May 2016

DEVILS LAKE

Fact Sheet

LOCATION OF THE DEVILS LAKE BASIN WITHIN THE RED RIVER BASIN

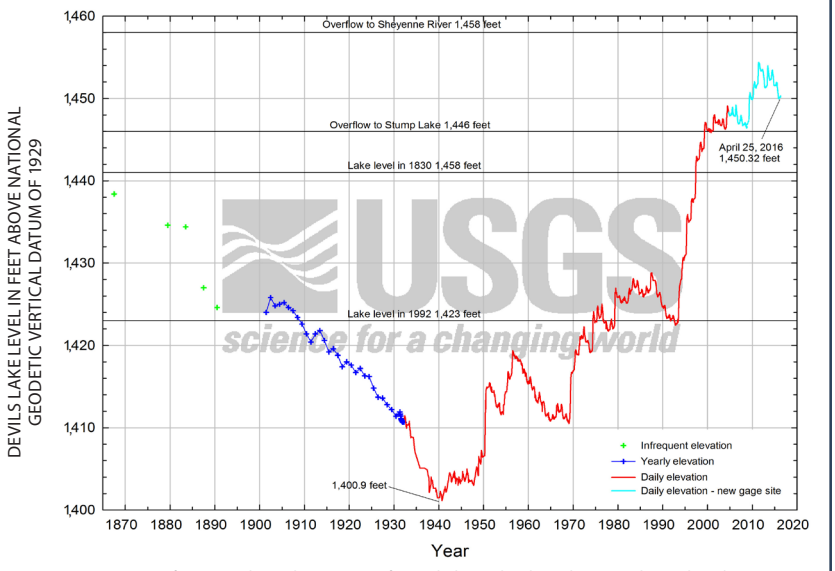
The Devils Lake basin is a 3,810 square-mile sub-basin of the Red River of the North. At current water levels, the lake itself has no natural outlet.

On June 27, 2011, Devils Lake crept to a new record level of 1454.3 feet (above mean sea level), surpassing the previous record of 1452.05 feet, set on June 27, 2010.

Devils Lake naturally spills into Stump Lake at 1,446.5 feet. Since water began trickling into Stump Lake from Devils Lake in 1999, Stump Lake has now been filled and has become part of Devils Lake – rising over 46 feet in the process.

From its lowest 1993 elevation of 1422.62 feet to its June 2011 record elevation of 1454.3 feet, Devils Lake rose 31.68 feet.

WATER SURFACE ELEVATION, DEVILS LAKE, NORTH DAKOTA



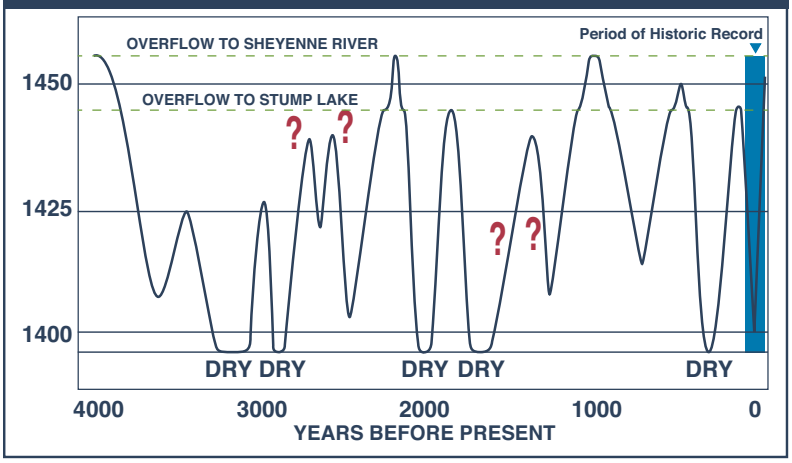
*Surface areas above elevation 1446 feet include Devils Lake and Stump Lake combined.

Devils Lake naturally overflows into the Sheyenne River at 1458.0 feet. The Sheyenne River is a tributary of the Red River of the North, which flows into Canada.

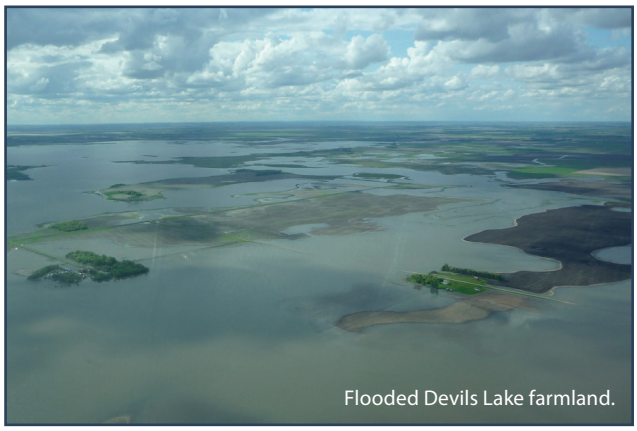
Since glaciation, Devils Lake has been fluctuating from overflowing to dry. This variability is the normal condition of the lake – reflecting climate changes.

