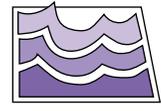




U.S. Army  
Corps of  
Engineers  
St. Paul District

# DEVILS LAKE STUDY NEWSLETTER



North Dakota  
State Water  
Commission

Issue #6, December 2001

## Update On The Study

The purpose of this newsletter is to update you on the status of the Devils Lake study and identify the plan that is selected for design. As discussed in previous newsletters, there are two Public Laws associated with the Devils Lake Study: one for the design of an outlet and the other for its construction. The selection of the plan for design addresses one of the authorizing legislations, which is to design an outlet from Devils Lake to the Sheyenne River. Concurrent with this design work, the study process will continue with alternatives being further evaluated in the Planning Report and Environmental Impact Statement (EIS). The action recommended in the Planning Report and EIS may not necessarily include the outlet selected for design because the Congressional Legislation for the construction of an outlet requires compliance with other criteria. Namely, with respect to the emergency need for an outlet, the Corps is to verify that the construction is technically sound, economically justified in accordance with principles and guidelines, environmentally acceptable and in compliance with the National Environmental Policy Act of 1969, and will not violate the requirements or intent of the Boundary Waters Treaty of 1909.

### Planning Report Information Meetings

The U.S. Army Corps of Engineers (Corps) in cooperation with the North Dakota State Water Commission (NDSWC) conducted five public meetings in the Devils Lake and downstream areas. The meetings were held from October 2-4, 2001, with attendances as follows:

<u>Location</u>	<u>Attendance</u>
Valley City	67
Cooperstown	7
Devils Lake	56
Spirit Lake Reservation	27
Grand Forks	22

The purposes of the meetings were to update the public on the initial findings and seek comments on considerations for identifying the “preliminarily selected outlet plan” to carry forward into the design phase.

## Agency Coordination

The process and alternatives being considered in the re-evaluation of alternatives has been discussed at previous public and interagency meetings. Most recently, a Draft Preliminary Planning Report was prepared discussing the study methodology and alternatives considered. This was reviewed and discussed by personnel from various local, State, Tribal, Provincial, and Federal agencies serving as technical representatives on the Devils Lake study at a meeting in mid-August. Additional alternatives stemming from that review were then further considered and in-

cluded in the presentations at the public meetings mentioned above. Since then, there has been further input from the State of North Dakota and North Dakota Congressional Delegation staff. After further screening of the alternatives, based on water quality considerations and estimated project cost, the most implementable outlet alternative is considered to be the one modeled as a 300 cubic feet per second (cfs) outlet from Pelican Lake constrained to the 450 milligrams per liter (mg/L) sulfate standard on the Sheyenne River.

## Selection of the Outlet Plan For Design

Moving forward with the design of a preliminarily selected outlet plan concurrent with the preparation of the EIS is necessary to comply with Congressional appropriation language of Fiscal Years 2000 and 2001. Also, this approach is warranted due to the uncertainty of future lake conditions, which makes it reasonable to have a plan designed and ready to implement if flooding conditions dictate.

Based on the studies that have been completed and input from the local sponsor and North Dakota Congressional officials, the decision has been made to initiate design work on a Pelican Lake 300 cfs outlet alternative. The actual operating plan may be further refined to minimize downstream water quality impacts and flood risks, while trying to minimize the rise of the lake. However, the outlet plan that will be evaluated for impacts would constrain the discharge to not exceed 450 mg/L of sulfate or 600 cfs at the insertion point. These constraints are based on the sulfate standard in the Sheyenne River, which is 450 mg/L, and the nominal channel capacity in the upper Sheyenne River of approximately 600 cfs.

Based on the most recent evaluation of alternatives, some of the key factors for a Pelican Lake Outlet 300 cfs outlet plan are as follows (data is shown in comparison to a West Bay (Peterson Coulee 480 cfs unconstrained outlet plan). This information is intended only as a brief presentation of some of the information used in evaluation of the alternatives. There will be more complete discussion and presentation of study results in the Planning Report and EIS.

### Key Factors for a Pelican Lake Outlet

	<u>Pelican Lake 300 cfs</u>	<u>West Bay 480 cfs</u>
Estimated First Cost:	\$97.7 million	\$147.9 million
<u>Stochastic Analysis</u>		
Net Benefits	-\$4.9 million	-\$11.1 million
Benefit-Cost Ratio	0.37	0.01
10% Probability Lake Level (w/o outlet is elevation 1459)	1455	1453
<u>Wet Future Scenario</u>		
"Net Benefits"	\$13.6 million	\$16.6 million
"Benefit-Cost Ratio"	2.6	2.4
Maximum Lake Level (w/o outlet is elevation 1460.6)	1457	1452
Percentage of time that Sulfate standard of 450mg/L is exceeded at Valley City (w/o outlet is 0%)	0%	3%
Percentage of time that TDS objective of 500 mg/L is exceeded at Emerson, MB (w/o outlet is 8%)	12%	33%

The Pelican Lake outlet plan is among the best options for cost effectiveness and minimizing downstream water quality impacts, is considered affordable by the local sponsor and Congressional interests, and is moderately effective in controlling future lake stages. Therefore, it is recommended that the Pelican Lake outlet plan be moved forward into the design phase.

