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Probabilistic Hydrologic Outlook
National Weather Service Grand Forks ND
1247 PM CDT Thu Sep 23 2021

...DEVILS LAKE OUTLOOK FOR FLOOD POTENTIAL...

Devils and Stump Lakes
Long-Range Probabilistic Outlook

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.

.OUTLOOK SUMMARY...

Note: The August and September non-exceedance outlooks incorporated a daily average of 75 cfs worth of pumping operations on Devils Lake through the end of September. The June and July non-exceedance outlooks incorporated a daily average of 200 cfs worth of pumping operations through the end of October.

Since the last outlook issuance on August 26th, much of the area received additional, and much needed, precipitation. Amounts for this time period were near to above normal for much of the basin but still slightly below normal across northern reaches of the basin. This precipitation did help improve drought conditions slightly over the course of the last month. Although the heart of the basin remains in the Extreme Drought category, some of the area has seen improved conditions and is now classified as Severe Drought. Additionally, any mention of Exceptional Drought has been removed for most of the state of North Dakota. All in all, recent precipitation and drought improvement has led to very little change in the non-exceedance numbers with this outlook as compared to the August 2021 outlook.

Climate outlooks for the end of September and into the beginning of October indicate above normal temperatures and below normal precipitation to return. The above normal temperatures look to continue through the remainder of the fall but by winter, equal chances for above, below, or near normal temperatures and precipitation are forecast.

.Chances of Devils and Stump Lakes Rising Above Given Lake Levels...

The probability of exceeding a given lake level is the percentage of maximum lake level rises that are above 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.

Exceedance information is not published in September.

.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 1446.4 feet during the valid period and only a 5 percent chance that it will fall below 1446.3 feet.

Probabilities for Non-Exceeding Listed Lake Levels

FROM SEPTEMBER 20, 2021 TO DECEMBER 26, 2021

LOCATION	95%	90%	75%	50%	25%	10%	05%
Devils Lake.....							
CREEL BAY	1446.7	1446.6	1446.5	1446.4	1446.3	1446.3	1446.3
Stump Lake.....							
EAST STUMP LAKE	1446.7	1446.6	1446.5	1446.4	1446.3	1446.3	1446.3

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 2018 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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