

# The Oxbow

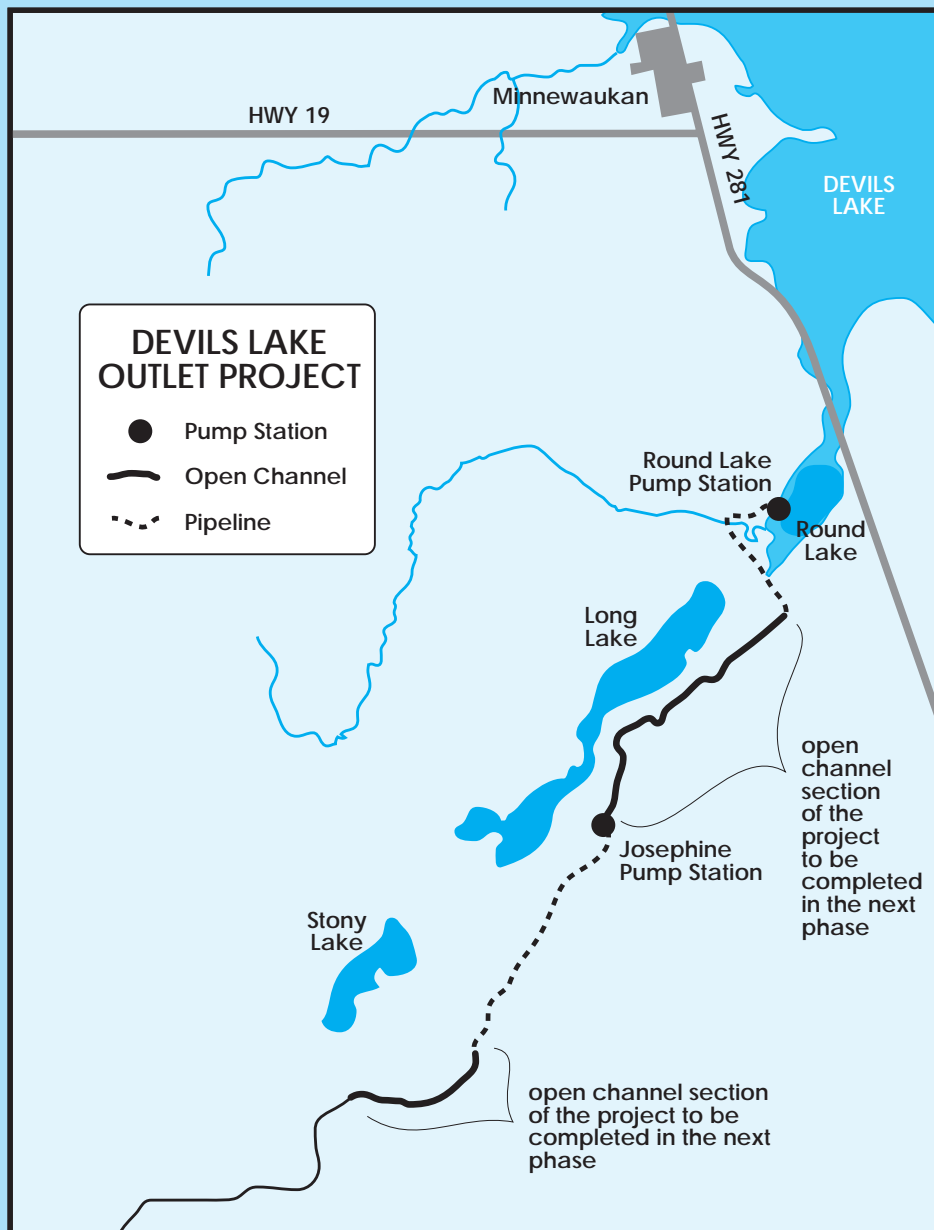
FROM THE NORTH DAKOTA STATE WATER COMMISSION

## Channel work to begin on Devils L. outlet

By Patrick Fridgen

Governor John Hoeven and the North Dakota State Water Commission

voted to move forward with the next phase of construction on the state-sponsored Devils Lake outlet project at their June 12 Commission



meeting in Bismarck. This will mark the second instance where the State Water Commission has acted to “move dirt” with the intent of completing a Devils Lake outlet.

The first phase of construction was completed last fall when an earthen pump station pad was constructed near Minnewaukan. That site will ultimately house two 50-cfs pumps.

