

Grafton opts out of flood control project

By Pat Fridgen

At their May 28 meeting in Bismarck, the State Water Commission approved a \$4.8 million cost-share request from the City of Grafton. However, in a June 8 vote, Grafton residents overwhelmingly opted not to pursue the project, primarily because of concerns that it would be

too expensive for the community.

The \$4.8 million that was approved by the Commission was to cover 50 percent of the non-federal share of Grafton's \$32.7 million flood control project that the city had been considering for years. The project would have included a 41,600-foot long dike north of the

city; several road raises; a diversion channel, also north of the city; and various control structures.

It was estimated that the floodwaters associated with a 100-year event would increase by 0.3 feet upstream of the project, and as much as 0.5 feet near the control structure of the diversion. Thus, a portion of the state's cost-share was to be put toward ring dikes to protect the property and homes of 17 landowners that may have been adversely impacted by the project.

Currently, 90 percent of Grafton is located within the 100-year flood plain. And, Grafton is one of the biggest contributors to the National Flood Insurance Program in North Dakota, second only to Grand Forks.

Reconstruction begins on Mount Carmel Dam spillway

By Pat Fridgen

Following the failure of Mount Carmel Dam in the spring of 2003, it was determined that the dam's spillway structure would need to be completely reconstructed. That project began in late June by Industrial Builders Incorporated, of West Fargo, who was awarded the contract for the project in June, after submitting the low bid.

A month earlier the State Water Commission approved cost-share in the amount of \$2,499,300, for the Mount Carmel Dam reconstruction at their meeting in Bismarck.

According to State Water Commission engineers, it is expected that Industrial Builders Inc. will have the project "substantially completed" by the beginning of November. What that means, is that the project will be completed to a point that the dam will be operational and able to fulfill the purposes for which it was constructed by the November deadline. The reason that timeframe was put

in place, is to make sure the dam will be capable of dealing with next spring's runoff when it occurs.

Project components such as grass planting and miscellaneous earth-

work will likely have to wait until the following spring to be completed.

Mount Carmel Dam is located in Cavalier County, approximately 14 miles northeast of Langdon.



The downstream portion of the Mount Carmel Dam spillway that was washed out last spring. The new spillway will be constructed in the same location along the dam alignment.

A Not-So-Simple Solution

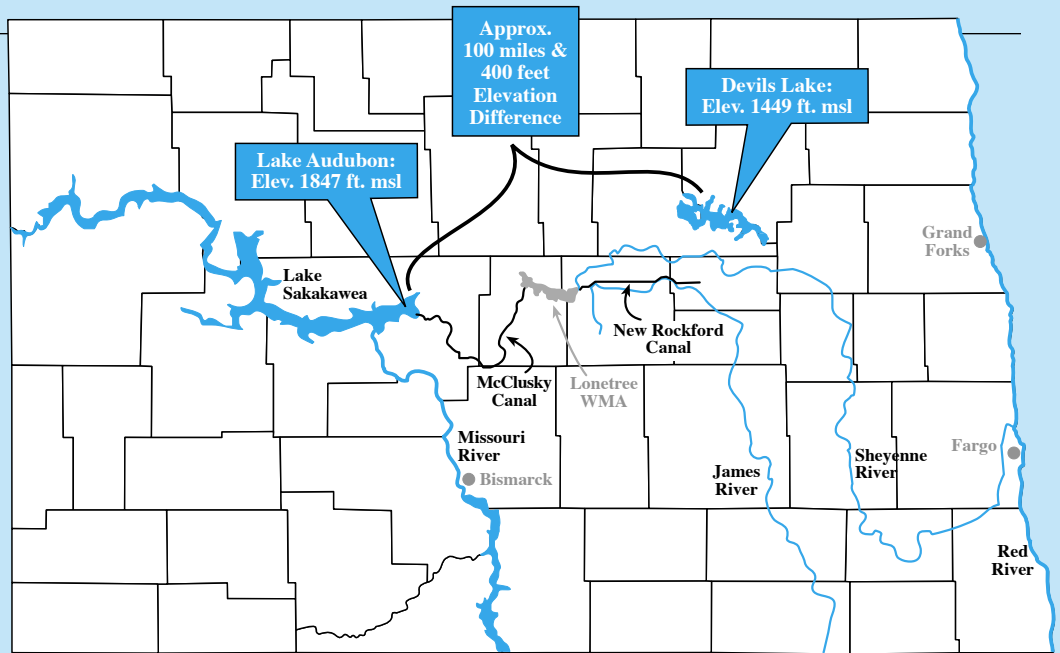
By Pat Fridgen

It's a common question that we hear at the State Water Commission and especially at public meetings on an increasing basis— "why can't you just transfer Devils Lake floodwater to the drought-stricken Missouri River system?" And actually, with Devils Lake at record high levels, and Lakes Sakakawea and Oahe at record low levels, the idea of transferring water from Devils Lake to the Missouri River system does seem to make a fair amount of sense at first glance. Consequently, we have considered that type of solution in the past, along with countless others to alleviate the flooding problems of the Devils Lake basin.

However, when we look at such an idea a little bit closer, it becomes quite apparent that an outlet from Devils Lake to the Missouri River system is not feasible to pursue for a number of reasons – even if we consider using the existing Garrison Diversion works.

