

The Oxbow

FROM THE NORTH DAKOTA STATE WATER COMMISSION

Lakes Sakakawea and Oahe Are Back!

By Patrick Fridgen

It wasn't long ago that water levels on Lakes Sakakawea and Oahe were looking pretty dire. Years of prolonged drought had taken their toll on North Dakota's biggest reservoirs, and as a result, boat ramps were left high and dry, and the health of the fisheries was steadily declining.

By May 2005, Lake Sakakawea had fallen to an all time low when it hit an elevation of 1,805.8 feet above mean sea level (msl). During that same time, Lake Oahe was also declining, but it didn't reach its record low elevation until August 2006, when it bottomed out at 1,570.2 feet msl.

Fast forward a couple years, and today, both Lakes Sakakawea and Oahe are nearly full - thanks to a wet early summer in 2008, and the spring runoff of 2009.

As of the first part of Dec. 2009, Lake Sakakawea was at an elevation of 1,841.5 feet msl. That's almost 36 feet higher than the record low set in 2005. In comparison, Lake Oahe was at an elevation of 1,608.2 feet msl during the first part of Dec. 2009. That's an increase of 38 feet since its record low was set in the summer of 2006.

The start of the refilling process for both reservoirs got a major boost from extensive rainfall during the early summer months of 2008. In just two months time, from the end of May to the end of July 2008, Lakes Sakakawea and Oahe jumped 15.4

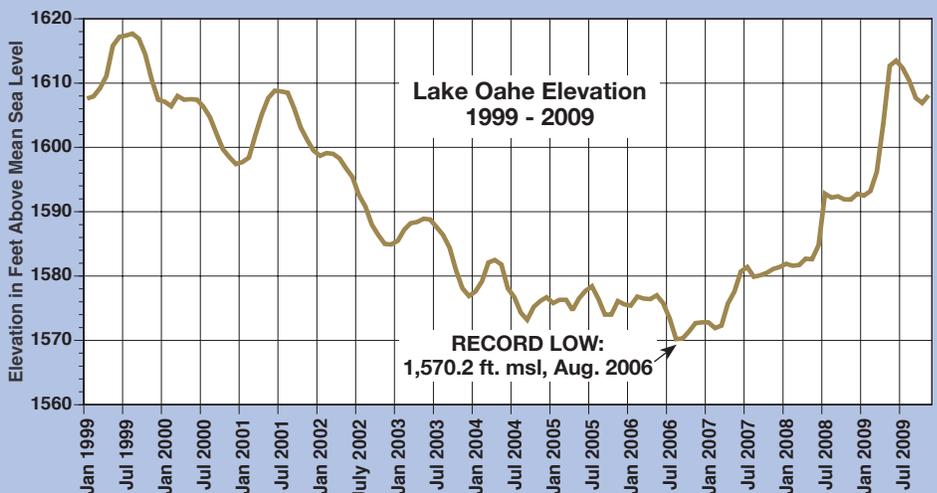
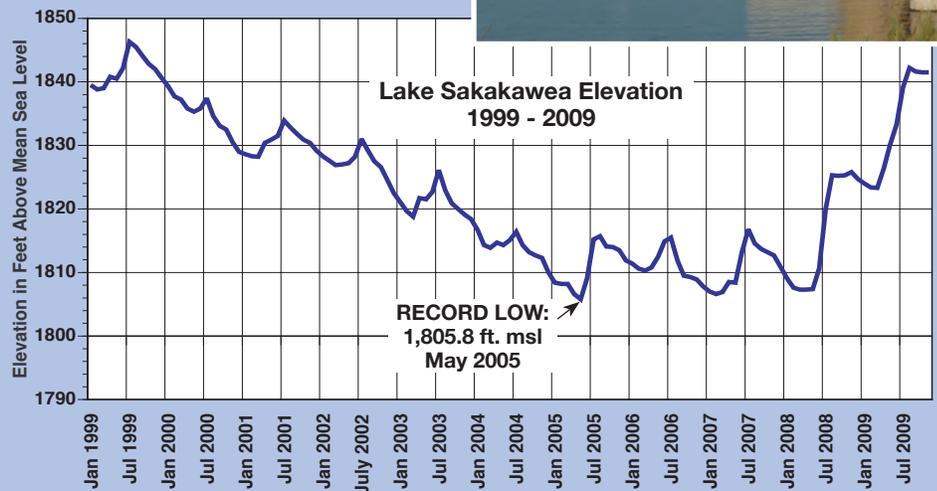
and 9.2 feet, respectively.

During the spring of 2009, floods ravaged almost every corner of North Dakota. However, one of the few bright spots associated with all of that runoff was the help it brought to Sakakawea and Oahe.

During the 2009 spring runoff and filling period on Lake Sakakawea, which ran roughly from the end of

March to the end of July, Sakakawea went up about 16 feet. Lake Oahe, which starts to fill from spring runoff a little earlier, rose just over 17 feet from the end of February to the end of June 2009.

Though the future for North Dakota's Missouri River reservoirs is unknown, it's certainly nice to look at them today and see a big expanse of water, (or ice as the case may be), rather than the tumbleweed covered dust flats of not that long ago.



SWC Approves Cost-Share for Clausen Springs Dam

By Patrick Fridgen

At their Dec. 11 meeting in Bismarck, the North Dakota State Water Commission approved a \$1.3 million cost-share request from the Barnes County Water Resource District (WRD) to assist with repairs at Clausen Springs Dam.