The next phases of the outlet project that the Commission recently supported will include construction of a portion of the 300-cfs open channel and the acquisition of electrical power for two pump stations. This portion of the open channel construction will include two segments, totaling 17,000 feet, or 3.2 miles (see map). To complete this segment of the outlet channel, approximately 163,000 cubic yards of earthwork will have to be completed at an estimated cost of \$1.5 million.

On June 18, the State Water Commission advertised for bids, which means construction could begin as early as August. The work to be completed will not include any concrete structures, road crossings, or siphons. Those types of structures will all be included in separate contracts at a future time.

According to State Water Commission Devils Lake project engineers, they will begin acquiring electrical power for the two pump stations this summer, with efforts continuing throughout the winter. They estimate that most of the power supply work will be completed in 2004.

If this next phase of channel work and power acquisition proceed as scheduled, the State Water Commission may take bids for additional channel work, pipe, pumps, and motors, as early as this fall or winter. ■



## COMMISSION MEETING MINUTES

The North Dakota State Water Commission (Commission), chaired by Governor John Hoeven, acted on several items of business and was given status reports on continuing water management projects and programs at the June 12, 2003, meeting in Bismarck. In action items, the Commission approved:

- A resolution for reimbursement of expenses with bond proceeds. This resolution will allow the Commission to utilize available cash to pay for water projects and then replace that cash with bond proceeds after the bonds are issued. This does not mean that the Commission will automatically seek reimbursement, but it gives them that option if necessary.

- A carryover of funds for projects that had previously been allocated

funding, but had unexpended balances. All but nine projects (Grand Forks Rural Ring Dikes 1 and 2, Grand Forks/Drayton UNET, Nesson Valley Irrigation District, Elk/Charbon Irrigation District, Montana EIS for Cloud Seeding, Starkweather Coulee Analysis, Devils Lake/Twin Lakes Outlet, and a hydropower contract) received approval for carry-over to the 2003-2005 biennium.

- An award of contract for Southwest Pipeline Project, 2-5B Medora-Beach Phase, to Northern Improvement Company of Bismarck. The bid submitted by Northern Improvement was in the amount of \$4,189,999, which was \$96,593 lower than the next highest bid.

- A limitation of funding for rural flood control projects to \$250,000 per project for the 2003-2005 biennium.

- A request from the North Cass Water Resource District for cost-share in the amount of \$159,869 from funds appropriated during the 2001-2003 biennium, and \$104,010 from funds appropriated during the 2003-2005 biennium for Cass County Drain 13.

- Cost-share in the amount of \$56,199 for a Cass County Drain 23 improvement reconstruction project.

- Cost-share for Cass County Drain 40 in the amount of \$250,000 from funds appropriated to the Commission for the 2003-2005 biennium. Funding is contingent upon a positive assessment vote.

- A request from Richland County Water Resource District for cost-share in the amount of \$36,470 for Richland County Drain 39.

- Cost-share in the amount of \$500,000 for the construction of Square Butte Dam No. 6, which ultimately will create Harmon Lake Recreation Area nine miles north of Mandan on Highway 1806.

- Cost-share for Traill County Drain 59 in the amount of \$250,000. Funding is contingent upon the project receiving a positive assessment vote within six months.

- A cost-share request in the amount of \$35,559 for construction and reconstruction of Walsh County Drain 31.

- Cost-share in the amount of \$13,750 for Southeast Cass Water Resource District to complete a Sheyenne River snagging and clearing project.

- Cost-share in the amount of \$9,000 for the Red River Joint Water Resource District's Public Relations Coordinator for the period of July 1, through December 31, 2003.

- A Resolution of Appreciation to Garvin Muri, who retired from the Commission effective June 30, 2003. Garvin served the State of North Dakota as a Chemist for 36 years, during which time he conducted approximately 35,000 water samples to analyze the quality of North Dakota's waters.

