Indiana Water and Soil Moisture Conditions

December 19, 2024

The state of Indiana received above to much above normal rainfall over the week of December 12-18, 2024. The state received 0.25”-4.0” of rainfall with greatest amount received in southern Indiana. A swatch across north-central Indiana received 0.5”-2.0” of snowfall and the remainder of the state reported 0.0”-0.5” of snowfall.

Mean temperatures for the week were near to above normal for the state. Mean temperatures ranged from 26.8°F in northern Indiana to 44.2°F in southern Indiana. Departure from normal temperature ranged from -2.2°F to 7.8°F.

4” soil water content from the Purdue Mesonet Data Hub on December 19, 2024, indicates a range of 6.7% (very sandy soil) to 42.7% available water with a statewide average of 33.9%.

Soil moisture data from the NASA SPORT Real-time 3km Land Information System is ranging from 20% in northern Indiana to 65% available water in southern Indiana for the 0-100cm soil depth.

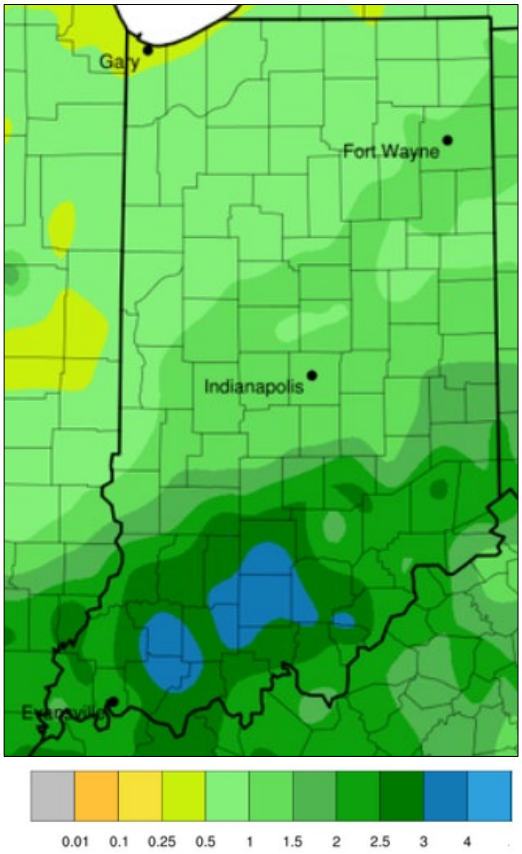
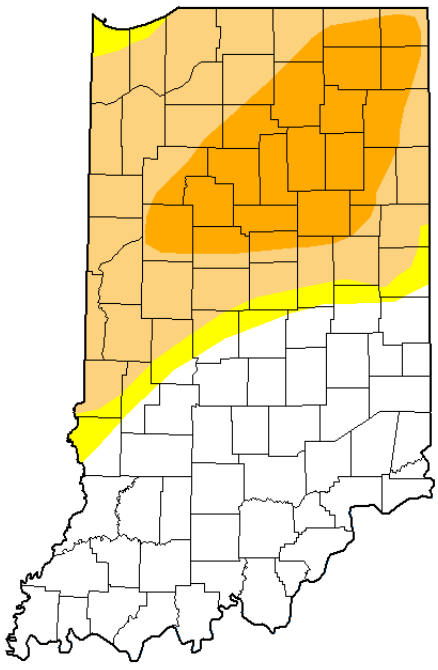


Figure 1. Accumulated rainfall (in.) for December 12-18, 2024, from MRCC.

USDM for the State of Indiana



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	44.90	55.10	49.60	19.71	0.00	0.00
Last Week 12-10-2024	36.37	63.63	50.15	19.71	0.00	0.00
3 Months Ago 09-17-2024	0.00	100.00	71.73	6.07	0.00	0.00
Start of Calendar Year 01-02-2024	10.70	89.30	81.12	12.88	0.00	0.00
Start of Water Year 10-01-2024	6.65	93.35	17.54	0.11	0.00	0.00
One Year Ago 12-19-2023	0.89	99.11	73.01	15.18	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

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For December 17, 2024, the U.S. Drought Monitor shows the northern half of the state is experiencing “moderate drought” or “severe drought” conditions while the rest of the state is experiencing no drought conditions. There is an area indicating “abnormally dry” conditions separating the “moderate drought” from no drought conditions.