- Geographically speaking, Devils Lake and Lake Audubon are about 100 miles apart, and there is about 400 feet of elevation difference between the two water bodies. Thus, the development of such a project would be incredibly expensive. (Consider the fact that the state's emergency Devils Lake outlet to the Sheyenne will cost about \$28 million to transfer water 14 miles.) In addition, operation and maintenance costs would be quite high.

- Use of the existing Garrison Diversion facilities would require extensive reconstruction, as the slope of the McClusky and New Rockford canals is west to east – not east to



west. In addition, there is still 20 miles between the two canals that would have to be connected – likely with pumps and pipeline in an effort to avoid environmental problems.

- It is very likely that Canada and Minnesota would object to such a project, as a Devils Lake to the Missouri River system diversion would cross the continental divide. Manitoba has already filed a lawsuit against the NAWIS project that diverts treated water from Lake Sakakawea to Minot. Thus, they would certainly object to diverting untreated Devils Lake water through the Sheyenne River basin and into the Missouri River basin.

- Generally speaking, environmental concerns, and land acquisition difficulties alone would be extremely difficult and time consuming to overcome.

- Such a project would be ineffective in significantly helping the

Missouri system. For example, if we were to have operated a 100 cubic feet per second outlet all of May 2004, we would have removed about 6,138 acre-feet of water from Devils Lake. Last May (2003) alone, evaporation from Lake Sakakawea was 28,000 acre-feet (or about 4.5 times what a Devils Lake outlet could contribute).

- Even a 300 cubic feet per second outlet would have little impact on the Missouri River. Throughout most of the summer, 18,000 cubic feet per second are released from Garrison Dam, and 30,000 cubic feet per second from Gavins Point Dam in South Dakota.

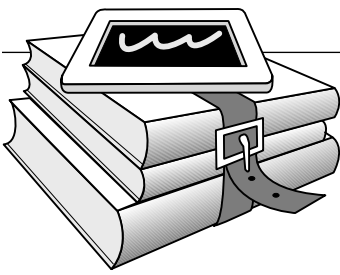
Again, this is a common question that we have heard frequently here at the State Water Commission. But as the above information suggests, the many problems associated with such a project make it prohibitive to pursue.



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THE WATER PRIMER

Devils Lake: Connections to the Red River

By Michael Noone

A common belief held by many people in North Dakota and surrounding states and provinces is that the waters of the Devils Lake basin have not been connected to the Red River for a very long time. This belief has led many to assume that a lack of a connection means that there is aquatic life in Devils Lake that is not in the Red River.

While understandable, this belief is inaccurate.

Devils Lake, at the southern portion of the Devils Lake basin, has not overflowed via Stump Lake and the Tolna Coulee, into the Sheyenne River for several thousand years, a fact well documented by the U.S. Geological Survey.

However, geological connections such as these are not the only way that water moves between the Devils Lake and Red River basins— a fact that will be explored in this article.

To understand why there are connections between the two basins, it is important to first understand something of the geology of the basin. The Devils Lake basin was formed during the last ice age, about 10,000 years ago. While this may seem to be a long time, geologically this is only the blink of an eye. Because the geology in the basin is so “young,” forces that affect land over time, such as erosion, sedimentation, and rainfall, have not had very long to work their changes on the land.

Because of the lack of time for forces such as erosion, many places in the Devils Lake basin are very level. These level areas cause water to pool,

and sometimes flow one way or the other, depending on conditions such as rainfall or snow amounts, vegetation, and wind.

Anecdotal and well-documented surface water connections at four specific locations between the Devils Lake basin and the Red River basin occur through poorly defined drainages such as this, including; Rock Lake, McHugh Slough, Black Slough, and Billings Lake.

The most thoroughly documented connection occurs north of Billings Lake, near the town of Nekoma in the southern portion of Cavalier County. Billings Lake feeds into the Edmore Coulee, and eventually into Devils Lake.

However, on three separate occasions in 1997, 2003, and 2004, water was documented to have been flowing over the divide, between the Devils Lake basin and the Pembina River basin. In 2003, water was flowing for about a month, after a relatively dry winter in the basin. In 2004, water flowed also for a month, and the Water Commission estimated

water flow to be approximately 15 cubic-feet-per-second, or 15 percent of the maximum discharge of the state’s emergency outlet.

From data gathered in this area, it appears that under somewhat wet conditions, water is pooled in a wetland complex in this very flat area, which then flows south into Billings Lake, and also north, across the basin divide into Rush Lake, then Snowflake Creek, the Pembina River, the Red River, Lake Winnipeg, and eventually into Hudson Bay.

The significance of this connection and others like it is that it contradicts the belief that Devils Lake has been isolated from the Red River basin for thousands of years. As a result, any fish, plant, aquatic insect, or pathogen found in the Devils Lake basin, would have had ample opportunity to move across the divide into the Red River, and vice-versa. In fact, the ND Game and Fish Department is monitoring areas such as Rock Lake, to ensure that carp do not make their way *into* Devils Lake from the Red River.

As you can see, instead of Devils Lake having been isolated from the Red River for 2,000 years, it has been routinely connected to the Red River repeatedly—even in recent years. The Devils Lake outlet being built by the Water Commission is just one more connection, not the first of its kind.