# Pelican Lake Outlet

A significant portion of the inflow into Devils Lake comes from Big Coulee and enters Devils Lake through Pelican Lake, which is on the north side of the West Bay. Water quality in Big Coulee is similar to the Sheyenne River, making Pelican Lake water much fresher than the rest of Devils Lake, particularly after high runoff events. An outlet that takes water from Pelican Lake is attractive because it is the freshest water available in Devils Lake, thereby reducing downstream water quality impacts. With flows constrained for water quality and channel capacity, the Pelican Lake outlet is more effective in drawing down the lake, resulting in lower peak lake levels in the future than could be expected from outlets at other locations.

Although the specific outlet alignment and configuration are not yet determined, the approximate distance from Pelican Lake to the Sheyenne River is about 22 miles. The water must be transported south across relatively flat terrain and then over the divide to the Sheyenne River through the Peterson Coulee area. Options being considered for separate sections of the outlet include buried pipeline, open channel, and tunneling.

The features of the Pelican Lake outlet plan that have been brought forward through the comparison of outlet alternatives, which are now being re-evaluated prior to more detailed design, is based on conceptual design studies performed in 1999. That plan consists of an initial leg from Pelican Lake along a 6.1-mile-long open channel to a pump station located on the north side of Minnewaukan. The channel would run from Pelican Lake through low ground and then cross Highway 281. It then would follow along the west side of Highway 281 to the north side of

Minnewaukan. Much of this alignment is currently under water. Portions of the existing ground along the proposed channel alignment are at or below elevation 1435 feet mean sea level (msl) and wide enough that excavation may not be required.

From the end of the channel on the north side of Minnewaukan, water would be pumped through a pipeline about 16.1 miles long to the Sheyenne River. Initial design work indicated that about 24,000 feet of the pipeline would be ductile iron or steel pipe and the remainder would be reinforced concrete. The pump station and pipeline would be similar to that required for the West Bay outlet through Peterson Coulee, but would have higher design pressures because of the longer pipeline length.

As an alternate configuration, the West Bay outlet could be constructed and Pelican Lake water could be brought to this pump station. Initial indications from concepts studied in 1999 were that this would be significantly more costly than the concept presented above. However, there may be advantages to a staged outlet construction and this concept will be further investigated.

More fresh water would be available from Big Coulee into Pelican Lake if the historical drainage route from Dry Lake to Big Coulee was restored. Drainage from Dry Lake was diverted directly to Devils Lake through Channel A in 1979. A control structure could be rebuilt at the head of Channel A and a new channel constructed west of Dry Lake to allow flow to reach Big Coulee. This feature is included in proposed plans for this outlet alternative.

## Current Schedule

Initiate Design of Preliminary Selected Alternative	November 2001
Draft EIS and Draft Planning Report	February 2002
Public Meetings	March 2002
Final EIS Final Planning Report	July 2002
Record of Decision (ROD)	September 2002
Initiate Construction	October 2002*

\* The proposed schedule and timeline was based on a West Bay outlet and assumed that construction will proceed only if flood conditions continue to exist, all legal requirements have been met, and the ROD supports construction and operation. With the selection of the Pelican Lake Outlet alternative, the same assumptions apply and efforts will be made to remain on the same schedule, but the need for ongoing monitoring to address actual impacts of project features and operation becomes even more essential.

# How to Get More Information



## Write, call, or e-mail

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North Dakota State Water Commission  
900 East Boulevard  
Bismarck, ND 58505-0850



## Internet Web Sites

U.S. Army Corps of Engineers, St. Paul District  
[www.mvp.usace.army.mil](http://www.mvp.usace.army.mil)

North Dakota State Water Commission  
[www.water.swc.state.nd.us](http://www.water.swc.state.nd.us)

## Technical reports

All technical reports associated with the Devils Lake Study, including the Draft Preliminary Planning Report are available for review at:

*U.S. Army Corps of Engineers, St. Paul District*  
(see left column)  
*North Dakota State Water Commission*  
(see left column)

When completed, the Draft EIS and Planning Report will be available on the Corps web site (see left column) and from the information repositories listed below. In addition, hard copies of the main report will be distributed to the mailing list, with separately bound appendices available upon request from the St. Paul District Corps of Engineers (see left column).

Devils Lake Carnegie Library  
701-662-2220

Valley City Public Library  
701-845-3821

Fargo Public Library  
701-241-1492

Grand Forks Library  
701-772-8116

Griggs County Library  
(Cooperstown)  
701-797-2214

Lisbon Public Library  
701-683-5174

Tribal Community Center  
701-766-4221

Pembina State Museum  
701-825-6840

*Also available on the web site and at the repositories are the February 1999 Scoping Document, July 2001 Supplementary Scoping Document, and all project newsletters.*

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