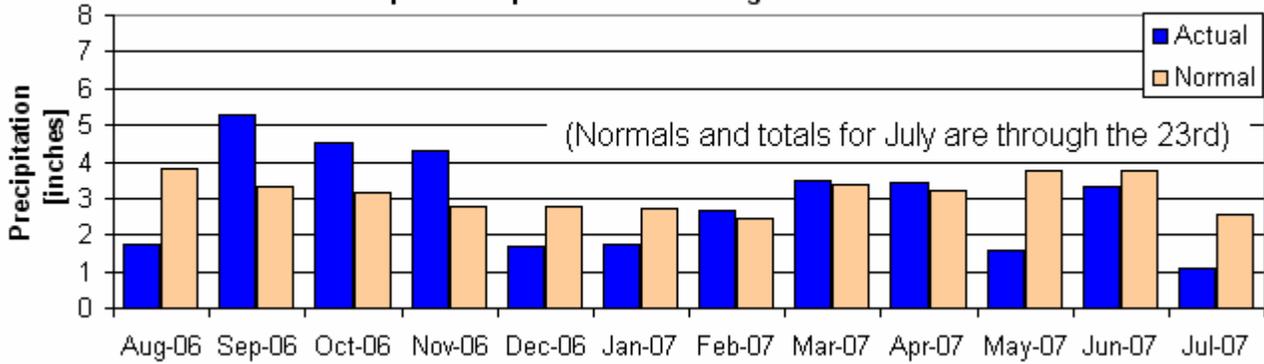
Outlook for Potomac River at Little Falls – Watershed conditions as of July 1, 2007

Low flow threshold (MGD)	<i>Historical probability of lower flow July 1 through December 31</i>	<i>Conditional probability of lower flow July 23 through December 31</i>
1200	66%	100%
1000	49%	71%
800	25%	45%
700	14%	21%
600	10%	12%

**Precipitation summary for the Potomac basin:**

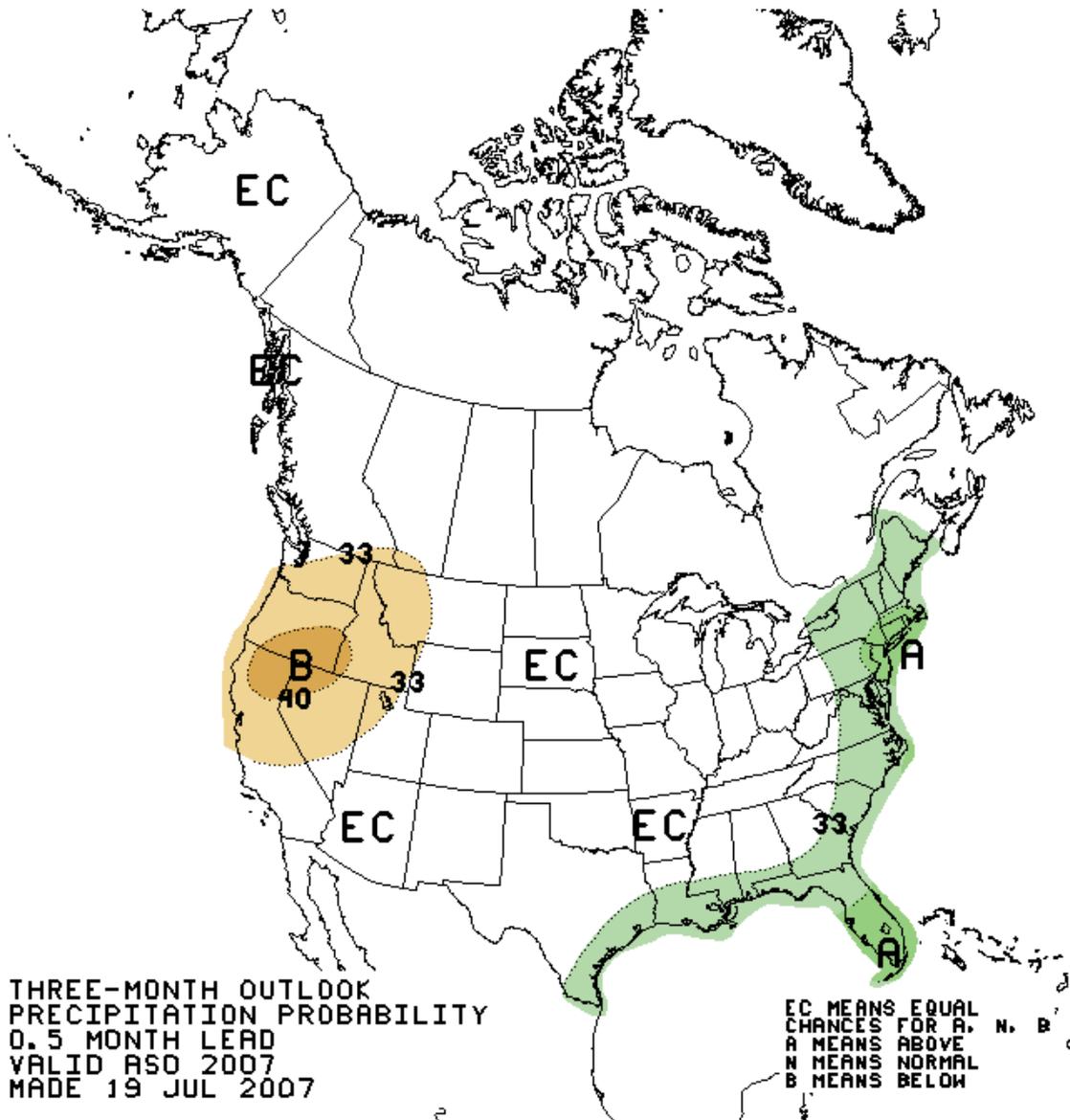
The National Weather Service’s Middle Atlantic River Forecast Center reports that precipitation in the Potomac basin upstream of Washington, D.C., has been 2.8 inches below average for the prior 12 months (since August 1, 2006), for a total of 34.8 inches. July precipitation to date was 1.1 inches, 1.4 inches below average.

