



**State of Rhode Island and Providence Plantations
Water Resources Board**
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**Assessment of Drought Conditions
February 7, 2017**

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Current Drought Level: Statewide Advisory

January Conditions Summary

- January precipitation across the State ranged from 4.8 to 6.1 inches. This precipitation was 0.5 inch to 2 inches above normal. Precipitation was closest to normal in the Northwest Drought Region, and the farthest above normal in New Shoreham.
- Monthly streamflows showed improvement in October and November and remained somewhat stable in December. Further improvement was shown in January, with all gages, except one, reporting in the normal range. The one exception was Branch River at Forestdale, which reported slightly above normal. With a long period of below normal, and even record-low conditions, Wood River Junction (figure 1) is finally reporting normal streamflow conditions.
- Groundwater levels throughout the state returned to normal conditions in January, with the exception of RIW-785, which is still well below normal.
- Reservoir levels were reported normal for Newport and above normal from Providence Water for this time of year.
- NOAA projects that February precipitation may provide additional relief to the drought conditions.
 - For the month of February it is probable that precipitation will be near normal. Temperatures are expected to average near normal or above normal for the month.
- Normal to above normal precipitation is needed during winter into spring for continued drought recovery. This recovery potential would need to be reflected in the streamflow and ground water levels to allow for a return from Drought Advisory, to Normal conditions.

Criteria for Removing a Drought Advisory

Two (2) consecutive months of groundwater levels at or above normal and near normal precipitation for past 3 months. These criteria have not been met.

Criteria for Issuing a Drought Watch

In order to increase the level of drought from Advisory to Watch for either a drought region or statewide, three of the four triggers related to the major drought indices must be met.

Assessment of Indices and Triggers by Region

The tables below provide an assessment of the major indicators to determine the drought level. Based upon an assessment of the regions, the evaluation is provided below. In order to change the level from Advisory to Watch, three of the four criteria below need to be met.

All Regions except Southern and Eastern

<u>Precipitation</u>	<u>Streamflow – Other Regions</u>	<u>Groundwater</u>	<u>PDI</u>	<u>Drought Phase</u>
1 of the following criteria met: 3 month cum. <65% or 6 month cum. <70% or 12 month cum. <70%	At least 4 out of 5 consecutive months below normal	4-5 consecutive months below normal	-3.0 to -3.99	Watch

Southern and Eastern Regions

<u>Precipitation</u>	<u>Streamflow-</u>	<u>Groundwater</u>	<u>PDI</u>	<u>Drought Phase</u>
1 of the following criteria met: 3 month cum. <65% or 6 month cum. <70% or 12 month cum. <70%	At least 4 out of 5 consecutive months below normal	4-5 consecutive months below normal	-3.0 to -3.99	Watch

White- does not meet Watch criteria Yellow-approaching criteria Red-meets or exceeds criteria

Major Indicators Summary

1. **Precipitation-** January precipitation was above normal throughout the State. Short term precipitation totals indicate a substantial improvement of short-term drought conditions. Long term precipitation totals through January indicate some stabilization of long term drought conditions.
2. **Stream flow-**The Southern and Eastern Drought Regions monthly flows have been below normal since May through December. Each Drought Region of the state returned to normal conditions in January.
3. **Groundwater Levels-**Groundwater levels throughout the Drought Regions of the state returned to normal conditions. The Woonsocket observation well measured normal in January. This marks only 2 (November and January) of the last 11 months water levels were measured normal at that site-9 months were below normal.
4. **Palmer Drought Index (PDI)** – The Palmer Drought Index was in the normal range as of the end of January. This index does not indicate a deterioration of drought conditions.

Other Considerations

Precipitation – Normal to above normal precipitation is needed this winter into the spring for drought recovery. This recovery potential would need to be reflected in the streamflow and ground water levels to return from Advisory, to Normal conditions.

