

The Oxbow

FROM THE NORTH DAKOTA STATE WATER COMMISSION

Harmon Lake Recreation Area Opens

The new Harmon Lake Recreation Area, located on Otter Creek, eight miles north of Mandan on Highway 1806, is open for public use well ahead of schedule. Thanks to Mother Nature, above average runoff earlier this spring filled the new reservoir in just over a week, in what was expected to take a few years.

In response to the rapid filling of Harmon Lake, Morton County officials were caught off guard, not expecting to have to open or operate the new recreation area in the summer of 2009. But with the lake full, they wanted to provide the opportunity for the public to start using the Harmon Lake Recreation Area as soon as possible.

Currently, there are no bath-houses, picnic shelters, playgrounds, or horse facilities, and the trail system is not complete. But with a full lake there to be enjoyed, on June 19, Harmon Lake itself was officially opened for public use, along with limited primitive camping and picnic areas.

For now, camping at Harmon Lake Recreation Area is free. But, as facilities are developed years down the road, fees for camping and possibly day use, will be implemented.

To accommodate day and overnight users, the county has brought in portable toilets. In addition, there are two public sandy beach areas that have been constructed, and a public boat ramp and boat dock are in place. However, Harmon Lake is a no wake

waterbody, meaning boats must travel at a slow idle speed. Personal watercrafts are not allowed on the lake.

According to Morton County Parks Superintendent, Vern Davis, there has already been a fair amount of interest in Harmon Lake. Davis indicated that there have been a few families and other groups out at the facility camping every weekend since it opened. In addition, there have been many day users out to the facility taking advantage of the beaches, and fishing for trout that were stocked in the lake.

Earlier this spring, the North Dakota Game and Fish department stocked 1,500 "catchable" sized rainbow trout, and 1,500 cutthroat trout fingerlings. An additional fall stocking is also being considered by North Dakota Game and Fish.

Construction on Harmon Lake Dam (also known as Square Butte Dam Number 6) began in 2003, and it was substantially completed in the fall of 2007. The dam is 67 feet high and 2,100 feet long. The reservoir

itself has a surface area of about 145 acres, and is about 38 feet deep at its deepest point.

There are still more than \$6 million in additional improvements that need to be made. But when completed, the Harmon Lake Recreation Area will be nothing less than a first-rate facility. When completed, it will boast, among other things:

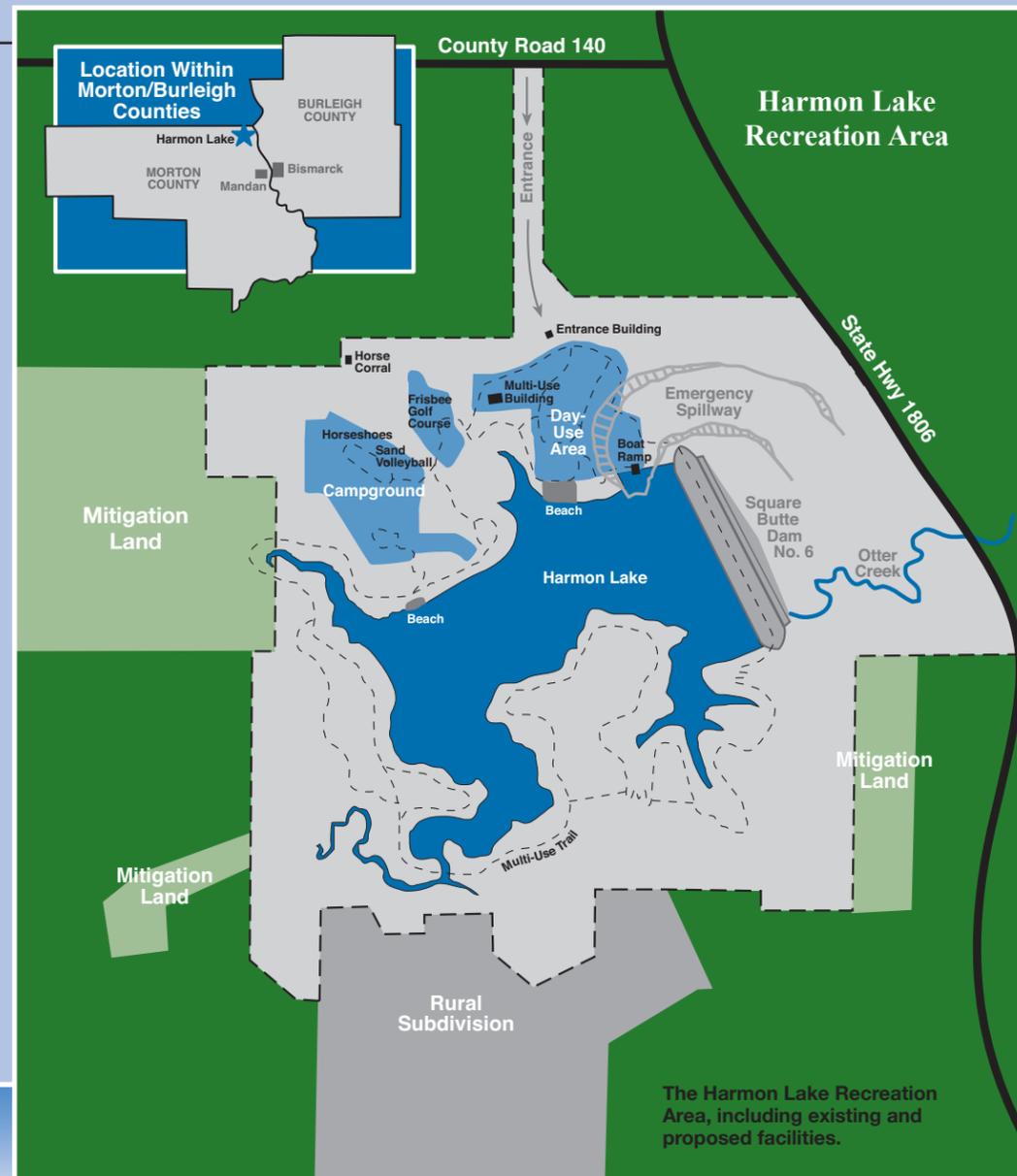


Rock fishing piers and a boat ramp provide excellent access opportunities for those who want to enjoy the new Harmon Lake.

