

### **March 2013**

The MSAC Mission is to pursue and promote the intelligent use of all available programs and funds to alleviate the sedimentationcaused problems of the Missouri River main-stem reservoirs.

# Corps investigates repair needs at Gavins Point Dam

#### In this newsletter, MSAC looks at the area near Gavins Point Dam and its Lewis and Clark Lake.

From MSAC Reports/Web Research

Investigations are ongoing regarding repair and rehabilitation at Gavins Point Dam near Yankton, South Dakota.

On March 12, the U.S. Army Corps of Engineers temporarily increased discharges out of Gavins Point Dam to conduct a spillway flow test.

The purpose of the test was to gain baseline information on the current condition of the spillway, according to the Corps' news release dated March 8. The current discharge rate at the time of the test was 14,000 cfs and it was increased to 26,000 cfs. The Corps expected to increase discharge to 40,000 cfs for short periods of time depending on responses observed

at lower discharge rates. The test period was expected to last no longer than 8 hours. Releases were scheduled for 14,000 cfs after test completion.

Foundation conditions underlying the concrete slabs located immediately downstream of the spillway

Lewis and Clark Lake Recreation - "Value to the Nation" 1,0670,977 visits to the Lake in 2010 resulted in: \$29,472,392 in visitor spending within 30 miles \$29,472,392 in sales within 30 miles 612 jobs within 30 miles \$11,500,298 in labor income within 30 miles \$17,482,859 in value added within 30 miles "The money spent by visitors to Corps lakes on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around Corps lakes." Source: US Army Corps of Engineers "Value to the Nation" Web site www.corpsresults.us



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structure are being investigated. According to the Corps' news release: "Subsurface investigations are nearing completion. They included the installation of pressure transducers beneath the spillway chute to assess and monitor uplift pressures that may develop during operation of the spillway."

The Corps continues its rehabilitation and repair of the damage from the Missouri River Flood of 2011. In July of 2011, Gavins Point Dam sustained its record release of 160,200 cfs. Its previous record was 70,000 cfs in 1997.

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#### Lewis and Clark Lake Facilities & Resources

- 35,391 Land Acres
- 28,000 Water Acres
- 90 Shoreline Miles
- Source: USACE Web site www.corpsresults.us
- 25 Rec Areas
- 1,124 Camping Sites
- 18 Boat Ramps
- 14 Playgrounds
- 9 Swimming Area

# Pierre Capital Journal Special Report November 2012 **Three-part series examines sediment**

This is the first in a three-part series examining sedimentation issues along the Missouri River, including the impact on the reservoirs, the changing river environment and how to best manage the system. (Published Nov. 25, 2012)

#### by David Rookhuyzen/ Pierre Capital Journal

The Missouri River is the second longest river in North America, flowing for more than 2,300 miles and passing through portions of seven states. It provides water, electricity and recreation for those living and working along its banks.

But, under the surface, the river carries something that could bring all that to a halt: mud.

The river is rich with sediment - silt, clay, sand and gravel – coming in from its own bed and numerous tributaries. And there are more than a few concerned about the side effects of that sediment building up in the river and its six reservoirs.

#### Flooding

The largest problem sedimentation creates, especially in the Pierre and Fort Pierre, is flooding.

When sediment-rich, free-flowing parts of the river hit slower waters, such as the reservoirs, the water loses velocity and drops sediment, creating deltas. The same thing occurs where tributaries such as the Bad River, White River and Niobrara River enter the Missouri.

John Cooper, a member of the state Game, Fish and Parks Commission, said the dropped clay-based soil sets much like concrete and forms speed bumps in the river. When higher flows come out of the upstream dams, the water load of the river must rise in elevation to get over those speed bumps, and that high water will flood areas around it, he said.

The added sediment also displaces the water that used to lie comfortably in a deeper river bed. This is especially problematic in southeast Pierre, where sandy soil makes it easier for that displaced water to percolate through and flood houses.

