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NDC005-027-071-281200-

Probabilistic Hydrologic Outlook  
National Weather Service Grand Forks ND  
947 AM CST Thu Mar 09 2023

...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.

Fall 2021 brought below normal precipitation to much of the basin. The lack of fall precipitation allowed soil moisture to drop below normal conditions before freeze up with abnormally dry to moderate drought conditions persisting. However, winter began on a very active note with several storm systems affecting the basin. Plenty of snowfall (and associated water content) early in the winter season quickly brought snow and precipitation totals well above normal values. The new year began very dry with a return to a more active pattern by mid-February which has persisted into March. Overall, snow and precipitation through the winter thus far is around normal values across the Devils Lake basin...a bit below normal across the far north to a bit above normal in the far southern basin.

The generally cool and active weather pattern is expected to persist through the remainder of March. Climate outlooks then favor below normal temperatures heading into spring, eventually moderating back to near normal. Without a particularly strong signal regarding precipitation, projections indicate equal chances for above, below, or near normal precipitation.

Lastly, lake levels heading into freeze up came in just under the 1449.5 ft mark. These levels are 2 to 2.5 feet higher than the same time frame back in 2021.

.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 50.3 feet during the valid period and

only a 5 percent chance that it will rise above 51.8 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 1401.21 feet NAVD88 or 1400.00 feet NGVD29.

Probabilities for Exceeding Listed Lake Levels

FROM MARCH 06, 2023 TO SEPTEMBER 30, 2023

LOCATION	95%	90%	75%	50%	25%	10%	05%
Devils Lake.....							
CREEL BAY	49.9	49.9	50.0	50.3	50.6	51.1	51.8
Stump Lake.....							
EAST STUMP LAKE	49.9	49.9	50.0	50.3	50.6	51.1	51.8

.Current and Previous Record High Lake Levels...

- \* The current height of Devils Lake is 1449.43 feet NGVD29.
- \* The current height of Stump Lake is 1449.35 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.

.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](http://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](http://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](http://www.weather.gov/fgf/lake_info)

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

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