



Missouri River system intakes in jeopardy

By Patrick Fridgen

With several communities drawing water from the Missouri River system, record low water levels are beginning to gain even further attention, especially in light of the U.S. Army Corps' most recent water level and runoff forecasts. Intakes of particular interest along Lake Sakakawea include the cities of Mandaree, Twin Buttes, White Shield, Parshall, Pick City, and Garrison, as well as the Four Bears Casino. On Lake Oahe, the Fort Yates and Wakpala (South Dakota) intakes are also in potential jeopardy.

To illustrate this situation, the following charts show the potential lake elevations for Lakes Sakakawea and Oahe through February 2006, and the elevations of the intake screens for the communities mentioned above.

What is somewhat misleading and further complicates this problem is the fact that even though an intake screen is still below water, it does not necessarily mean they will not incur problems. As lake elevations drop, leaving a smaller amount of water above the intake screens, they are then faced with potential damages from ice, or they become more susceptible to decreasing water quality from wave action and siltation.

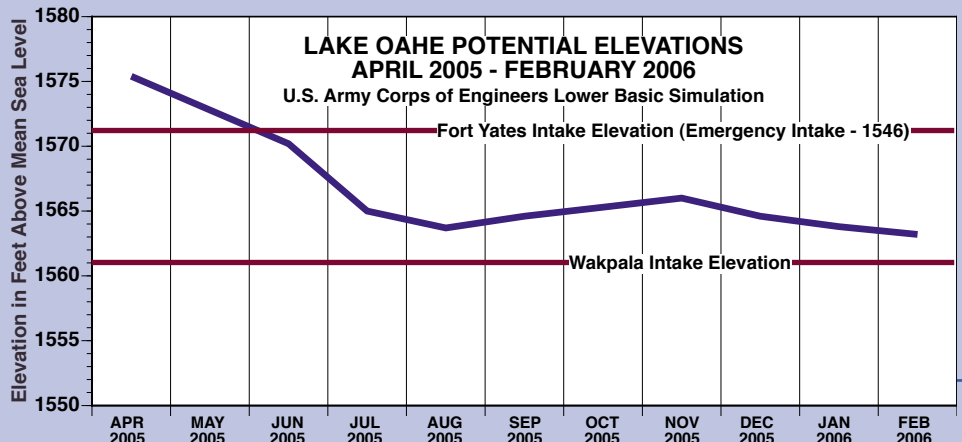
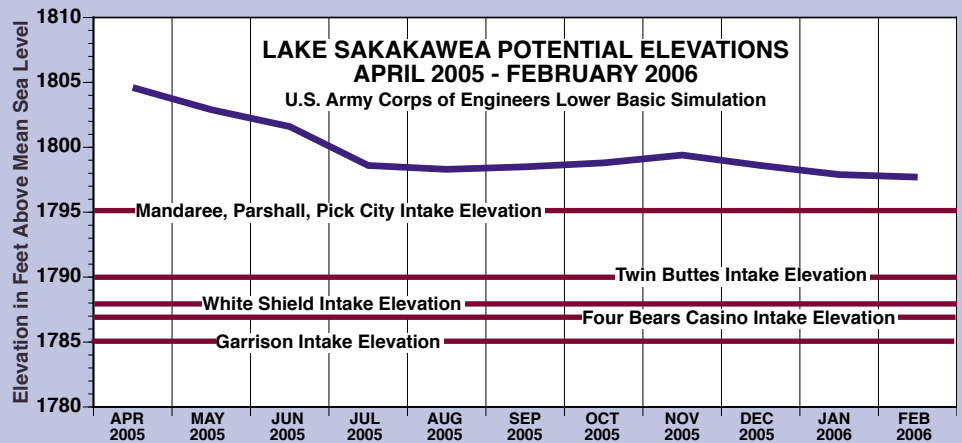
Another complication to consider is the elevation of a system's pump. In cases where a wet-well and submersible pump are in place, it is possible that the pumps may be left high and dry as the lake retreats.

In response, plans are under consideration for the at-risk intakes to avoid future problems. On Sakakawea, the most likely option is to simply extend the intakes to deeper water or lower intake pumps as needed. In Parshall, they are also considering the option of building a reverse osmosis treatment plant, but that alternative is still being reviewed.

On Lake Oahe, the situation is slightly more complicated. With the lake virtually gone and only river channel remaining, Fort Yates is faced with the changing nature of a river intake. If the channel moves further east, it will leave their intake behind. Fort Yates does have the

ability to draw directly from the river (up to 25 feet below their current intake) if they lose their permanent intake, but that is only if the river channel stays in place. At Wakpala, if Corps' projections are accurate, they will be left with only two feet of water over their intake by next winter. At the time this article was developed, their only viable options are to either truck water in, or move the intake to a more suitable location two miles away. Either of these alternatives will be incredibly expensive.

As such, another obstacle for these communities to overcome is funding for contingency measures. With federal funding only trickling in from the Dakota Water Resources Act, communities are being forced to seek other sources on their own. As a result, the Three Affiliated Tribes, the Standing Rock Sioux Tribe, the Water Commission, and each of the communities, are working with the federal government to secure U.S. Dept. of Agriculture grants to reduce local costs of these emergency projects. If funding can be secured, work on the intakes will begin as soon as possible after ice-out.





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Discover the current flooding dilemma facing the Devils Lake watershed.

