

# The Oxbow

FROM THE NORTH DAKOTA STATE WATER COMMISSION

## More Help on the Way for Devils Lake

By Patrick Fridgen

On Dec. 8, during his Executive Budget address for the 2011-2013 biennium, Governor Jack Dalrymple reaffirmed the state's commitment to helping the people of the Devils Lake region with their ongoing flood-fight.

Governor Dalrymple singled out the Devils Lake region by saying, "We propose to commit up to \$120

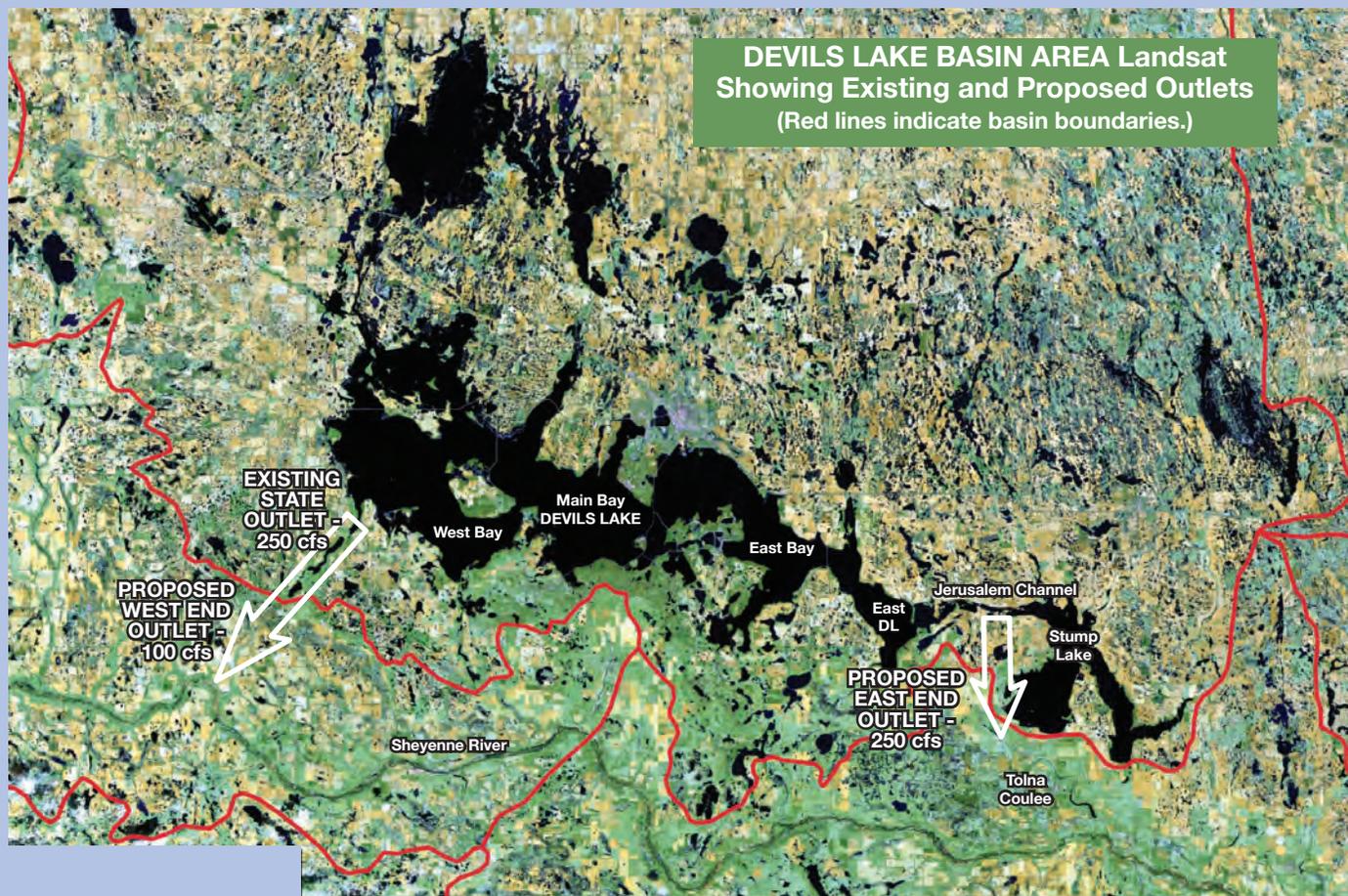
million from the Resources Trust Fund for a major expansion of our flood protection efforts around Devils Lake. This funding will be used to construct a second outlet on the east end of Devils Lake, expand the existing outlet on the west end of the lake, and build a control structure on Tolna Coulee, the most likely site of an uncontrollable release."