A natural surface water connection from the northeast edge of the Devils Lake basin boundary to the Red River basin has been documented during several years since 1997. This is significant because it has provided a natural route for biota exchange between Devils Lake and the rest of the Hudson Bay watershed.

DEVILS LAKE SPILL LEVEL CHART



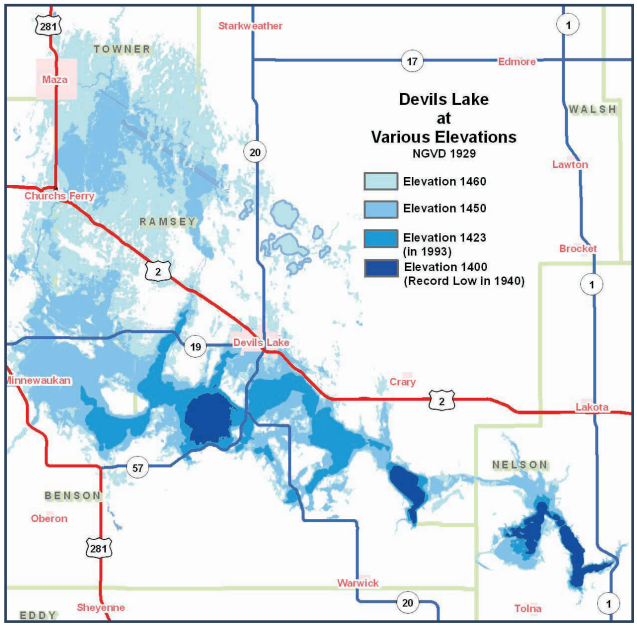
In March 1993, Devils Lake had a surface area of 44,230 acres. At its June 2011 record elevation, Devils Lake covered about 211,300 acres – an increase of 167,070 inundated acres, or about 261 square miles. During that same time period, the volume of water in Devils Lake had grown by more than seven times.



Flooded Devils Lake farmland.

Devils Lake has reached its spill elevation of 1,458.0 feet and overflowed into the Sheyenne and Red Rivers at least twice during the past 4,000 years. The last Devils Lake spill into the Sheyenne River occurred less than 2,000 years ago.

At its spill elevation, Devils Lake will cover more than 261,000 acres.



The State of North Dakota completed construction of an outlet from the west end of Devils Lake to the Sheyenne River in the summer of 2005. *Outlet-related information can be referenced from the Devils Lake section of the State Water Commission website at www.swc.nd.gov (click on Basins).*

The original west-end outlet pumps were designed for a maximum operating capacity of 100 cubic feet per second (cfs). Modifications constructed in early 2010 increased that capacity to 250 cfs.

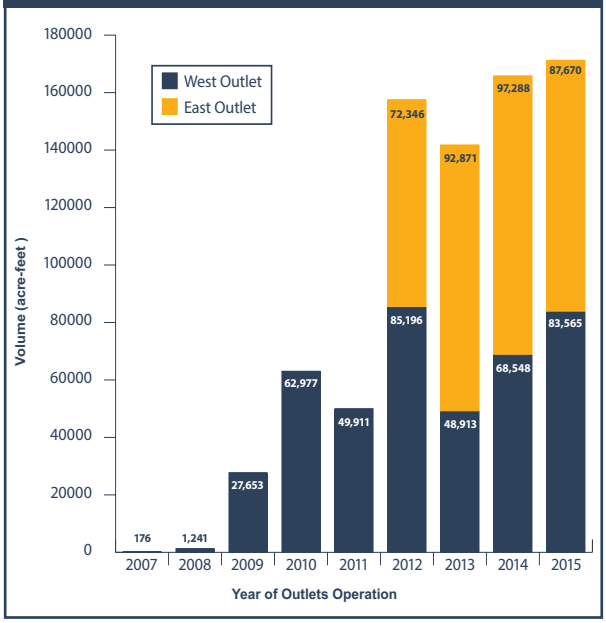
The West Devils Lake Outlet.

The East Devils Lake Outlet intake structure.

Water flows over the East Devils Lake Outlet terminal structure.

During the summer of 2012, the state also completed an outlet from East Devils Lake. This outlet has a maximum operating capacity of 350 cfs.

OUTLET DISCHARGES FROM 2007-2015



The combined operating capacity of the West and East Devils Lake Outlets is 600 cfs.

In 2014, after many years of construction, the levee protecting the City of Devils Lake was completed, protecting the city from future lake level rises.