Figure 2. US Drought Monitor for the State of Indiana on December 17, 2024.

Reservoir Levels as of December 19, 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]	740.3	640.4	636.7	538.0	535.8	737.82	730.48	712.59
% Utilization[2]	0.57	0.35	0.44	0.04	12.06	0.3	0.2	0.2

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	788.67	784.62	809.69	610.35	645.14
% Utilization[2]	-6.2%	--	--	--	--

[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 December 18, 2024

Groundwater wells across the state are generally reporting below normal but range from low to much 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 Jasper 13	Morgan 4 Tippecanoe 18	Wells 4
Much Below 5-10%	**Below 10-25%**	**Near Normal 25-75%**
Fulton 7 Hamilton 7 Knox 8 Noble 8 Randolph 3 Vanderburgh 7 Vigo 7 Whitley 3	Benton 4 Boone 17 Cass 3 Elkhart 4 Grant 8 La Porte 9 LaGrange 2 Martin 5 Parke 6 Posey 3 Pulaski 7	Clark 20 Decatur 2 Grant 10 Jefferson 5 Knox 7 Lake 13 Marion 35 Marion 39 Newton 8 Shelby 2 Wayne 6
Above 75-90%	**Much Above 90-95%**	**High >95%**
Harrison 8	Delaware 4	None

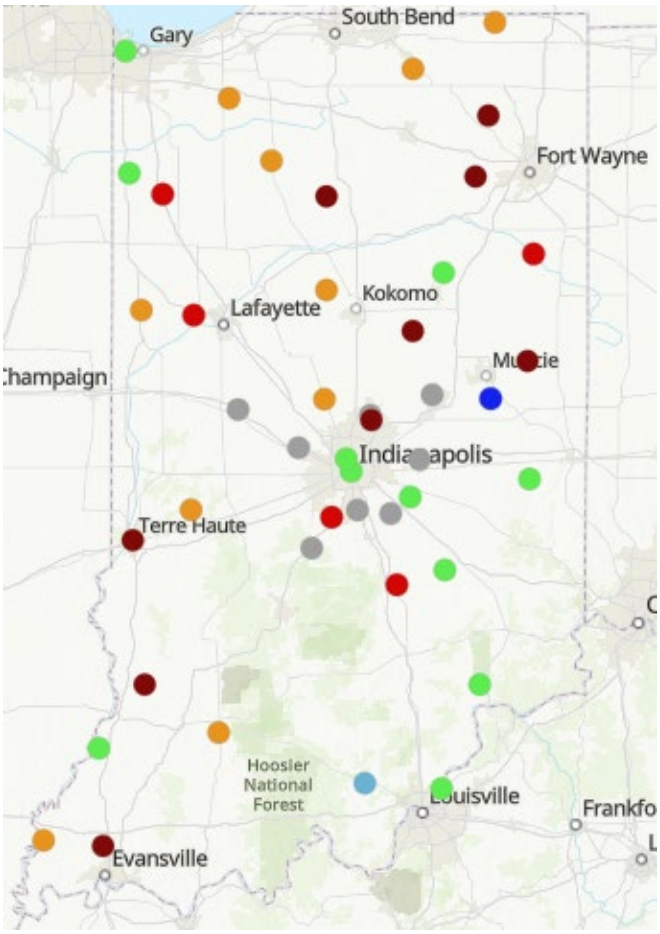


Figure 3. Map of USGS real-time groundwater monitoring wells.

Streamflow Conditions as of December 12, 2024

Streamflow conditions are generally near normal across the state. There are 82 gages reporting normal conditions for the date. There are 27 reporting above normal, 8 reporting much above normal, 3 reporting an all-time high for the date, 21 reporting below normal, 3 reporting much below normal, and 1 reporting an all-time low for the date.

Currently, 31% of stream gages indicate steady flow conditions; 10% are increasing and 56% are decreasing.

Average observed streamflow at real-time USGS observing sites over the past 7-days ending December 17, 2024, averaged 0% reporting an all-time low, 3% much below normal, 36% below normal, 52% near normal, 6% above normal, 3% much above normal, and 0% reporting an all-time high.