Of that \$120 million, approximately \$100 million will be set aside

for east and west end outlet options, and the remaining \$20 million is to mitigate downstream impacts.

Leading up to the Governor's budget address, the State Water Commission had been looking at two different options for additional outlet capacity from Devils Lake. The first is an additional 100 cubic feet per second (cfs) outlet on the west end of the lake, which would likely parallel (via pipeline) the state's existing 250 cfs outlet – bringing the total west end area outlet capacity to 350 cfs.

The second option is a 250 cfs east end outlet option that would take water out of East Devils Lake – likely near the Jerusalem Channel – likely near the Jerusalem Channel. The water would then travel via channel (circumventing Stump Lake because of water quality issues), and meet up with the Tolna Coulee, and ultimately empty into the Sheyenne River (see map).



At the time this article was written, the Water Commission was in the process of hiring an engineering firm to handle the design of an east end outlet. The design work for the west end project will be handled by Bartlett and West Engineers under

their current contract with the state for the existing west end outlet.

With the state's current 250 cfs west end outlet, the proposed additional 100 cfs west end outlet, and the proposed 250 cfs east end outlet,

it is possible that the state could be releasing up to 600 cfs via outlets from the lake in the coming years.

In consideration of the effectiveness of these additional flood control options, the Water Commission has been working with the U.S. Geological Survey to identify how the various options might influence the probability of the lake overflowing naturally to the Sheyenne River. A natural overflow being something the state has been trying to curtail – thus avoiding substantial downstream water quality problems and devastating flood damages. The adjacent table outlines the percent chance of Devils Lake exceeding its spill elevation by year with various flood control options in place (including what could be expected with no outlets in place).

### PERCENT CHANCE OF DEVILS LAKE EXCEEDING ITS SPILL ELEVATION BY YEAR

	2013	2015	2020	2030
No Outlets	7.9	11.6	17.0	20.5
Existing 250 cfs Outlet	5.2	7.0	8.8	9.9
Existing 250 cfs Outlet + 100 cfs West End	4.7	6.2	7.5	8.2
Existing 250 cfs Outlet + 250 cfs East End	4.4	5.5	6.4	7.0
Existing 250 cfs Outlet + 250 cfs East End + 100 cfs West End	4.1	5.1	5.9	6.4

COURTESY: U.S. GEOLOGICAL SURVEY

### SUMMARY OF DEVILS LAKE OUTLET OPERATION 2010 OPERATING SEASON

MONTH	DAYS OF RELEASE	AVERAGE DAILY DISCHARGE (cfs)	VOLUME (ac-ft)
MAY*	6	12	148
JUNE**	28	97	5,414
JULY	31	207	12,728
AUGUST	31	223	13,711
SEPTEMBER	30	222	13,239
OCTOBER	31	197	12,019
NOVEMBER	13	250	5,709
<b>TOTAL</b>	<b>170</b>	<b>187</b>	<b>62,968</b>

\* Construction of upgrade ongoing - use of existing pumps only.

\*\* Pumping to 250 cfs possible on June 26 - as construction was completed.

### Existing Outlet Update: 2010 Operation Summary

At the beginning of the 2010 operating season, which began on May 21, the state's outlet had a maximum operating capacity of 100 cfs. However, a 150 cfs expansion project was completed in June, bringing the total operating capacity up to 250 cfs.

Over the course of this year's operating season (May 21 to Nov. 13), the state's outlet operated a total of 170 days, with a daily release average of 187 cfs, and a total volume removed of just under 63,000 acre-feet.

Using the average surface area of Devils Lake and Stump Lake from May through November of 177,000 acres, it is estimated that the volume of water removed corresponds to about 4.3 inches off the lake.

