Indiana Water and Soil Moisture Conditions

November 7, 2024

The state of Indiana received normal to above normal precipitation over the week of October 31-November 6, 2024. The state received 0.25”-3.00” of rainfall with amounts generally lowest in the northeast and highest in the northwest and southwest.

Mean temperatures for the week were above to significantly above normal for the state. Mean temperatures ranged from 50.0°F to 71.5°F. Departure from normal temperature ranged from 4.6°F to 26.0°F.

4” soil water content from the Purdue Mesonet Data Hub on November 7, 2024, has increased and indicates a range of 6.8% (very sandy soil) to 23.1% available water with a statewide average of 37.3%.

Soil moisture data from the NASA SPORT Real-time 3km Land Information System is ranging from <5 to 50% available water in the 0-100cm soil depth, with the lowest values in the northeast and the highest in the south.

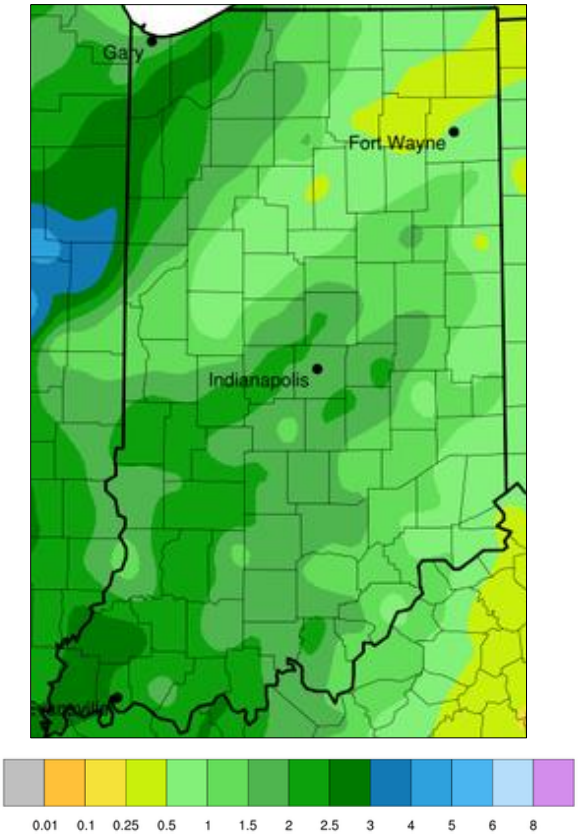


Figure 1. Accumulated rainfall (in.) for October 31-November 6, 2024, from MRCC.

USDM for the State of Indiana

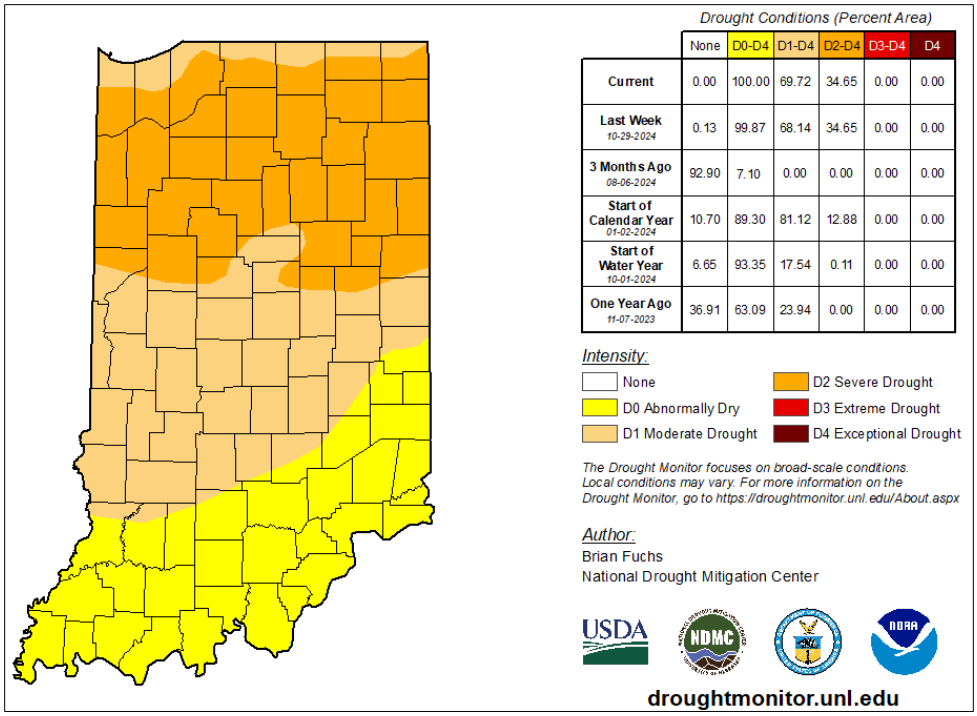


Figure 2. US Drought Monitor for the State of Indiana on November 5, 2024.