USGS and NWS report 1 gage in “action” stage and 0 in “minor flood” or “moderate flood” stage. The NWS Long Range Flood Outlook predicts 19 gages with a 50% or greater chance of exceeding river flood levels for “minor flood stage”.

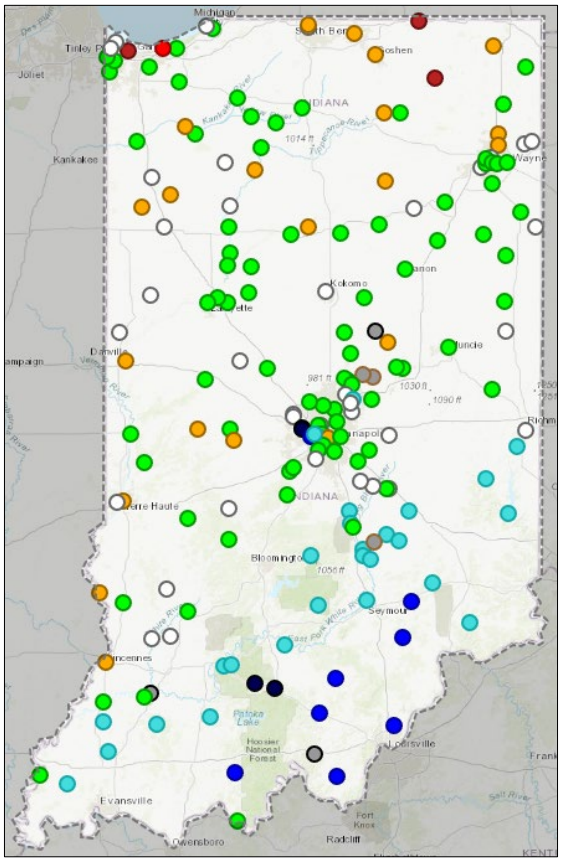


Figure 4. Map of USGS streamflow gages for Indiana.

NOAA 7-Day Quantitative Precipitation Forecast

For December 19, 2024, the 7-Day Quantitative Precipitation Forecast valid for December 19-26, 2024, predicts 0.25”-1.0” of rainfall across the state of Indiana, with heavier amounts predicted along the southern half of the state. Precipitation is predicted to occur throughout the week.