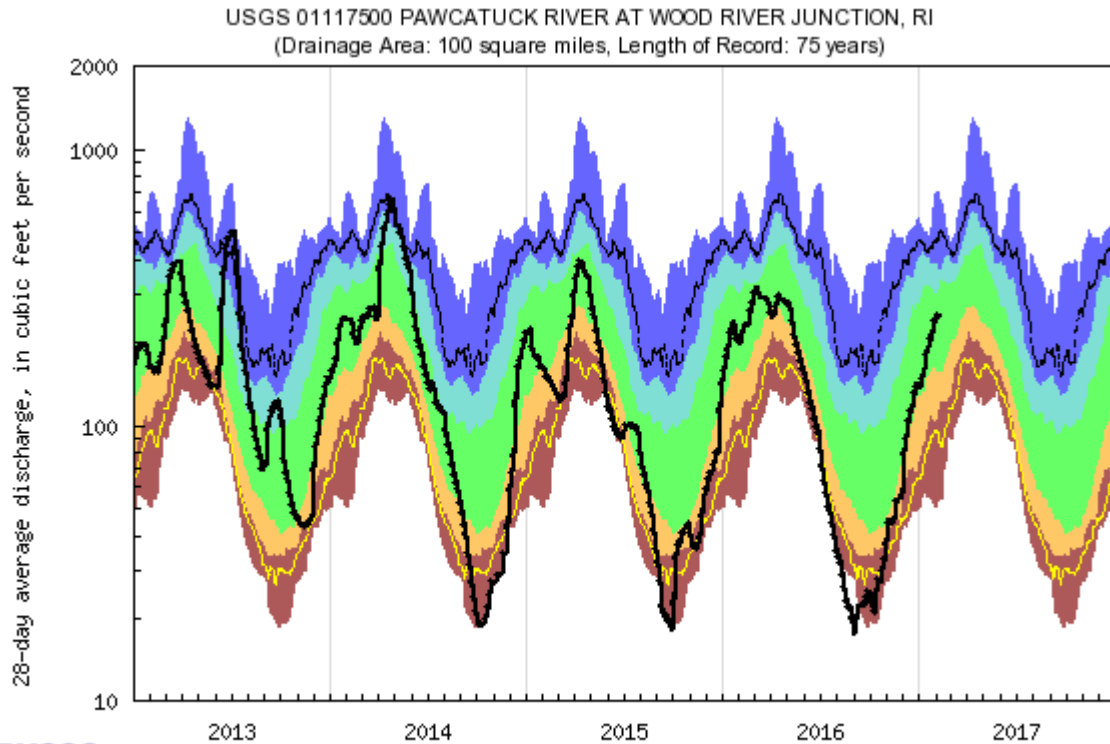
Water Supply Reservoir Levels - The current (February 8, 2017) Scituate Reservoir Elevation (283.13 feet) compared to capacity (98.5%) is reported to be above normal for the time of year. Newport reports that as of Dec 6th the Newport reservoirs are at 60% capacity, which is normal for this time of year, closer to the lower side of normal.

Timing/Seasonal Considerations- The low groundwater levels and low flows for surface water are of continued concern for groundwater water supply and recharge. The state will need normal to above normal precipitation throughout the winter and early spring to realize any lasting recovery.

Crop Moisture- With the growing season at an end, the Crop Moisture Index loses its utility in Rhode Island during the winter and early spring months.

Private Wells- The RI Department of Health has received periodic reports from private well owners who continue to experience drought-related problems.

Three Year Streamflow at a long term gage: Pawcatuck River at Wood River Junction- The graph below shows the impacts over the last three years of dry conditions at a location in the Southern drought region. This is the third year in a row that the site reached record-low monthly streamflow levels. The low flows occurred during the months of July, August and September. These are the lowest monthly flows recorded at the site since 1980.



USGS WaterWatch

Last updated: 2017-02-09

Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest
Much below Normal		Below normal	Normal	Above normal	Much above normal	
						Flow