For November 5, 2024, the USDM identifies the southern third of the state with “abnormally dry” conditions. “Moderate drought” conditions were identified in the west-central portion of the state and along the northern border. “Severe drought” conditions were identified in the northern third of the state.

Reservoir Levels as of November 7, 2024

Table 1. Reservoirs managed by United States Army Corp of Engineers.

Reservoir	Brookville	Cecil Harden	Cagles Mill	Monroe	Patoka	JE Roush	Salamonie	Mississinewa
Winter Pool[1]	740.0	640.0	636.0	538.0	532.0	737.0	730.0	712.0
Summer Pool[1]	748.0	662.0	639.5	538.0	536.0	749.0	755.0	737.0
Current Pool[1]	744.2	651.9	637.8	536.5	533.5	741.94	739.67	732.02
% Utilization[2]	0.08	-4.75	0.34	-6.13	-12.44	0.1	0.0	1.0

Table 2. Reservoirs managed by Citizens Energy Group and NIPSCO**.*

Reservoir	Eagle Creek[3]*	Geist[3]*	Morse[3]*	Lake Freeman[4]**	Lake Schafer[4]**
Normal Pool	790	784.26	809.44	610.35	645.15
Current Pool	788.73	784.08	809.67	610.36	645.17
% Utilization[2]	-5.9%	--	--	--	--

[1]All units in feet and datum NGVD29

[2]Percent of designed flood storage utilized. The other named reservoirs are not designed for flood storage.

[3]All units in feet and datum NAVD88.

[4]All units in feet Local Datum.

Groundwater Monitoring Network as of November 6, 2024

Groundwater wells across the state are generally reporting below normal but range from low to above normal. Data is reported from the U.S. Geological Survey Ohio-Kentucky-Indiana Water Science Center.

Table 3. Groundwater level rankings relative to normal.

Low <5%		
Bartholomew 4 Clark 20 Decatur 2 Jasper 13 Knox 7	Knox 8 La Porte 9 LaGrange 2 Marion 39 Morgan 4	Randolph 3 Tippecanoe 18 Vanderburgh 7 Wells 4
Much Below 5-10%	Below 10-25%	Near Normal 25-75%
Harrison 8 Hamilton 7	Benton 4 Boone 17 Elkhart 4 Fulton 7 Grant 8 Jefferson 5 Martin 5 Noble 8 Parke 6 Posey 3 Shelby 2 Vigo 7 Whitley 3	Cass 3 Grant 10 Lake 13 Marion 35 Newton 8 Pulaski 7 Wayne 6
Above 75-90%	Much Above 90-95%	High >95%
Delaware 4	None	None

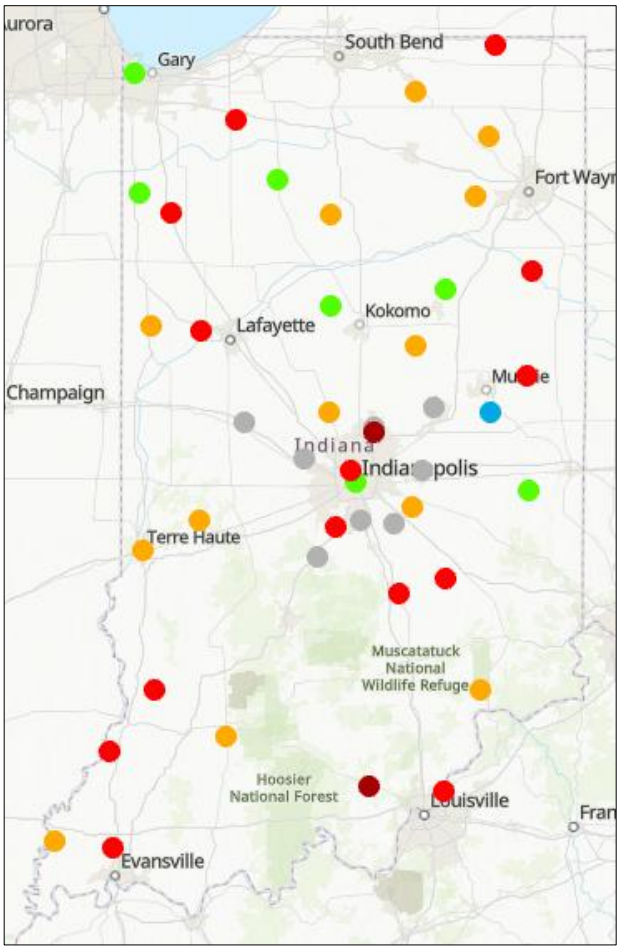


Figure 3. Map of USGS real-time groundwater monitoring wells.