Larry Weiss, president of the Missouri Sedimentation Action Coalition, knows first-hand the problems with flooding. He owned a house in southeast Pierre that was purchased by the U.S. Army Corps of Engineers in 2001.

"The reason for that buyout was groundwater problems



This is the view near Springfield, South Dakota, looking downstream toward Gavins Point Dam. (MSAC Photo by Patrick Callahan/November 2011)

and flooded basements. We had our basement flooded three times," Weiss said. "Sedimentation raised the bottom of the river, or the flow line."

Weiss is not alone. Since 1999 the Corp of Engineers has spent more than \$25 million on buying out 110 similarly-

flooded homes in Pierre and Fort Pierre and flood-proofing an additional 18.

John Remus, chief of the Hydrological Engineering Branch for the Corp's Omaha District, said the Corp has noticed increased flooding frequencies in Pierre and Fort Pierre.

"In those areas we have increased groundwater elevations and increased water surface elevations," Remus said.

Howard Paul, former executive director for the Missouri Sediment Action Coalition, said the plant-dense deltas at the head of the reservoirs create damming effects and can back up the river.

During the last major drought the water level behind the delta formed by the Niobrara River above Lewis and Clark Lake was seven feet higher than below the delta, he said.

#### Filling Up

The entrapment of sediment in the reservoirs has also led to concerns over lost capacity as mud takes the place of water, especially for the three smaller lakes.

The larger reservoirs – Oahe, Sakakawea and Fort Peck – are in no immediate danger, as each has an extremely long

#### cont'd on pg. 5: Lewis & Clark would be first to fill

"Lewis and Clark Lake reservoir cannot handle the sediment from the Niobrara." - John Cooper MSAC 12th Annual Membership Meeting 7:30 p.m., Tuesday, April 9th, 2013 At the Riverfront Event Center, 121 West 3rd Street, Downtown - Yankton, South Dakota Join us in the meeting room in the Event Center's lower level at the Marketplace Cafe Elevator available at the Social Security Office entrance on the west side

Board of Directors Meeting begins at 4 p.m./3 p.m. tour of new MSAC office Public is invited to both meetings.

The 12th Annual Meeting of the Missouri Sedimentation Action Coalition will be conducted at 7:30 p.m., Tuesday, April 9, 2013, at the Marketplace Cafe in the lower level of the Riverfront Event Center at 121 West 3rd Street, in downtown Yankton, South Dakota. Information and photo displays will be posted for viewing. Following a brief business meeting at 7:30 p.m., Tim Cowman, director of the Missouri River Institute, will present "Historical and Predicted Future Sediment Accumulation in the Niobrara River Delta and Lewis and Clark Lake Headwaters." All MSAC members, potential members, and interested parties are invited and encouraged to attend. Other discussion items will include an update on MSAC activities, US Army Corps of Engineers studies, and the Title IX Task Force.

The Board of Directors will meet at 3 p.m. for a tour of MSAC's new office located at the Corps of Discovery Welcome Center, 2 miles south of Yankton on Highway 81. The regular Board of Directors meeting will begin at 4 p.m. in the Marketplace Cafe, lower level of the Riverfront Event Center at 121 West 3rd Street, Downtown Yankton, South Dakota. The public also is invited.

On the annual meeting agenda will be the election of three individuals to the board of directors for three-year terms. The following three directors have terms which are expiring: Alvin Van Zee, representing Class III Commercial; Marjorie Gross, representing Class IV Individuals; and Jake Fitzgerald, an at-large board of director.

Membership and the public will be updated on MSAC's activities, future goals and recent developments involving sedimentation. All members, potential members and all interested groups, businesses, individuals and government bodies are welcome and encouraged to attend the annual meeting and/or board of directors meeting. "If you have a concern regarding current/future sedimentation, please attend."

