

NOTES FROM MISSOURI RIVER BED DEGRADATION BRIEFING

Wednesday, March 14, 2007

North Kansas City Community Center

Notes by: Tammy Wright, KCBPU

Staff members representing members of Congress, including:

Senator Claire McCaskill

Senator Pat Roberts

Congressman Emanuel Cleaver

Congressman Dennis Moore

Others represented:

- Parkville
- NKC Drainage
- Fairfax Drainage
- Dave Barfield

Welcome and introduction by Tom Schrempp of Water One. Water One used emergency pumps for the first time this year to obtain water needed for operating from the Missouri River

Attendees included representatives from Congressman Moore's office, Senator McCaskill's office, and Senator Bond's office

Speaker: Dale Blevins, U.S. Geological Survey

He first became aware of degradation issue following the flood of 1993 (long-term trend)

Started getting all-time low river levels every year

There are major monitoring stations on Missouri River at St. Joseph, Kansas City, and Waverly.

Since mid 1950s, about 10 feet decrease in river bed elevation

Missouri River degradation is causing the lower Kansas River to degrade (Kansas Water Office, 2005)

Degradation at Kansas City is happening faster than ever

Missouri River aquifer is very important and is impacted, as are wetlands

Possible causes of degradation: cutting off bends in 1950s, channel training structures (wing dikes), levees, sand dredging, decreased loads from tributaries (Kansas/Platte Rivers), decreased sediments from above Gavins Point

Sediment concentrations have decreased by approximately 80% since reservoirs and bank stabilization of 1960s

USGS – Dale Blevins

- Operates 1,000s of Stream Gauges Nationwide!!
- Derives “Rating Curves” that show “Gauge Height vs. Flow Rate”
- Grad students have done much of the degradation studies @ gauges.
- “Bottom elevations” and “Surface elevations” are important to different entities for their different purposes (ie. bottom pipes vs. intakes)
- Degradation issue @ K.C. much worse than at St. Louis!
- MO River degradation is also causing the Kansas River to degrade

Speaker: Patrick J. Cassidy, Director Environmental Services, Kansas City Board of Public Utilities:

See attached power point

Speaker: John Reddy, Superintendent Water Treatment Kansas City Water Service

Between 1930 and 1950, we saw approximately 1.5 feet of degradation on Missouri River bed

In 1951, they built new intake

Between 1950 and 1970, there were 2 additional feet of degradation

Between 1970 and 1990, there were 2.5 additional feet of degradation

Between 1990 and 2005, there were 5 additional feet of degradation

The Missouri River basin is in its 7th year of drought

They have put auxiliary pumps out in winter, but they are subject to ice damage and not as reliable as pumps inside structure

We need the Corps to help with study to determine what is happening with the river bed

They have spent \$1.5 Million so far on auxiliary wells

KCMO Water – John Reddy

- 1st plant built in 1926 in KCMO
- Lower river bottom and lower river flow are a “double whammy”
- Aux. pumps subject to ice damage in river – not as reliable as

John Drew, State Hydrologist
MDNR

MDNR supports doing extension study

Solutions in Kansas City may well be different from other locations along the river since our degradation problem is worse than in other areas

The Corps operates 6 main stem reservoirs on the Missouri River

During non-navigation periods, the Corps does not hit downstream targets – they make releases as are reasonably possible

Utilities are “chasing water” and “operating in the dark” because they do not know what is going to be needed to obtain water in the future

Reservoirs are at minimum storage levels

We may be facing a non-navigation year in 2008

John Drew – MDNR (State Hydrologist)

- degradation is a serious problem
- AOP has no downstream targets during non-navigation periods.
- Navigation is being *minimally* supported only
- Reservoir levels are so low we could be looking at non-navigation seasons next year.

Mike Chapman, Chief, Water Restoration
USACE

Tributary head-cuts (i.e., Rush Creek - English Landing Park and Rock Creek near Cerner) are the result of Missouri River degradation, and we see similar results at the Blue River

As the river degrades, sandbars are dry more often which allows tree growth. Tree growth traps sediment during high water which leads to build-up of new bank. Tree growth on sandbars and accumulated sediment impacts flood conveyance

Bank instability could be the result of decay of structures or river bed degradation – don't know

Starting in 1930, the Corps has revetted nearly every outer bank of the Missouri River (rock fill). The toes of the revetments were extended very slightly into the river bed to maintain stability

Large federal levies are located right against the river bed. The only thing protecting them in many areas is Corps revetments. Damage to these levies is potentially the most dangerous result of degradation

Other impacts from degradation:

Pipeline exposure

Loss of aquatic habitat – We are spending millions of dollars per year and fighting a losing game to preserve pallid sturgeon habitat

Navigation hazards – bridge piers previously removed to a certain level to guard against navigation obstructions are being exposed and creating navigation obstructions