Streamflow Conditions as of November 7, 2024

Streamflow conditions are generally normal across the state. There are 82 gages reporting normal conditions for the date. There is 24 reporting above normal, 4 reporting much above normal, 2 reporting an all-time high for the date, 20 reporting below normal, 8 reporting much below normal, and 3 reporting an all-time low for the date.

Currently, 31% of stream gages indicate steady flow conditions; 19% are increasing and 47% are decreasing.

Average observed streamflow at real-time USGS observing sites over the past 7-days ending November 5, 2024, averaged 2% reporting an all-time low, 24% much below normal, 39% below normal, 35% near normal, 1% above normal, 0% much above normal, and 0% reporting an all-time high.

USGS and NWS report 0 gages in “action”, “minor flood”, or “moderate flood” stage. The NWS Long Range Flood Outlook predicts no gages in any flood stage, with a 50% or greater chance of exceeding river flood levels.

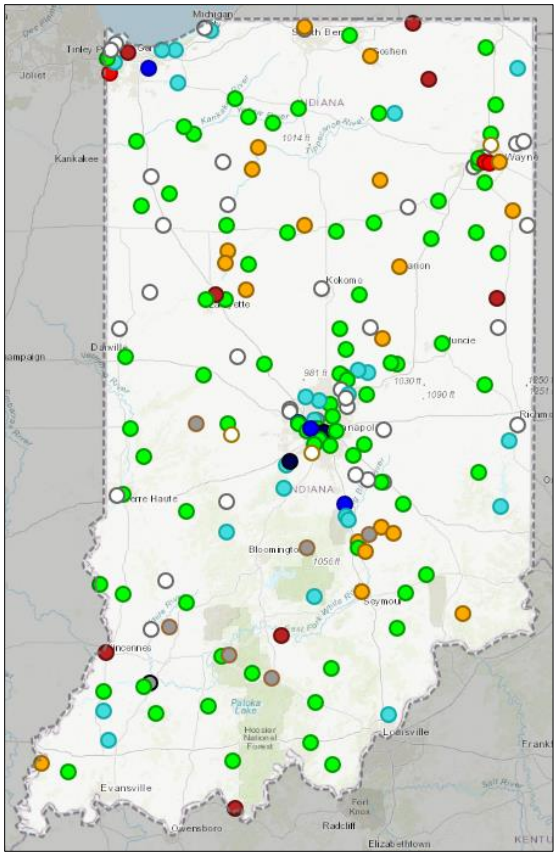


Figure 4. Map of USGS streamflow gages for Indiana.

NOAA 7-Day Quantitative Precipitation Forecast

For November 7, 2024, the 7-Day Quantitative Precipitation Forecast valid for November 7-14, 2024, predicts 0.50”-2.00” of rainfall across Indiana with lower amounts in the northwest increasing to the southeast. The precipitation is predicted to occur in the middle and late in the week.