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Where: Lake Region State College (sleeping) and Grahams Island State Park (classroom), Devils Lake, North Dakota

When: June 12-16, 2005

Cost: There is a \$150 charge for 3 graduate credits; and \$225 for regis-

tration, room, board, instruction and materials (the \$225 fee must be paid with the registration form)

Funding: The \$225 charge may be reimbursed to educators through local county water resource districts or local county soil conservation districts after institute completion. Local school NCLB Title II funds may also be used to reimburse educators.

To Apply: The institute is limited to 30 participants. Registrations must be sent no later than May 20, 2005.

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Kit Manual; the Lewis and Clark Educator's Resource Guide; the Pond Life Guide; Community Water Action Guides; Missouri River water resource reference materials; a Missouri River watershed map; and an institute t-shirt and carrying bag.

Where: Williston State College, Williston, North Dakota

When: July 24-28, 2005

Cost: There is a \$150 charge for 3 graduate credits; and \$225 for registration, room, board, instruction and materials (the \$225 fee must be paid with the registration form).

Funding: The \$225 charge may be reimbursed to educators through local county water resource districts or local county soil conservation districts after institute completion. Local school NCLB Title II funds may also be used to reimburse educators.

To Apply: The institute is limited to 30 participants. Registrations must be sent no later than July 1, 2005.

For additional information regarding either of the institutes, please contact your local Teacher Center or Bill Sharff, North Dakota Project WET Director, at 701-328-4833 or e-mail: bsharff@state.nd.us.



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 their March 10 meeting in Bismarck.

In action items, the Commission:

- Approved cost-share in the amount of \$24,000 for repairs and modifications to Crown Butte Dam.

- Conditionally approved a cost-share request in the amount of \$250,000 for a Steele-Trail Drain #2 construction project.

- Approved a cost-share request from the Maple River Water Resource District in the amount of \$19,600 for the District's Swan Creek Tributary Channel Improvement Project.

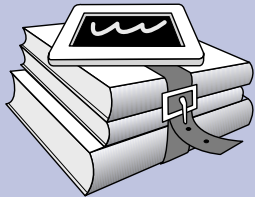
- Approved a cost-share request in the amount of \$500,000 for the City of Fargo's preliminary engineering efforts associated with their Southside Flood Control Project.

- Approved reimbursement of \$31,753 from the REM Fund to the Southwest Water Authority for the replacement of blowoff valves.

- Authorized the State Engineer to award the telemetry contract for the Devils Lake Emergency Outlet Project to the lowest responsible bidder.

- Approved a grant for Stutsman Rural Water in the amount of \$83,500 from the Water Development and Research Fund.

- Recommended that the Drought Disaster Livestock Water Supply Project Assistance Program continue to reimburse producers until the remaining funds are expended, and then end at that time. With the Governor's recent drought declaration covering much of the Missouri basin, it is possible that additional funding may be made available to reinstate the program in the future.



THE WATER PRIMER

Stump Lake Flooding: Living Downstream of Devils Lake

By Michael Noone

Over the last decade, much has been said and written on the subject of flooding around Devils Lake. In 2004, Devils Lake reached a historical record high elevation of 1,449.1 feet above mean sea level (amsl). While this new high level was terrible and it triggered the spending of many more millions of dollars in road and levy raises, the problem could have been even worse.

In August of 2001, Devils Lake reached an elevation sufficient to allow water to flow naturally from the eastern side of Devils Lake, through the Jerusalem Channel, and then into Stump Lake. In 2001, the divide between the two lakes sat at approximately 1,446.5 feet amsl. But by the summer of 2004, flows as high as 250 cubic feet per second (cfs) had eroded the divide down to below 1,446.1 feet amsl. Flows have continued throughout the winter of 2004-2005 due to the increased depth of water in the Jerusalem Channel.

While those flows of up to 250 cfs have benefited Devils Lake, all of that additional water has had a significant impact on Stump Lake,

increasing the volume by approximately 95,000 acre-feet in this year alone. In effect, the Jerusalem Channel has been acting as a natural outlet to Devils Lake for the last four years.

Stump Lake, which lies in the



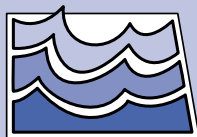
elevation of 1,444.9 feet amsl.

While the flooding around Stump Lake has not reached the same magnitude of crisis that it has on Devils Lake, the problem is becoming significant. Five farmsteads, with an estimated replacement value of approximately \$1.2 million, according to Nelson County Water Board member Ben Varnson, will be partially submerged, or made inaccessible between a lake elevation of 1,437 and 1,444 feet amsl. Similar to the City of Devils Lake, the City of Lakota gets its water supply from water lines that are under eastern Stump Lake. It is estimated that the cost to remedy this problem could

range from \$350,000 to \$1.1 million. Another problem associated with the rising waters of Stump Lake is the flooding of roads. Varnson further found that the estimated total cost of either raising or moving inundated roads could range as high as \$15 million. In anticipation of funds possibly being made available for emergency rerouting, local road and county officials are developing alternate routes that may cost up to \$4.4 million.

Clearly, the flooding problems around Stump Lake are significant, and will get even worse in the coming years. It will fall upon Nelson County, and appropriate state and federal agencies to ensure that damages from the rising waters are minimized as much as possible.

And it will get worse. If all of the water in Devils Lake today above the elevation of the Jerusalem Channel divide were to flow into Stump Lake, it would fill Stump Lake to an



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