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Probabilistic Hydrologic Outlook
National Weather Service Eastern North Dakota/Grand Forks ND
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...DEVILS LAKE OUTLOOK FOR FLOOD POTENTIAL...

Devils and Stump Lakes
Long-Range Probabilistic Outlook

.DISCUSSION...

The tail end of the summer brought near normal precipitation to the majority of the basin. However, the drier than normal conditions through the first half of the year continue to have an effect on the abnormally dry and/or drought conditions across the basin. As a result, this outlook remains very similar to the outlook issued in August with lake levels continuing to fall to near the 1448.0 ft mark.

It should be noted that these outlook numbers may be a bit conservative (i.e., predicted lake levels too high) due to computer modeling limitations. Additionally, these outlook numbers incorporate 350 cfs worth of combined pumping from the West End and East End outlets. Note that this outlook does not account for any changes to the amount of actual pumping due to outlet maintenance, equipment problems, or water quality limitations.

Lastly, note that this will be the final outlook for 2018. The next outlook will be released in late January 2019 with a review of conditions at the time of freeze-up and a first look at the spring melt season.

The National Weather Service provides long-range probabilistic hydrologic outlooks for Devils and Stump lakes between January and September. They will not be provided between October and December. Depending on the season, the high or low water probabilities may be omitted due to their applicability to the hydrologic situation.

.Current and Previous Record High Lake Levels...

- * The current height of Devils Lake at Creel Bay is 1448.49 feet
- * The current height of Stump Lake near Lakota is 1448.43 feet

- * The most recent USGS provisional record daily average height for Devils Lake at the Creel Bay gage:
 - ...1454.30 feet on June 27 of 2011
- * Previous records:
 - ...1452.05 feet on June 27 of 2010
 - ...1450.93 feet on June 27 of 2009

...1449.20 feet on May 9 of 2006
 ...1449.18 feet on June 17 of 2004
 ...1449.17 feet on August 2 of 2005

.Chances of Devils and Stump Lakes Falling Below Given Lake Levels...

The probability of not exceeding a given lake level is the percentage of lake level falls that are below that level for all the years that were run through the model using the precipitation and temperatures for those years during the valid period of the outlook.

Interpretation Aid: There is a 50 percent chance that Devils Lake will fall below 1448.0 feet during the valid period and only a 5 percent chance that it will fall below 1447.8 feet.

Probabilities for Non-Exceeding Listed Lake Levels

FROM SEPTEMBER 23, 2018 TO NOVEMBER 30, 2018

LOCATION	95%	90%	75%	50%	25%	10%	05%
Devils Lake.....							
CREEL BAY	1448.3	1448.2	1448.1	1448.0	1447.9	1447.8	1447.8
Stump Lake.....							
EAST STUMP LAKE	1448.3	1448.2	1448.1	1448.0	1447.9	1447.8	1447.8

The non-exceedance value for a listed percentage is the value where that percentage of all model cases run were below that lake level for the specified valid period of the outlook.

.OUTLOOK SCHEDULE...

- Between January and May, only the high water exceedances will be provided with valid periods ending at the end of September.
- Special Spring Flood and Water Management Outlooks will be issued in late February and early March.
- For June and July, both high-water and low-water exceedances will be provided.
- For August and September, only the low-water exceedances will be provided with valid periods ending at the end of November.
- No probability of exceedance/non-exceedance information will be given from October through December, since lake freeze-up levels will be given in the fall outlooks previously issued.

.ADDITIONAL INFORMATION...

The long-range probabilistic outlook is based on high and low lake levels that were calculated for the valid period using multiple scenarios of temperature and precipitation from 1949 to 2012 and current conditions of the lake, snowcover (in winter), and soil moisture.

By providing the complete range of lake level probabilities, the amount of risk associated with long-range planning decisions can be determined. These probabilistic outlooks are part of NOAA's National Weather Service's Advanced Hydrologic Prediction Services (AHPS).

A YouTube video on "How to Interpret River Outlook Products" is at:

www.youtube.com/watch?v=pSoEgvsnpv4

This outlook is also presented as probability graphs of lake height for the full period as well as weekly probabilities. The outlook graphics and explanations that help in interpreting these outlooks are available on the NWS Grand Forks AHPS web page at:

water.weather.gov/ahps2/index.php?wfo=fgf

Wind and wave forecasts for Devils and Stump lakes are available for a 7-day period when the lakes are sufficiently ice-free at:

www.weather.gov/fgf/lake_info

If you have any questions, contact the NWS at 701-772-0720.

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