### Potomac River Basin Precipitation Upstream of Washington



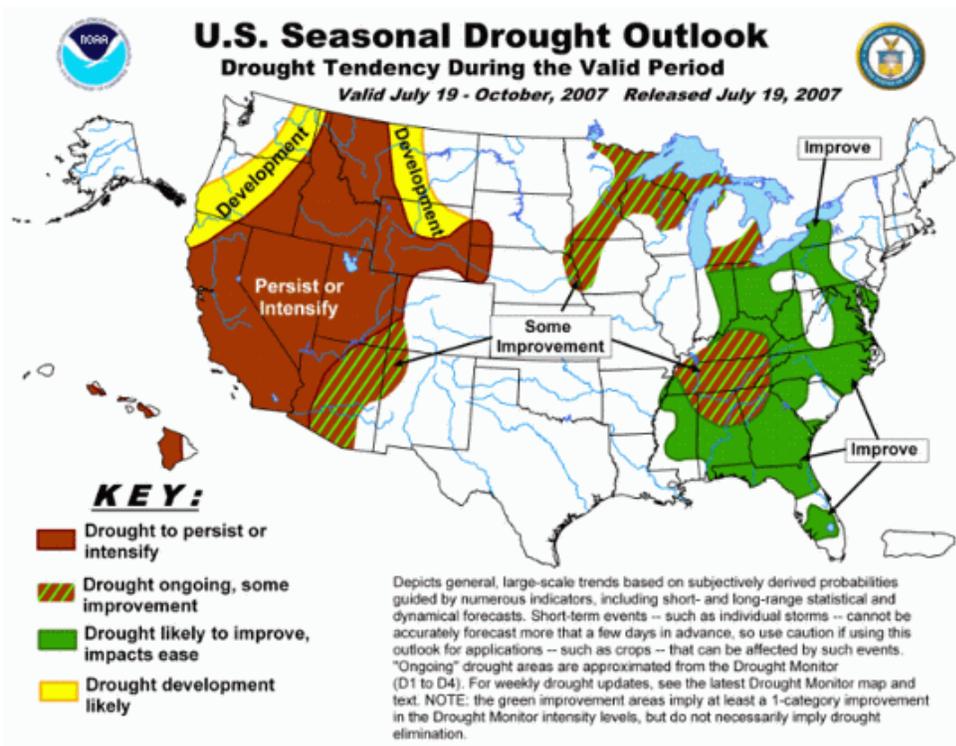
Data source: Middle Atlantic River Forecast Center, NWS