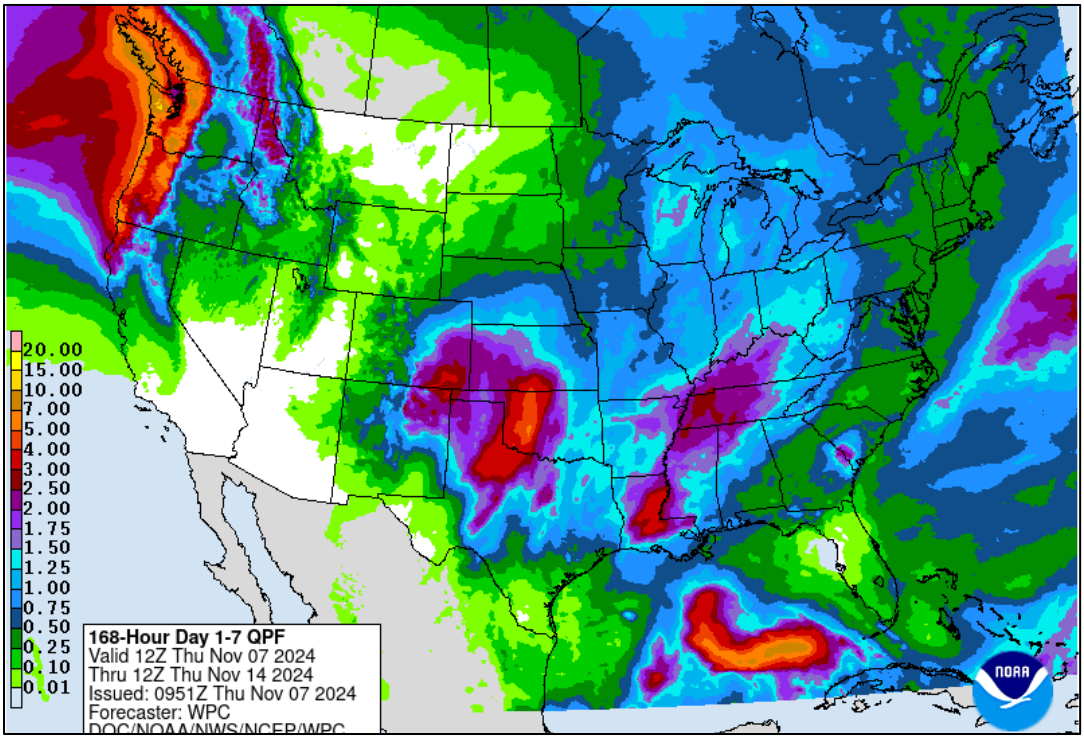
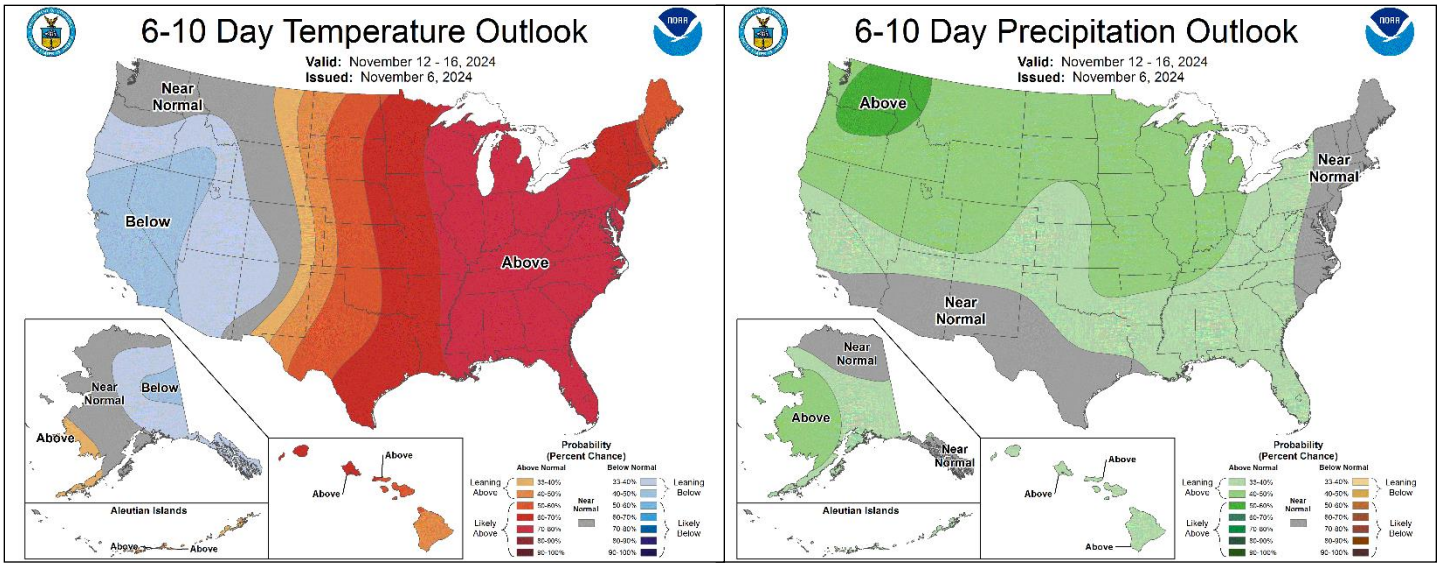


Figure 5. NOAA 7-Day Quantitative Precipitation Forecast, November 7-14, 2024.

NOAA National Weather Service 6-10 Day Outlook

The 6-10 Day Temperature Outlook for November 12-16, 2024, projects a 70-80% chance for above normal conditions for the state. The Precipitation Outlook projects a 40-50% chance of above normal precipitation for the state.



Figures 6-7. 6-10 Day Temperature and Precipitation Outlook for the US

Acknowledgments:

Prepared by DNR-Division of Water, Resource Assessment with data from the following organizations:

Temperature and precipitation data:
Midwestern Regional Climate Center
CoCoRaHS Mapping System

Soil data:
NASA, Short-term Prediction Research and Transition Center
Purdue Mesonet Data Hub

Reservoir data:
US Army Corp of Engineers, Louisville District
US Army Corp of Engineers, Chicago District
Citizens Reservoirs at NWS River Observations
NIPSCO Hydro Plant Lakes

Groundwater data:
U.S. Geological Survey Ohio-Kentucky-Indiana Water Science Center

Streamflow data:
USGS National Water Dashboard
NWS River Forecasts
USGS WaterWatch

Drought data:
US Drought Monitor

Forecast:
National Weather Service, Climate Prediction Center
National Weather Service, Weather Prediction Center