2009

Missouri River Recovery Program: Spring Rise Monitoring

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RECOVERING SPECIES AND PROTECTING RESOURCES
The U.S. Army Corps of Engineers is committed to recover Missouri River species, while fulfilling its century-old responsibility to protect human health and safety. To aid in the recovery of the endangered pallid sturgeon, the Corps releases extra water from Missouri River reservoirs in March and May. These “spring pulses” mimic the historic river rises that resulted from melting snow on the plains and mountains, before the construction of dams on the river. Biologists believe these pulse events are necessary for Missouri River species to reproduce and survive, which is critical for a healthy river environment.

At the same time, the Corps understands that spring rises - whether created by reservoir releases or occurring naturally due to rainfall runoff - can potentially impact other river resources, such as farmland, groundwater and cultural resources. Therefore, to evaluate the effectiveness of the spring pulse and ensure that impacts to other river resources are prevented, the Corps works with other federal and state agencies to closely monitor spring rises. This fact sheet explains these monitoring efforts.

PALLID STURGEON RECOVERY
The U.S. Geological Survey (USGS) Columbia Environmental Research Center and the Nebraska Game & Parks Commission are the lead agencies for monitoring pallid sturgeon response to spring rises on the Missouri River. Pallid sturgeon monitoring is part of the Comprehensive Sturgeon Research Project, which has been conducted since 2006. Monitoring teams focus on four primary tasks to support the goals of the comprehensive study:

❖ **Behavior monitoring.** Monitoring teams gather data at two sections of the river using remote tracking technology. This data will be used to analyze how pallid sturgeon migration and spawning behavior is affected by planned pulses and natural changes in the water levels.

❖ **Physiologic studies.** Monitoring teams collect and examine data to determine how specific characteristics of the environment affect pallid sturgeon reproduction. Characteristics that are currently being analyzed include pulse events, turbidity (the amount of sediment floating in the water) and water temperature. The Corps and other agencies will be able to apply the results of these analyses to future pallid sturgeon recovery actions.

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The mission of the Missouri River Recovery Program is to implement actions to accomplish Missouri River ecosystem recovery goals in coordination and collaboration with agency partners and stakeholders. The vision of the program is to create a sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values.

For more information on the Missouri River Recovery Program, please visit www.moriverrecovery.org.

Resource Protection

To protect resources and property in the Missouri River basin, the Corps and other agencies are implementing the following monitoring efforts:

- **Flood potential monitoring.** The Missouri River Basin Water Management team, in the Corps’ Northwestern Division, monitors river conditions and precipitation forecasts to ensure that planned pulse releases will limit additional risks to bottomland farmers. The Corps has access to data from numerous stream gauges, which provide up-to-date information via satellite. If conditions change and forecasts indicate an increased potential for flooding, the pulse will be reduced or cancelled.

- **Drainage monitoring.** The Corps and USGS monitor specific ditches and drainage structures from Sioux City, Iowa, to the mouth of the Missouri River near St. Louis, Mo. Beginning in 2008, the team monitors the drainage effects of all spring rises, whether created or natural. Through this expanded program, the team monitors water levels hourly to observe the downstream effects of created and natural spring rises on the Missouri River. Monitoring results are posted regularly on the Missouri River Recovery Program Web site, www.moriverrecovery.org, under the Recovery Activities and Flow Modification tabs.

- **Groundwater monitoring.** USGS monitors groundwater levels at five wells between Onawa, Iowa and Hermann, Mo., to identify the potential for damage to crops caused by groundwater changes. Information is transferred hourly to USGS Web sites, and the Flow Modification site at www.moriverrecovery.org is updated daily to show the current groundwater depth at each site.

- **Erosion and cultural resource monitoring.** The Corps surveys specific sites at the Fort Randall and Gavins Point reservoirs to determine the erosion effects of spring rises. If erosion has occurred, the team notes any exposed cultural artifacts in need of further attention and checks whether any artifacts have been removed by the public.

Through aggressive scientific monitoring of the river environment, the Corps and other agencies can determine the impact of spring pulses on the recovery of the pallid sturgeon and other Missouri River species. Monitoring provides a tool for making better river management decisions that will help river wildlife and provide many benefits enjoyed by people throughout the Missouri River basin.