As part of the MSAC/Missouri River Institute project, MFA candidate Nicole Geary painted illustrations of sediment accumulation progression in Lewis and Clark Lake in four stages from 2013 to 2113. The top photo is the vantage point from Miller

As part of the MSAC/Missouri River Institute project, MFA candidate Nicole Geary painted illustrations of sediment accumulation progression in Lewis and Clark Lake in four stages from 2013 to 2113. The top photo is the vantage point from Miller Creek looking to the northwest. The bottom painting is from the same vantage point and its forecasted view 100 years from now, with no sedimentation reduction measures taken. Come to the April 9th meeting to learn more about the project and why the Missouri River reservoirs need action on sediment reduction.

#### Tuesday, April 9th, 2013 7:30 p.m. Annual Meeting Riverfront Event Center - Marketplace Cafe Downtown Yankton, South Dakota

Please put this date on your calendars. If we are to address sedimentation problems in the Missouri River mainstem reservoirs we need to act as a unified coalition and encourage cooperation among the people who can engage in sediment management.



**Miller Creek Vantage Point** 

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## cont'd pg. 1: Corps investigates repair needs at Gavins

"Prior to completing the last phase of the scheduled interim repairs, it is necessary to obtain baseline information regarding the current condition of the spillway," said Geotechnical Engineer Steve Butler in the Corps' news release. "Gaining that information will help us determine whether additional interim repairs are warranted. It will help us assess the long term reliability of the spillway's existing uplift design."

According the Yankton Press and Dakotan dated March 13, test findings will aid in determining what future actions need to be taken at Gavins Point Dam. There is no precise timeline for test results and completion of repairs, according to the report.

Repair work began on the concrete slab below Gavins Point Dam Nov. 26, 2012, according to the Corps' news release dated Nov. 21, 2012. The project's three objectives were: to make repairs to the concrete slab and gravel frost blanket; to conduct additional assessments on the spillway; and, to remove debris that had been deposited on the slab.

The Pierre Capital Journal reported March 21, that Morris Inc., of Pierre - Fort Pierre, completed



Just downstream of Gavins Point Dam on the north shore of South Dakota, crews place tons of riprap for bank restoration made necessary by the 2011 Floods, according to news reports. (MSAC Photo/March 20, 2013)

its work on Gavins Point Dam. Morris was tasked with the three objectives outlined above. Ice removal crews were kept busy during this winter project. Debris included items such as: boulders, concrete, and sediment along with a thousand arrows, a 1,000-pound ball of tangled fishing line and a 1969 class ring.

## Title IX Task Force encourages discussion on projects to alleviate sedimentation problems; MSAC welcomes input

#### From MSAC Reports

A Task Force, created by the U.S. Congress in 2000, has as its sole focus to recommend a plan for critical restoration projects to reduce siltation of the Missouri River in South Dakota so that the objectives of the Pick-Sloan Program can be met.

So far, the Task Force has gathered little steam. Since 2000, MSAC repeatedly contacted Congressional staff and the U.S. Army Corps of Engineers to eliminate this delay. The group has only met a handful of times, including its most recent meeting in Pierre on Feb. 26, 2013. The last meeting held by the Task Force was on April 2, 2009.

Following the February meeting there is some glimmer of hope that the group will meet again soon, possibly three months or so. Soon the Task Force members will be polled on whether to utilize Phase II of the Sedimentation Assessment conducted primarily by the NRCS (which MSAC played a role in facilitating) as the assessment necessary to be completed prior to proceeding to the next phase, which includes the identification of critical restoration projects.

This Phase II Sedimentation Assessment is available on MSAC's web site at www.msaconline.com. We hope this assessment provides the jumpstart this Task Force needs to get sediment management on track.

MSAC has concentrated on "the big picture" of addressing sedimentation so that future generations can realize the benefits of the Missouri River Mainstem System. Reducing the amount of sediment entering the system, removing sediment in specific areas and managing sediment to encourage optimal functioning of the system all play a role. We realize that some projects could provide needed relief for a shorter time than our overall goal of sustainability of the reservoir system. Your input is appreciated. We will keep you updated on the important mission of this Task Force.

