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Probabilistic Hydrologic Outlook

National Weather Service Grand Forks ND

610 PM CDT Thu Jun 23 2022

...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: This outlook incorporates a daily average of 350 cfs worth of pumping operations on Devils Lake from June 1st through November 10th.

After well above normal spring precipitation the past 30 days has seen precipitation return to more normal levels with amounts generally at 75 to 150% of normal. We have reached the time of the year where the lake typically peaks with evaporation and when allowed pumping begins to overtake inflows. That being said there is still some volume of water to drain into Devils and Stump Lake from the

Dry Lake and Lake Alice. Current heights are just under 1450.8ft which puts the lake rise this spring around 3.8 feet. An anticipated peak of 1450.9 feet is expected in the next couple weeks. A continued rise to 1451.0 to 1451.4 feet is possible if a wet and cool summer develops, 25% to 5% chance, respectfully.

Summer climate outlooks indicate equal chances for any outcome for temperatures with a lean towards below normal precipitation but no strong signal for warm or cold and wet or dry.

.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.

Interpretation Aid: There is a 50 percent chance that Devils Lake will rise above 1450.90 feet during the valid period and only a 5 percent chance that it will rise above 1451.4 feet.

Note: The current gage zero datum of the Devils Lake at Creel Bay gage is 1401.33 feet NAVD88 or 1400.00 feet NGVD29. The gage zero datum of the Stump Lake at East Stump Lake gage is 1401.15 feet NAVD88 or 1400.00 feet NGVD29.

Probabilities for Exceeding Listed Lake Levels

FROM JUNE 20, 2022 TO SEPTEMBER 30, 2022

LOCATION	95%	90%	75%	50%	25%	10%	05%
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Devils Lake.....							
CREEL BAY	50.8	50.8	50.9	50.9	51.0	51.2	51.4
Stump Lake.....							
EAST STUMP LAKE	50.8	50.8	50.9	50.9	51.0	51.2	51.4

.Current and Previous Record High Lake Levels...

- * The current height of Devils Lake is 1450.79 feet NGVD29.
- * The current height of Stump Lake is 1450.73 feet NGVD29.
- * 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

Note: All previous records are recorded in NGVD29.

.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 1450.0 feet during the valid period and only a 5 percent chance that it will fall below 1449.6 feet.

Probabilities for Non-Exceeding Listed Lake Levels

FROM SEPTEMBER 01, 2022 TO NOVEMBER 30, 2022

LOCATION	95%	90%	75%	50%	25%	10%	05%
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Devils Lake.....							
CREEL BAY	50.5	50.5	50.2	50.0	49.9	49.7	49.6
Stump Lake.....							
EAST STUMP LAKE	50.5	50.5	50.2	50.0	49.9	49.7	49.6

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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