- A Resolution of Appreciation to Mary Beth Osborn, who is transferring to the North Dakota Department of Health, effective July 1, 2003. Mary Beth served as a laboratory technician for the Commission for 21 years. ■



## Notice!

The Federal Emergency Management Agency is now offering Flood Insurance Rate Maps (FIRMS) online through their Map Service Center website. To access the FIRMS:

- Go to the FEMA homepage at <http://www.fema.gov>
- On the left-hand side, click on "FEMA Flood Map Store"
- Click on "Map Catalog"
- Click on "FEMA Issued Flood Maps" (select state, county, community and part of the community for which you are looking)
- Click on "Find FEMA Issued Flood Maps"
- Click on "View"

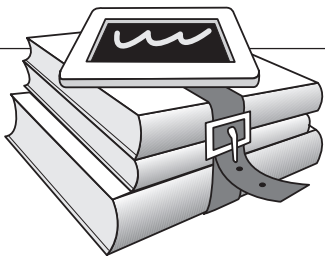
You also have the ability to make partial copies of FIRMS called FIRMettes.



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# THE WATER PRIMER

## Understanding Wetland Storage: Part II

By Michael Noone

### The Problem With Wetland Storage Studies

In this series, we have been examining the issue of wetland storage. There are many limitations to those studies that attempt to determine the amount of storage in a wetland. In the following article, we will examine the four greatest problems with studies that attempt to quantify wetland storage in the Devils Lake basin.

### Ground-Truthing

Many of the studies that have been conducted on wetland storage have been limited by the amount of ground-truthing. Simply put, ground-truthing is the surveying of random spots within a study area. This is done to collect information, and to compare and attempt to expand those observations to a much larger area. The accuracy of the final result is reliant on the amount and accuracy of ground-truthing that has been done. Some of the studies done in the Devils Lake basin did not have sufficient ground-truthing. This was often due to the cost and time-frame allowed, and as a result, the accuracy was impacted.

### Partially Drained Wetlands

Not all wetlands are completely drained. Partially drained wetlands represent a major complication in assessing the actual acreage and storage potential within the Devils Lake basin. Some studies consider partially drained wetlands as being completely drained. While doing this makes it easier to estimate wetland storage for the entire Devils Lake

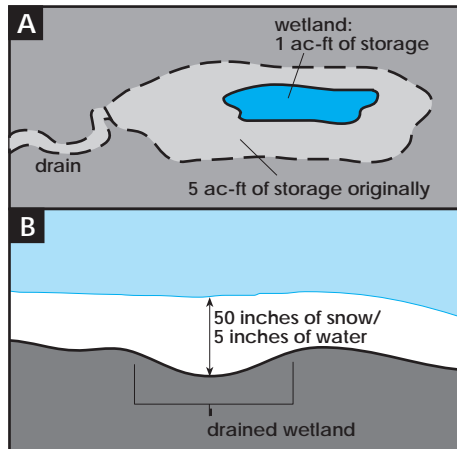


Figure A shows how a drained wetland can still have storage. Figure B demonstrates how only 5 inches of water can take up significantly more volume in a wetland.

basin, it is not representative of the wetlands' actual capacities. For example, a wetland that originally stored 5 acre-feet of water could be counted as completely drained in a study, and still store 1 acre-foot of water.

### The Timing And Quantity of Precipitation

Predicting wetland storage is complicated by the timing and quantity of precipitation. The majority of the precipitation (both snow and rain) that this region receives, occurs in the spring, although in the case of Devils Lake, heavy rains in the fall of 1996 and 1997 contributed to the greatest rises in lake elevation. The period of greatest precipitation also coincides with the melting of winter snowpack.

On average, ten inches of snow yields about one inch of liquid water. If a wetland is filled with snow, then the actual useable volume of the wetland is less than is indicated by

the actual water content of the snow filling it. Not considering these factors can lead to errors in predicting wetland storage.

### Predicting Depressional Water Consumption

Another difficulty in predicting wetland storage lies in accounting for the effects of water infiltration into the soil, evaporation, and transpiration (plants using water). Due to these factors, wetlands consume greater quantities of water over time than their actual volume would suggest. Some wetland storage studies use these three factors to estimate the amount of water that a depression could potentially store over an entire year, not just at one time. However, water infiltration into the soil, evaporation and transpiration occur at lower rates, if at all, when there is snow on the ground and the average temperature is below freezing. As a result, these three factors would have a greater effect in July, August, or September, than they would in March, and April. This is a limitation of studies that predict a constant level of water consumption for a wetland throughout an entire year.

In water resource management, making broad assumptions can lead to faulty conclusions. Each of the studies done to date is limited by the extremely complicated nature of wetland hydrology. In the next and final article, we will compare the depressional storage studies that have been completed in recent years, and examine what progress private citizens, state, and federal agencies have already made to restore wetlands in the Devils Lake basin. ■