# cont'd pg. 2: Lewis and Clark would be first to fill

for the Corp.

However, in contrast, Remus said Lewis and Clark Lake is 25 percent full of sediment, and will take 150 years to fill completely. Lake Sharpe will take 240 years and Lake Francis Case will be full in 400.

Lewis and Clark Lake has become the focal point for many concerned about sediment, as a multi-lobed delta fed by sediments delivered by the Niobrara River has filled in the reservoir's eastern edge.

Cooper said that diminished capacity means in the future the Corp of Engineers will have to scramble to release enough water to meet navigation and electrical needs.

"Lewis and Clark Lake reservoir cannot handle the sediment from the Niobrara," Cooper said.

Weiss said Lewis and Clark Lake sees a lot of recreational

sediment life of 900 to 1,100 years, according to Jody used during the summer, and if the reservoir fills with Farhat, chief of the Missouri River Basin Water Management sediment, it will be a major economic loss for that part of the state.

> For now, Remus said the town of Springfield, on the eastern edge of the reservoir has seen issues of sediment blocking water intake valves for several years, a problem other lakeside towns may experience in the future.

> In the Pierre area this filling in could also affect recreation, eventually eliminating access behind La Framboise or Farm Island, he said.

> Cooper said that, for anglers, the reservoirs filling means fewer habitats for fish spawning and boat ramps becoming unusable, he said.

> "That's a minor inconvenience, but a reminder of that fact that these reservoirs every year are filling up," Cooper said.

Look for part 2 in this series in the next newsletter. Special thanks to the Capital Journal for permission to republish.

### Where the Niobrara River Meets the Missouri River

The Niobrara River flows 535 miles, beginning in Wyoming, to its confluence pictured here with the Missouri River, just west of the town of Niobrara in northeastern Nebraska. In 1991, Congress designated 76 miles of the Niobrara River east of Valentine, Nebraska, as part of the National Wild and Scenic River System, according to the National Park Service web site. March 2011 data from the US Army Corps of Engineers reports that about 55 to 60 percent of the sediment load entering Lewis and Clark Lake comes from the Niobrara River. Approximately 2,625 acre-feet of sediment accumulates in Lewis and Clark Lake annually. The original open Lewis and Clark Lake extended 25 miles. Today, with an estimated 30 percent filled with sediment - the open lake reaches only 17 miles. (MSAC Photo - Patrick Callahan/November 2011)



## MSAC opens office in Corps of Discovery Welcome Center south of Yankton

Not only will travelers along Highway 81 learn about the Yankton and Crofton area communities and attractions, they will also have an opportunity to be reminded about the role accumulating sediment has in diminishing the benefits produced by the Missouri River Mainstem system.

In March, MSAC opened an office in the Welcome Center, which had previously been occupied by the National Park Service (NPS). The NPS has a new office building in Yankton. MSAC will maintain a physical presence in both South Dakota and Nebraska, as the executive director will also continue to work from a home office in Springfield. MSAC's mailing address will remain, PO Box 2 in Springfield.

"Right now, MSAC plans to staff its Nebraska office on Wednesdays, 10 a.m. to 4 p.m. Hours may expand in the summer," said Sandy Stockholm, MSAC's executive director. To meet with MSAC, Stockholm encourages the public to call ahead to set up an appointment at 605-661-1594 as other meetings may impact scheduling. "This is another avenue to get MSAC's educational message to the public."



In March, MSAC opened an office in the Corps of Discovery Welcome Center located on US Highway 81, 2 miles south of Yankton. The center is open to visitors seven days a week. Travelers can pick up information on area attractions and shop the art and craftwork of South Dakotans and Nebraskans. (MSAC Photo)

To reach MSAC: Call 605-661-1594 or email sandrak@gwtc.net or visit www.msaconline.com

> Join MSAC for its annual meeting April 9th in Yankton at 7:30 p.m., Riverfront Event Center.

> > PO Box 2 Springfield, SD 57062