- 75 camping pads with full utility access, and numerous tent camping and primitive camping sites;
- An entrance building and visitor center for check-ins and informational purposes;
- A four-season, multi-use building with adequate parking and a lake view deck, with the capacity to accommodate large group gatherings;



An aerial view of the new 145-acre Harmon Lake.



- Volleyball courts, playgrounds, shelters, and two public restrooms with showers;
- Fishing piers and a fish cleaning station; and
- Horseback riding facilities, with corrals, watering facilities, and expansive areas for riding.

The Morton County Water Resource District is currently seeking additional funds to complete the remaining facilities. The water board will also be responsible for operating the

dam. Recreation facilities will be managed and operated by the Morton County Park Board.

An eight-mile hiking and mountain biking trail with a footbridge is also planned for development. The trail is designed as a sustainable single track, unpaved trail that will allow walkers, hikers, birders, and bikers access to several areas throughout the Harmon Lake complex.

The Morton County Water Board applied for, and received a Recreational Trails Program Grant in the amount of \$120,000 through the U.S. Federal Highway Administration (and administered at the state level by North Dakota Parks and Recreation) to pay for the trail. As the local sponsor, the Morton Water Board will contribute another \$30,000 for the required local cost-share.

According to Ron Luethe, who works for the Natural Resources Conservation Service, and serves as a representative for the International Mountain Bicycling Association, it is the intent of organizers to start certain elements of construction on the trail this year, and hopefully finish remaining elements next year, as funding allows.

Comparatively, Harmon Lake is much larger than McDowell Dam, Fish Creek Dam, and Crown Butte Dam, which are all relatively close to the Bismarck-Mandan area. Conversely, Harmon Lake is only about half the size of Sweet Briar Dam.

For more information about the new Harmon Lake Recreation Area, contact Vern Davis, Morton County Park Board, at 701-667-3363, or go to the Morton County website at www.co.morton.nd.us. Click on "Morton County Parks."

Addressing the Devils Lake Water Treatment Question

As Devils Lake continues its relentless rise, there's a common question posed everywhere from local cafes, to radio call-in shows. And that question is – why can't the state or federal government just treat Devils Lake water so more can be released from the swelling lake via an outlet to the Sheyenne River?

Before this question is answered, perhaps a little bit of background on Devils Lake water quality issues is in order. Devils Lake is a terminal lake, meaning water will only leave the lake through evaporation, plant uptake, ground infiltration, or unless the lake elevation gets high enough for an overflow. Thus, because there is no natural outlet to the basin at current lake levels, soil particles, organic material, and other elements (often expressed as Total Dissolved Solids or TDS) borne by runoff water, continually collect in Devils Lake. As most people familiar with Devils Lake water issues know, sulfate concentrations in the water have been a particularly important issue.

With this in mind, the state has been required to limit outlet operations so water released from Devils Lake does not negatively impact water quality in the receiving Sheyenne River. And thus far, sulfate levels in the Sheyenne downstream of the outlet have been kept within limits deemed appropriate by the U.S. Environmental Protection Agency



East Devils Lake

and the North Dakota Department of Health.

The other issue that has been brought up, particularly by Canada, and the Province of Manitoba, involves the potential transfer of unwanted biota from Devils Lake to the Sheyenne River via an outlet. However, extensive monitoring and studies conducted downstream of the outlet have not found a single species of concern. In addition, water-to-water transfers are already common between the Devils Lake and Red/Sheyenne River basins.

Regardless of these facts, the debate rages on, which brings us back to our original question of – why can't the state or federal government just treat Devils Lake water before it's released via an outlet? After all, it is often cited that a reverse osmosis filter for Devils Lake water would only cost about \$15 million, (which is far from accurate).

A preliminary assessment of treatment options for Devils Lake water was recently sponsored by the Water Commission. Three treatment methods, including Reverse Osmosis (RO), Ion Exchange, and Electrodialysis Reversal were considered. RO is generally more cost effective at the flow rates and the mineral levels expected with a Devils Lake facility, so RO became the focus.

Two locations were considered for the treatment plants; a west end facility on the west end of Devils Lake, and a Stump Lake facility on Stump Lake. The sulfate concentration of the west end of Devils Lake was assumed to be 700 mg/L, and 2,600 mg/L for Stump Lake. A total discharge of 250 cubic feet per second was also assumed, with a finished sulfate concentration of 400 mg/L after treatment.

For the west end water treatment plant using RO, the construction cost was estimated to be \$266 million, with an operation and maintenance cost estimated at \$13.8 million per year. For a Stump Lake treatment plant, the construction cost was estimated to be \$525 million, with an operation and maintenance cost estimated at \$27.4 million per year.

Beyond these prohibitive costs, the other issue would be the disposal of wastewater from the plant. For proper disposal, an evaporation pond of 14,000 acres would be required for the west end site, and 28,000 acres for the Stump Lake location. As a comparison, the present surface area of Stump Lake is 16,000 acres.

As one can see, full treatment is not an option.



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

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