### [Precipitation, temperature, and drought outlook for August, September, and October](#)

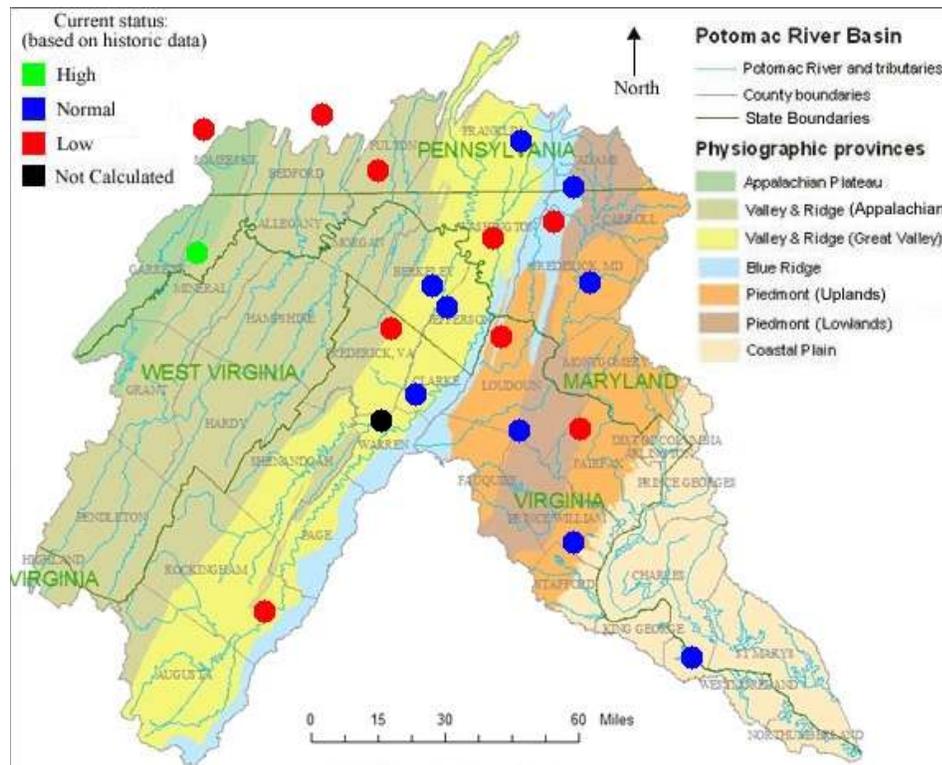


The Climate Prediction Center (CPC) of the National Oceanic and Atmospheric Administration predicts above normal chances of higher than median precipitation over much of the Potomac basin, and above normal chances of temperature being above median for much of the basin for August, September, and October. (Image source: CPC).

As of July 19, the CPC's Seasonal Drought Outlook forecasts drought conditions to improve for the Potomac basin.



**Groundwater:**



Monitoring wells show that most groundwater levels are “normal” to “low” throughout most of the basin (Image source: United States Geological Survey, created 7/16/2007). The Great Valley has the best (highest) baseflow characteristics during droughts, and four of the seven groundwater wells are “normal” in this physiographic province. In this graphic, USGS defines “high” as greater than 75<sup>th</sup> percentile, “normal” as between the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and “low” as less than the 25<sup>th</sup> percentile.

Of the seven real-time wells tracked by ICPRB for drought forecasting, three were lower than the 25<sup>th</sup> percentile levels and one was lower than tenth percentile levels as of July 23.

**Reservoir Storage:**

Facility	Percent Full	Current usable storage, bg	Total usable capacity, bg
WSSC’s Patuxent reservoirs	83	8.5	10.2
FW’s Occoquan Reservoir	75	6.0	8.0
Little Seneca Reservoir	100	3.8	3.8
Jennings Randolph water supply	100	13.3	13.3
Jennings Randolph water quality	73	12.2	16.6
Savage Reservoir	72	4.5	6.2