In addition to the outlets, the Corps of Engineers constructed a control structure at Tolna Coulee as an added level of protection from a natural uncontrolled overflow. The control structure was completed and ready for operation in May 2012.

The control structure allows natural erosion of the divide between Stump Lake and Tolna Coulee, while protecting downstream areas from an uncontrolled release of Devils Lake floodwater.

The control structure is owned and operated by the North Dakota State Water Commission.

The city of Minnewaukan continues to be threatened by Devils Lake. A temporary levee has been constructed by the Corps of Engineers to protect it from encroaching floodwaters.

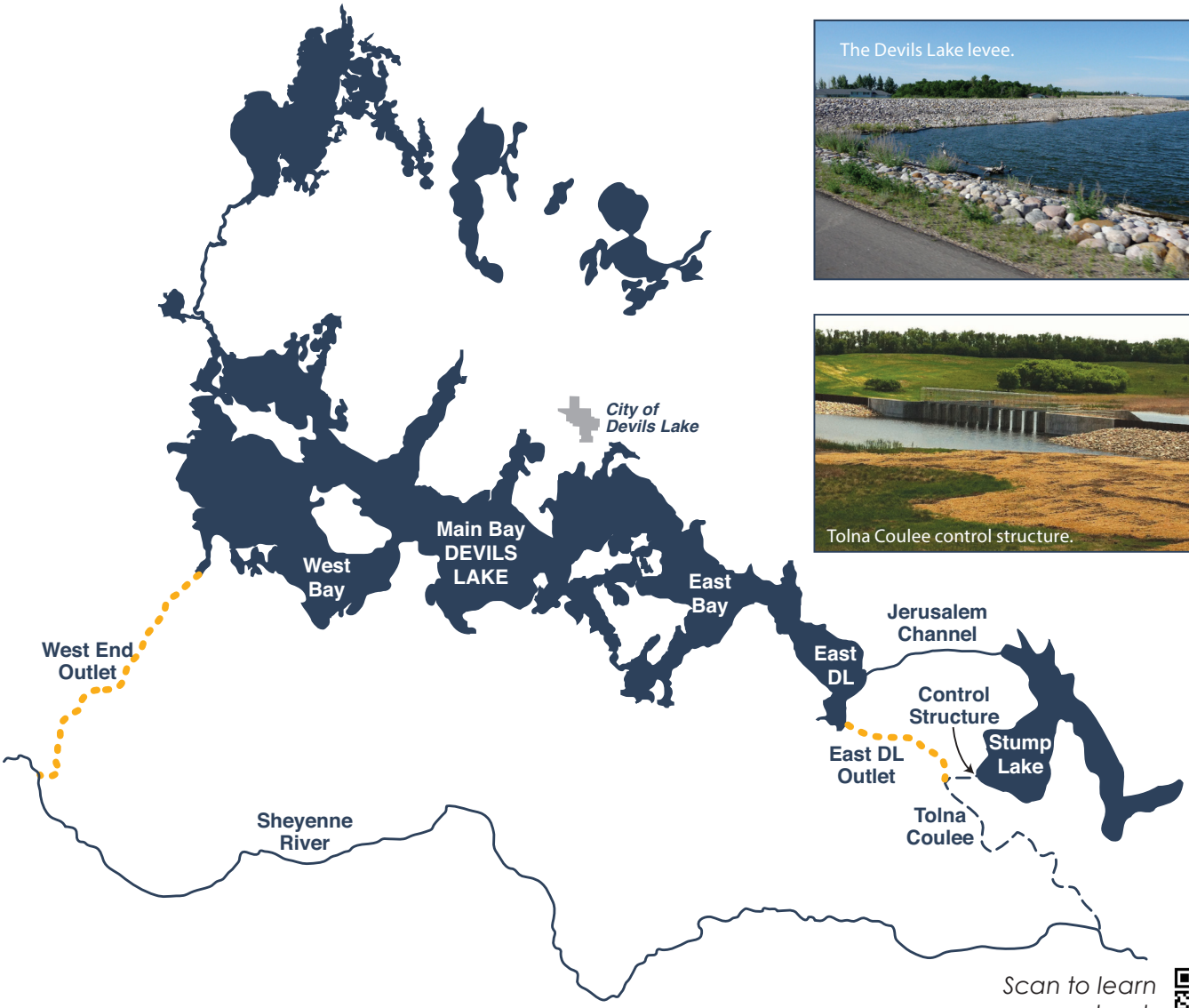
A partial relocation of Minnewaukan is underway.

ND State Water Commission
900 East Boulevard Ave
Bismarck, ND 58505-0850
(701) 328-2750

The city of Minnewaukan.

The Devils Lake levee.

Tolna Coulee control structure.



Scan to learn more about Devils Lake

This fact sheet & other Devils Lake information is available on the State Water Commission website at www.swc.nd.gov.