

# Tolna Coulee Control Structure Nears Completion



The Tolna Coulee Control Structure prior to completion.



The Tolna Coulee Control Structure on June 6. Inset shows water elevation measurement on structure at the same elevation as the lakes.

In the last part of May, the U.S. Army Corps of Engineers (Corps), and their contractor, announced they had substantially completed construction on the Tolna Coulee control structure.

Tolna Coulee is the natural outlet from Devils Lake and Stump Lake. As recently as 2011, the lake was less than four feet from overflowing naturally. The Tolna Coulee area, which was created by successive natural overflows of the lakes since the last ice age, is comprised of erodible soils. Thus, if Devils Lake were to reach a high enough elevation, the divide between Devils Lake and Tolna Coulee, could rapidly and catastrophically erode, causing significant flooding damages downstream.

With Devils Lake reaching a new record elevation of 1,454.3' in 2011, concerns mounted that a natural spill was becoming much

more likely. As a result, the Corps began the design and construction of a control structure on Tolna Coulee, with input from the Water Commission.

The structure is designed to permit erosion of the divide, allowing the lake to lower, as it would have without the project, while limiting releases to no more than 3,000 cubic feet per second (cfs). The embankment protecting the city of Devils Lake is considered to be a dam by the Corps - and Tolna Coulee its spillway. Therefore, the 3,000 cfs release limit through the control structure at Tolna Coulee is in place because of federal dam safety regulations. It should be noted, however, that under an extreme flood event (larger than has ever been recorded in Devils Lake), flows through the control structure could exceed 3,000 cfs.

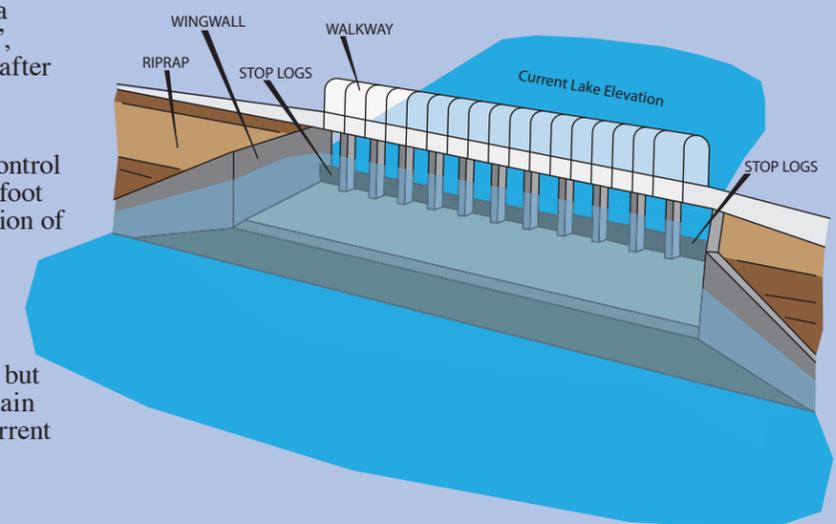
Construction of the structure began in the fall of 2011, and was aided by the mild winter. Less than a year later, the structure is now ready for operation.

Initially, the Corps will manage operation of the Tolna Coulee Control Structure, which will be guided by the "Standing Instructions To The Project Manager For Water Control." After the project is completely finished, operation will be turned over to the Water Commission - using the Standing Instructions.

With operation of the existing West Devils Lake Outlet, and the recently completed East Devils Lake Outlet and Tolna Coulee Control Structure, there is now a significantly lower risk of seeing a catastrophic natural overflow of Devils Lake floodwater into the Sheyenne River.

## — Key Points of the Tolna Coulee Control Structure —

- The intent of the Tolna Control Structure is that the existing topography, not the structure, will control discharge, with the removal of stop logs as the divide erodes. This will allow the lake to lower as it would have without the structure - while limiting releases to no more than 3,000 cfs.
- Water cannot be impounded above the Tolna Coulee's natural overflow elevation of 1,458', and the overflow elevation cannot be raised after erosion occurs.
- Initially the stop logs at the Tolna Coulee Control Structure will be placed approximately one foot below the water surface. (The current elevation of the lake is approximately 1,453'.)
- As the water level fluctuates prior to water overflowing the divide, the stop logs will be placed at an elevation no higher than 1,456', but stop logs will be added or removed to maintain the approximate one-foot level below the current water surface.
- Once water begins to flow over the divide, stop logs in the middle of the structure will be placed at an elevation of 1,457'.
- If erosion occurs, the stop logs will be removed to the new lake elevation, with flows not to exceed 3,000 cfs.



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# Area Students Attend Morton and Bismarck Water Festivals

Morton County and Bismarck area students attended water festivals in May that provided them with some understanding about water, and its impacts.

On May 8, fifth graders from Morton County gathered at the Best Western Seven Seas Hotel and Waterpark in Mandan, and were provided with a broad array of information and education about water resource-related topics. Over the course of the full-day event, now in its fourth year, 314 fifth grade students from 11 different Morton County elementary schools and 17 classes attended the festival.

On May 15 and 16, the Bismarck Public School District and North Dakota's Project WET (Water Education for Teachers) sponsored an eighth annual water festival at the Jack Science Center on the Bismarck State College campus. About 800 third grade students from 16 Bismarck elementary schools and 41 classrooms, attended that two day event.

The festivals consisted of structured learning stations, demonstrations, and exhibits where students were actively engaged in hands-on water activities and investigations. In addition, the festivals provided students with an opportunity to learn about water resources in a way that both complemented and reinforced their traditional classroom learning in a fun and informative manner.

Some of the students spent half a day at the festivals, taking in up to four presentations, while others spent the entire day there, attending up to eight presentations and activities.

Once again, comments and feedback from both students and teachers were quite favorable, so both water festivals are already in the works for the spring of 2013.

## PRESENTING AGENCIES

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- Bismarck City Water Department
- Bismarck Public Schools
- City of Bismarck Storm Water Program
- City of Bismarck Wastewater Treatment Plant
- Ducks Unlimited
- Fargo Skills Center
- Morton County Soil Conservation District
- National Park Service
- National Weather Service
- Natural Resource Conservation Service
- ND Department of Health
- ND Game and Fish Department
- ND Historical Society
- ND Project WET
- ND Rural Water Systems Association
- ND State Water Commission
- TREES
- Standing Rock Communities School
- U.S. Bureau of Reclamation
- U.S. Department of Agriculture
- U.S. Forest Service
- U.S. Geological Survey



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