Adverse Impacts of Degradation - USACE KC – Mike Chapman

- Tributaries are also cut down as the MO River degrades
- (ie. Rush Creek @ English Landing Park, Rock Creek)
- “Accretion” (trees & vegetation on newly-formed sand bars) will worsen flooding when the river comes back up
- 500 miles of Revetment (starting in 1930) – protects outer banks from erosion TOE of revetment into the river bed is crucial to protecting the revetment
- Degradation is the enemy of the constructed habitat for the Pallid Sturgeon

Contribution to discussion by Steve Daily
Fairfax Drainage District

The Unified Government and Kaw Valley Drainage District have done analysis of wharf study at the confluence of the Missouri and Kansas Rivers and found the greatest degradation at 8 – 9 feet against the sheet pile wall of that structure. Degradation is also impacting a couple of outfalls at the General Motors plant and the F10 Pump Station

Contribution to discussion by Jeff Rupp, Director Public Works
Parkville, Mo

Missouri River degradation threatened the Main Street Bridge and a bridge across Brush Creek. They spent \$2 Million on an English Landing Park project to correct problems caused by degradation. It took 5 years to get that construction project off the ground, resulting in lost equity in the project. River bed degradation also undercut a line to the sewer plant. Funding needs to be put on the table **now!**

Contribution to discussion by Leon Staub
North Kansas City Levee District:

They made emergency repairs on storm sewer outfall structures due to undermining of structures caused by degradation. They added 400 tons of riprap to the outfall at the Burlington station. On the Rock Creek tributary, a bridge into Harrah’s Casino is being impacted and large trees are falling off the bank into the river. There are reports in his area that building foundations may be suffering negative impacts from lower groundwater levels attributed to degradation

Contribution to discussion by Jeff Henson
Black & Veatch:

A Leavenworth sewer line became exposed in a storm, and they are doing channel restoration project

Contribution to discussion by representative of Line Creek and Burlington Creek District

River bed degradation is undermining foundations for railroad bridges and Missouri Department of Transportation bridges. A Conoco pipeline downstream of I-635 had to be relocated due to exposure from degradation

The upper river area just below the reservoir had more severe problems in the past. Collector wells under the river were exposed, and Sioux City does not have adequate sand level over their collector wells to help filter the water

Presentation by John Grothaus
USACE

Stressed that the intent is to focus on a process to investigate the causes of this phenomenon and find fixes – not just to do study after study. Defined degradation as: deep-cutting, downgrading, or scouring of river bed.

Levees are being undermined. The more degradation that occurs in Kansas City, the more water upper states will have to release

We cannot make rush to judgment. We do not have enough engineering or science to say definitively what the causes are

Overview of financial impacts:

- Intake low water costs for 2000 to 2004: \$18,773,321
- Intake costs for near future actively planned projects: \$63,159,120
- Low water future infrastructure: \$286,075,000
- Federal Levee upgrades: \$250,000,000
- Expected regional costs of non-navigation season: \$128,000,000
- Cost of regional blackout: More than a billion dollars

The Corps has a plan for investigation:

- Data collection and analysis from previous studies
- Research studies on similar river systems
- Economic investment and likely future impacts
- Computer models and physical models
- Regional and national expert on evaluation team
- Evaluation of potential remedies – alternatives

Corps Actions planned for 2007:

Applied limited funding to study stage trend effects on aquatic habitat
Applied limited funding for data collection for comprehensive study
Proposed regulatory plan for commercial sand dredgers:
potential extraction caps, reach limits, EIS

Investigation Requirements:

Authorization NOT required

If significant modifications to the river or river projects are required, “investigations” process is required; Federal O&M and local funding will NOT accomplish this

Preliminary investigation (Recon): \$300,000 investigations funds could proceed very quickly given existing data

Detailed investigation: \$3,000,000 and approximately 3 years, cost sharing

We need to highlight to political delegation that this is a regional problem, not just a utility problem or a specific company’s problem.

John Grothaus - USACE Planning Section Chief

- Bottom line – process is not just about “studying” but investigating the causes and coming up of a solution (or solutions)
- Usually dncutting does not go across entire river but in specific point along the cross-section of the river
- Probably not one cause of degradation but several – may be a natural process!!
- “Katrina” has heightened Corp’s emphasis on repairing/upgrading levee system in K.C.
- Remedies may vary at different points along the river
- Dredging may not be the culprit here...but reasonable and prudent controls are necessary
- Corps has the authority to conduct the study...but is only lacking the Funds!!

Additional Questions/Comments:

Claire McCaskill’s office asked about potential for impact of degradation on infrastructure or improvement plans or projects in the works right now along the Missouri River banks (\$16 Billion investment behind the Kansas City Levee)...

Who will be responsible for local cost share when it gets down to studies? Public utilities, state agencies, navigation parties, etc...

MOARK is going next Monday through Thursday to make congressional presentations and asked for copies of today’s presentations

BPU and Water One will be participating in AWWA fly-in to Washington, D.C. Apr. 17 & 18
Full federal funding can only be requested by Corps if they are asked to investigate