

America's Watershed Initiative is a collaboration of organizations, businesses, and agencies which will bring a basin-wide perspective to the Mississippi River Basin's greatest challenges. Developing a comprehensive watershed report card is an important component of the Initiative. It will summarize and communicate the status and trends in achieving objectives for six broad management goals. The report card results will encourage people and organizations to engage in issues affecting the watershed.



The America's Watershed Initiative Report Card project continued with regional workshops for the Missouri River Basin, held in Rapid City, South Dakota, May 22–23, 2014 and in Kansas City, Missouri, August 26, 2014. At the workshop, stakeholders and experts from social, economic, and environmental sectors identified easily understood and transparent ways to measure status and trends for the Missouri River Basin in relation to six broad goals. Similar workshops have been convened in all of the basins and results will be integrated into a report card for the entire Mississippi River Basin.



Land use in the Missouri River basin.



The lower-most levee breach at levee L-575, along the Nishnabotna Wildlife Management Area. Image courtesy of S. Sullivan.



A piping plover on her nest. Image courtesy of S. Sullivan.



Gavins Point Dam in South Dakota. Image courtesy of S. Sullivan.

The Missouri River is the longest river in the United States with headwaters at the Continental divide in the Rocky Mountains to the west and the Laurentian divide in the north before eventually meeting the Mississippi River near St. Louis, Missouri. Its basin covers more than a half a million square miles, including parts of 10 US states and 2 Canadian provinces - about one sixth of the lower 48 states. Some major tributaries include the Yellowstone, Cheyenne, Platte, Kansas/Republican/Smoky Hill, and Osage rivers.

The Missouri River basin is characterized by temperature and precipitation extremes, which have influenced American history, planning, operation and political decisions. Today, much of the basin is devoted to agriculture (crops and livestock) and a rapidly growing energy economy including oil, natural gas and wind energy. More than 12 million people live in the basin, with most of the residents living in larger cities such as Denver, Omaha, Kansas City, and St. Louis. Vast stretches of the basin are lightly populated.

The Missouri River crosses the 100th meridian near Yankton, South Dakota, which is roughly the dividing line between the arid and humid parts of the basin. The combination of large land area and low water yield creates many complex water management challenges in the basin.



## **America's Watershed Health Report Card Goals**

America's Watershed Report Card is designed to report on the status of achieving six broad goals developed at the 2012 America's Watershed Summit. These goals reflect things people value in the watershed, are supported by both natural and human systems, and are interconnected.





Support and enhance healthy and productive ecosystems

**Provide world-class recreation opportunities** 



## Water supply in the Missouri River Basin

Water supply is one of six goals that guide the development of the AWI report card, and this goal generated the most discussion during the Missouri River basin workshops. Generally lower rainfall west of the 100th meridian is accompanied by changes in irrigation from surface to groundwater, particularly near the Ogallala Aquifer in the Nebraska area of the basin. This disparity leads to differences in distribution and allocation of water resources.





Missouri River Basin average annual precipitation 1961-1990 (data from The National Weather Service), U.S. Army Corps of Engineers, 2006.

A system of six large reservoirs along the mainstem of the river can store more than three times the mean annual flow at Gavin Point, the lowest dam in the system. This system is among the largest in the world, by volume stored. Water flows from these and other smaller reservoirs are regulated to support multiple water uses, including flood control, water supply, water quality, protection of fish and wildlife, hydropower, navigation, recreation, and irrigation. Changes in the water uses, unanticipated new water uses, and climate change complicate the task of managing these reservoirs.

Navigation is not as extensive as anticipated, however, water for navigation supports other uses downstream of Sioux City. Hydraulic fracking for oil and gas development introduces a new demand for water. Climate change appears to be affecting water availability by decreasing streamflow in the west and increasing flows in the east. Water supply in the Missouri basin has become the focus of complex disputes and competing legal claims.

## The report card process and timeline

Generating a report card requires participation from managers, scientists, researchers, subject experts, and other stakeholders knowledgeable about resources and available data. The process requires broad representation across sectors and geographic areas throughout each basin. These experts provide input on goals, values, desired conditions, and indicators of watershed health in each of the basins. The workshop process brings different groups together to create a product and promotes broad perspectives, dialogue, and collaboration among different sectors and participants. Information and feedback from other sources unable to attend the workshops will be sought to strengthen the report

Participants from the Rapid City, SD workshop (top) & Kansas City, MO (bottom). Images courtesy of J. Jordahl.



card. The Mississippi River watershed includes parts of 31 states and two Canadian provinces. The watershed includes six basins, which will each have their own indicators, scores, and report card results. Stakeholders from all sectors will participate in workshops in each basin. A report card for the whole watershed will be developed using the information from all of the basins. America's



Implementation Committee)

Strole (The Nature Conservancy)

Association)

Resources)

Regional Office)

Stuart Maas (Missouri Valley Waterfowlers

Carmen Thomson (National Park Service Midwest

Corissa Krueger, Jason Skold, Robert Sinkler & Todd

Shuhai Zheng (Nebraska Department of Natural

Marian Maas (Nebraska Wildlife Federation)

Laura Ackerman (North Dakota State Water

Doug Kluck (NOAA Climate Data Center)



Jaime Gaggero (Watershed Management Section) Bryan Hopkins (Water Resources Center Missouri Department of Natural Resources)

Sue Lowry (Wyoming State Engineer's Office)

## Science communication and facilitation:

- C. Wicks, B. Walsh, H. Kelsey, N. Lehmer W. Nuttle, W. Dennison, J. Thomas (University of Maryland Center for Environmental Science)
- A. Freyermuth (US Army Corps of Engineers)