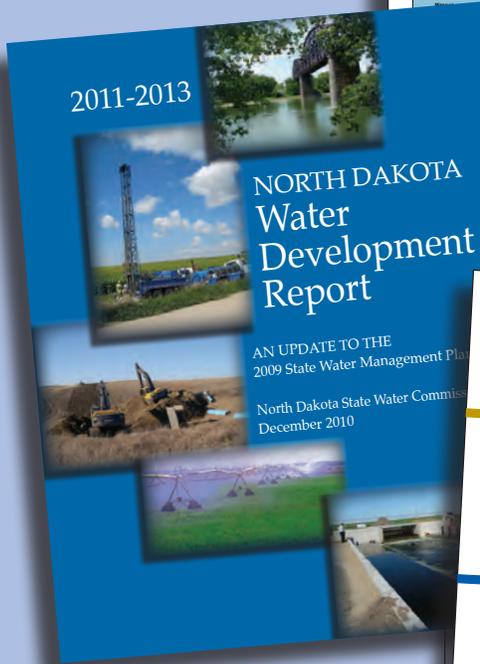
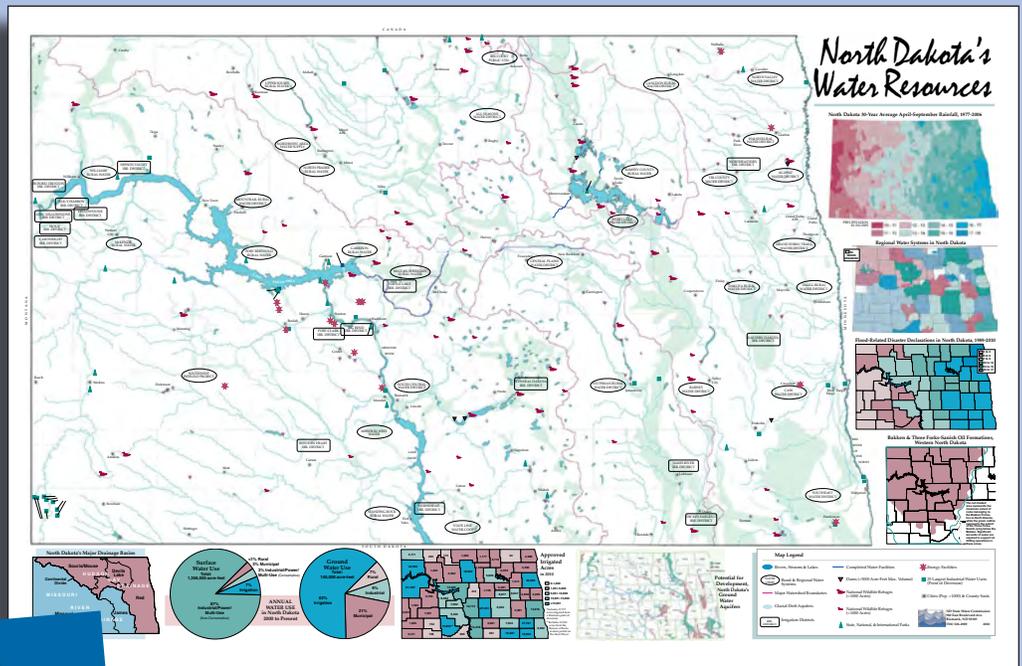
The adjacent table outlines the 2010 outlet operating season – including days of releases, average daily discharge (in cfs), and the volume removed – by month.

# New Publications Available From State Water Commission

The following new North Dakota State Water Commission publications are available for download at [www.swc.nd.gov](http://www.swc.nd.gov). Paper copies may be requested by calling the Planning and Education Division at 701-328-4989, or e-mail [dapetersen@nd.gov](mailto:dapetersen@nd.gov).

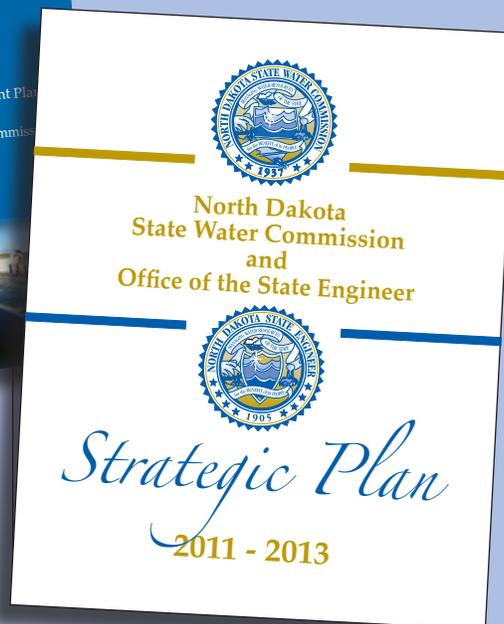
## North Dakota's Water Resources Map

This map highlights the geography of North Dakota's waters and several water development efforts. It is 22 x 34 inches, and is available folded or unfolded.



## 2011-2013 Water Development Report

The State Water Commission published a 2011-2013 Water Development Report to serve as an update and supplement to the 2009 State Water Management Plan. The 2011 report provides up-to-date information regarding North Dakota's current and future water development project needs, and outlines the state's ability to fund those efforts.



## 2011-2013 State Water Commission and State Engineer Strategic Plan

The Strategic Plan contains descriptions and overviews of the agency's major projects and programs, and anticipated progress on those efforts through 2013.



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