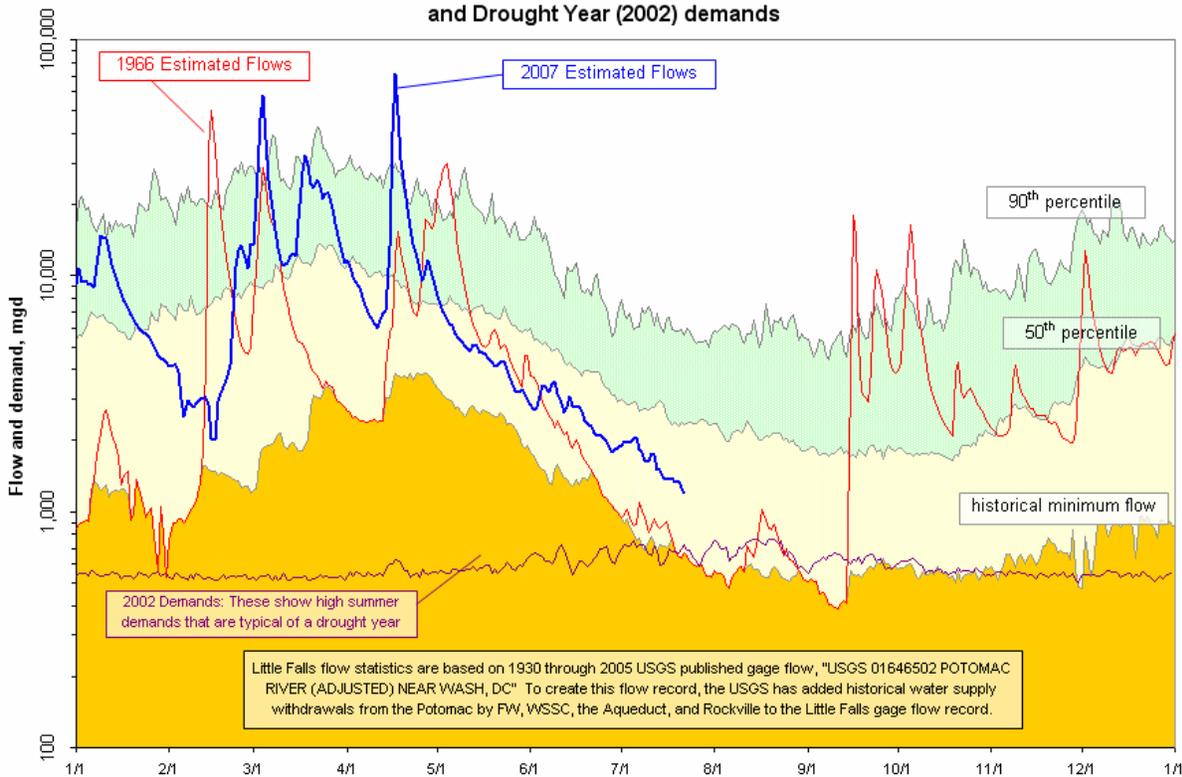
**Estimated Potomac River flow:**

The estimated Potomac flow at Little Falls averaged 1.6 billion gallons per day in July, about 52 percent of median flow for June. Estimated flow is the flow that would have occurred before water supply withdrawals, and is based on estimated withdrawal data and on provisional Little Falls gage data. The most recent Potomac flow is close to the tenth percentile level.

**Environmental Flow-by:**

Average Potomac flow at Little Falls in June was well above the minimum flow recommendation of 100 MGD.