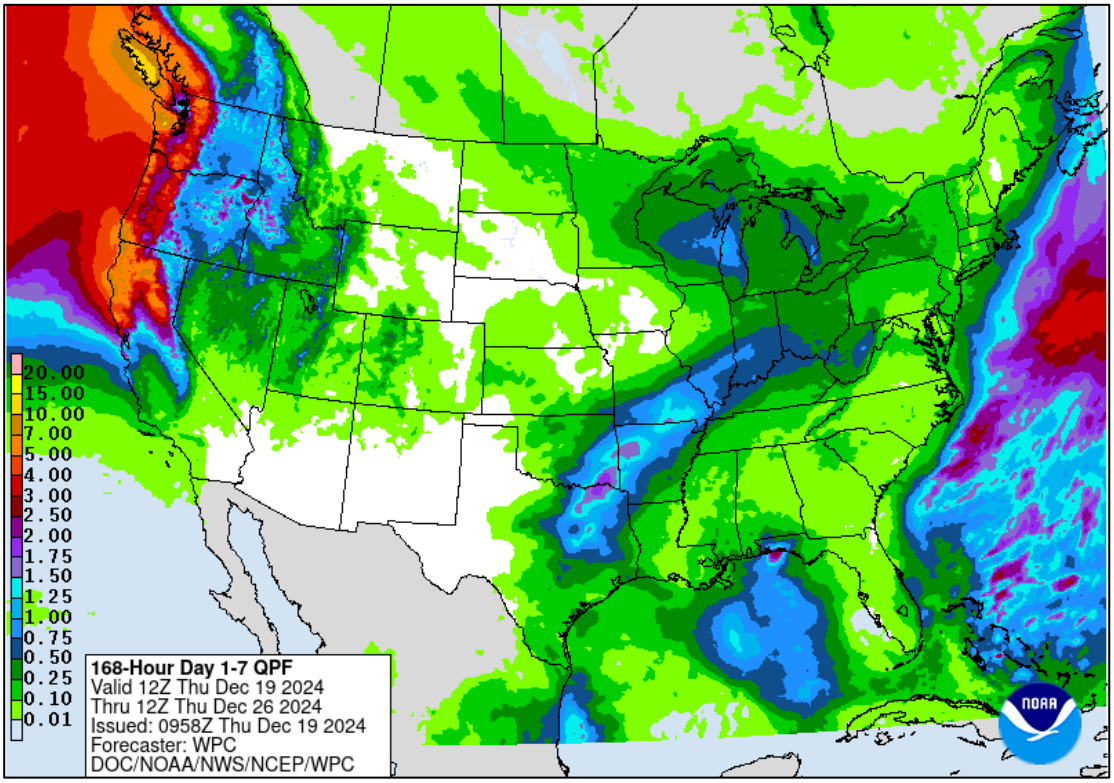
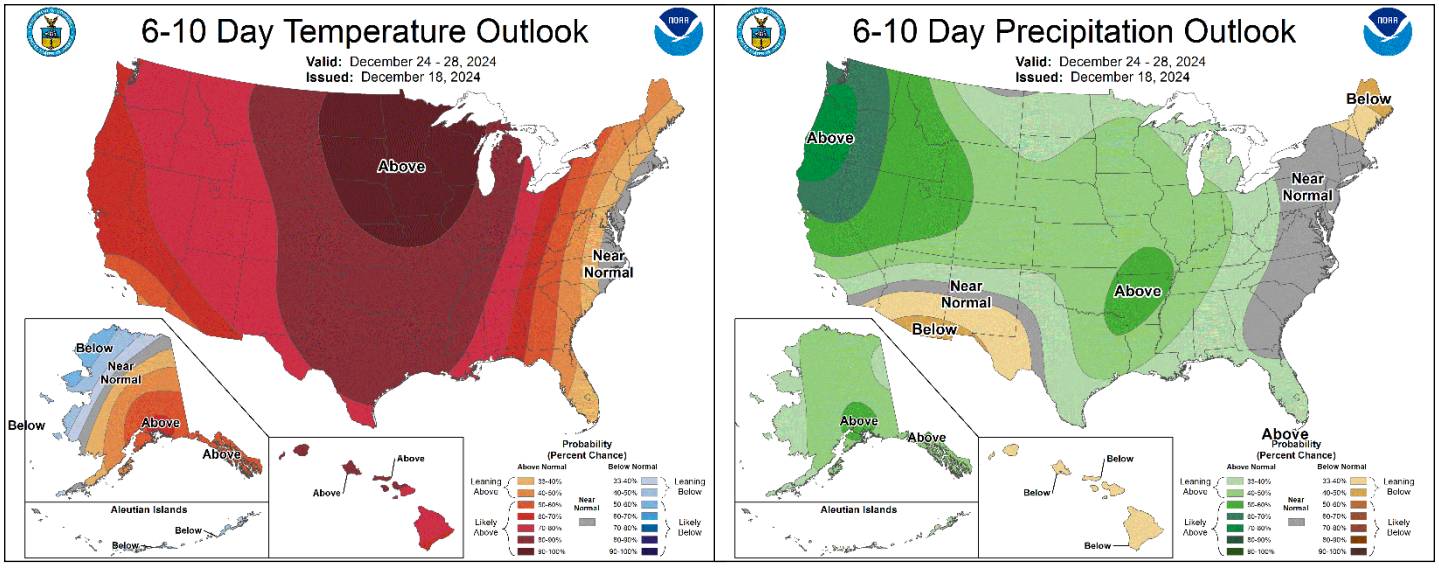


Figure 5. NOAA 7-Day Quantitative Precipitation Forecast, December 19-26, 2024.

NOAA National Weather Service 6-10 Day Outlook

The 6-10 Day Temperature Outlook for December 24-28, 2024, projects a 70-90% chance for above normal conditions for the state. The Precipitation Outlook projects a 40-50% chance of above normal precipitation for much of 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