During the spring flooding events of 2009, Clausen Springs Dam was damaged after it filled to capacity and began spilling water out of its earthen emergency spillway. The excessive amount of floodwater flowing out of the spillway started to cause severe

erosion, and emergency measures had to be taken to save the dam from a potential breach (see photos). With the town of Kathryn just downstream, all 55 of its residents had to be evacuated as a precautionary measure.

Following inspections weeks later, it was determined that in order for Clausen Springs Dam to meet North Dakota's dam safety standards, it would have to undergo permanent repairs and modifications to remain in operation. If not, the dam would have to be removed.

Local residents did not want to see the reservoir drawn down and the dam removed because of the recreational opportunities it provides in the area. For that reason, a decision was made to look at repair alternatives that could keep the dam in place.

In response, a study was completed in the summer of 2009 that looked at the watershed above Clausen Springs Dam, and also at the dam's ability to pass various runoff events. The conclusion of that study was that the dam does not meet minimum criteria for passing a 100-year snowmelt without the addition of a structural spillway. In addition, it was determined that the dam could not contain a probable maximum precipitation flood event without floodwater overtopping the embankment.

As a result of these findings, the Barnes County WRD decided to move forward with the design and construction of a new structural emergency spillway.

The estimated cost of preliminary engineering on the project is \$100,000; while the estimated cost of construction work to build the structural emergency spillway is \$2.5 million. With anticipated 20 percent engineering costs, the total cost of the spillway repair is estimated at \$3 million.

The Barnes County WRD, as the local project sponsor, will be responsible for \$700,000 of the project costs. They have \$200,000 committed from the Barnes County Commission and have requested \$500,000 from the Red River Joint WRD to fund the remainder of the local share.

In addition to the State Water Commission's \$1.3 million, the Game and Fish Department will provide another \$1 million from the state for the new spillway.

A National Guard helicopter dropped half-ton sandbags to help reinforce the earthen spillway at Clausen Springs Dam (April 2009). ▶



Concrete rip-rap was also placed to slow erosion of the earthen spillway (April 2009). ▼



2009 Aerial Photos Available

The 2009 National Agricultural Imagery Program (NAIP) aerial photos are now available to the general public through North Dakota's Geographic Information Systems website at <http://www.nd.gov/gis>, or through the Water Commission's MapService, at <http://mapservice.swc.state.nd.us>.

According to the U.S. Department of Agriculture's Farm Service Agency, the NAIP acquires aerial imagery during the agricultural growing seasons in the continental United States. And, a primary goal of the NAIP is to make digital ortho photography available to governmental agencies and the public within a year of acquisition.

NAIP pilot projects were started in 2001, and the program has continued to expand ever since. After an initial five-year cycle that began in 2003, 2008 marked a transition and a new three-year cycle began in 2009.

NAIP is administered by the USDA's Farm Service Agency through the Aerial Photography Field Office in Salt Lake City.



The above 2009 NAIP aerial photo is of North Dakota's new Harmon Lake Recreation Area, located on Otter Creek, eight miles north of Mandan on Highway 1806.

2009 Devils L. Outlet Operations Summary

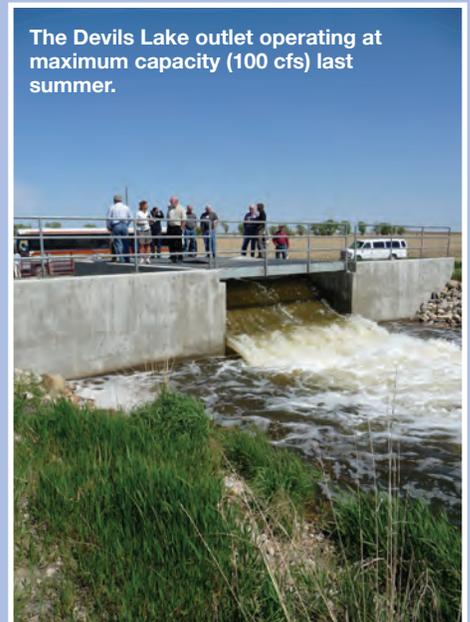
During the 2009 operating season, the Devils Lake outlet ran for 166 days, from May to November. In total, 27,653 acre-feet of floodwater were removed, which accounted for about 2.04 inches off the lake.

The state is currently working to increase the pumping capacity of the outlet from a maximum of 100 cubic feet per second (cfs), to 250 cfs. To accomplish this increase, two additional 75 cfs pumps will be installed at the Round Lake and Josephine pump sites. It is expected that construction on this effort will begin in early 2010.

2009 Devils Lake Outlet Releases to the Sheyenne River

MONTH	NUMBER OF DAYS	VOLUME (AC-FT)	INCHES OFF LAKE
May	9	810	0.06
June	30	4,083	0.30
July	31	4,919	0.36
Aug.	31	5,898	0.44
Sept.	30	5,991	0.44
Oct.	31	5,941	0.44
Nov.	4	11	0.0008
TOTAL	166	27,653	2.04

The Devils Lake outlet operating at maximum capacity (100 cfs) last summer.



North Dakota State Water Commission
 Dale L. Frink, State Engineer
 900 East Boulevard Ave. • Bismarck, ND 58505
 (701) 328-2750 • <http://swc.nd.gov>

The State Water Commission does not discriminate on the basis of race, color, national origin, sex, age, or disability in employment or the provision of services.