**Estimated Flow on the Potomac at Little Falls before water supply withdrawals and Drought Year (2002) demands**



**Drought Status:**

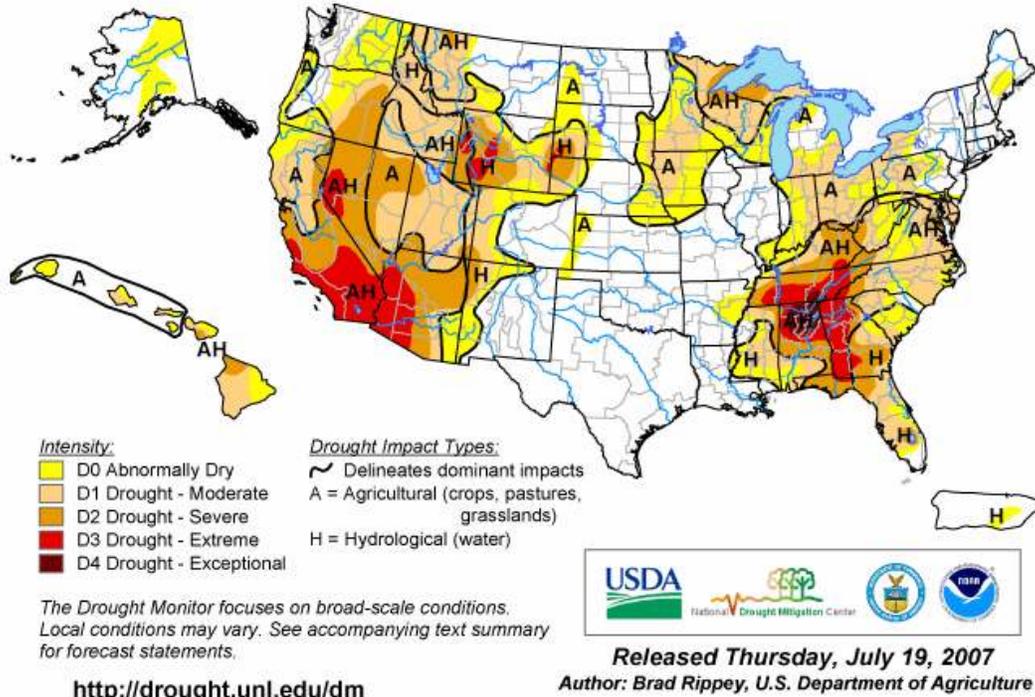
The Metropolitan Washington Council of Government’s (MWWCOG’s) Drought Awareness Response Plan status is “Normal.” The drought status may change to “Watch” if so declared by the MWWCOG’s Drought Coordination Committee. This Committee meets when the CPC’s drought monitor shows more than 75 percent of the Potomac basin in D-1 status (see below). As of July 17, approximately 60 percent of the basin Potomac Basin is in D-1 status or dryer.

**Drought Monitor and Soil moisture:**

The latest Drought Monitor (see next page) from the NOAA Climate Prediction Center (CPC) indicates “abnormally dry” to “D1-Drought” conditions for the Potomac Basin upstream of Washington. The Palmer Drought Severity Index shows “near-normal” to “severe drought” soil moisture conditions for most of the region (see bottom graphic on the next page).

# U.S. Drought Monitor

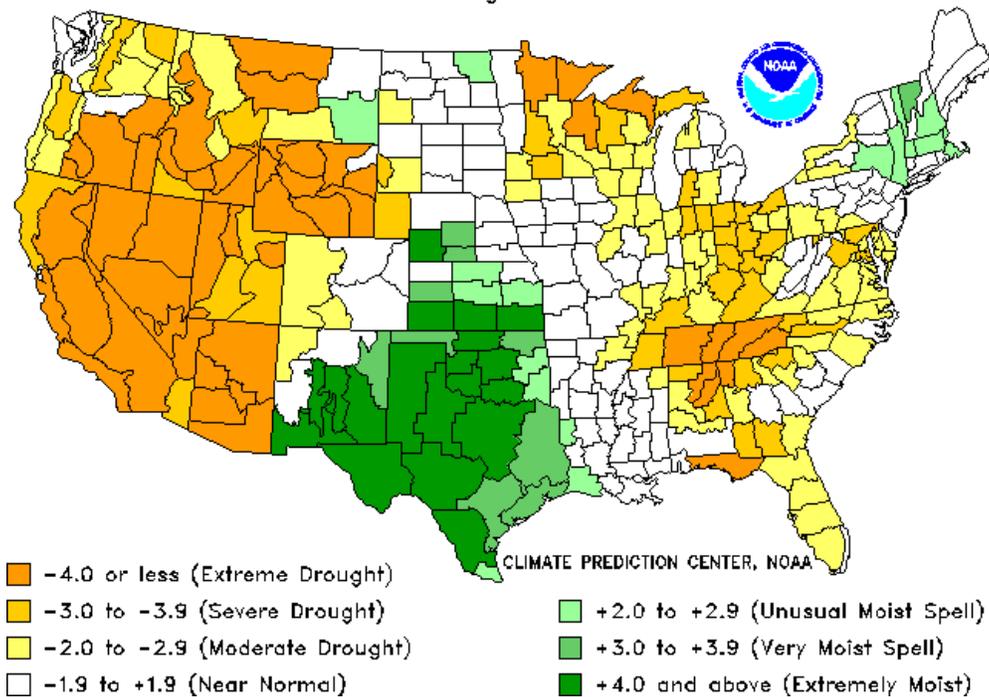
July 17, 2007  
Valid 8 a.m. EDT



## Drought Severity Index by Division

Weekly Value for Period Ending 14 JUL 2007

Long Term Palmer



Information provided by the USGS, the Middle Atlantic River Forecast Center, and the National Weather Service.