

**Minutes of the 150th Quarterly Meeting
of the
Upper Mississippi River Basin Association**

**May 21, 2019
St. Louis, Missouri**

Rick Pohlman called the meeting to order at 9:35 a.m. Participants were as follows:

UMRBA Representatives and Alternates:

Rick Pohlman	Illinois Department of Natural Resources
Loren Wobig	Illinois Department of Natural Resources
Tim Hall	Iowa Department of Natural Resources
Barb Naramore	Minnesota Department of Natural Resources
Bryan Hopkins	Missouri Department of Natural Resources
Chris Klenklen	Missouri Department of Agriculture
Matt Vitello	Missouri Department of Conservation
Cheryl Ball	Missouri Department of Transportation
Steve Galarneau	Wisconsin Department of Natural Resources
Jim Fischer	Wisconsin Department of Natural Resources

Federal UMRBA Liaisons:

Brian Chewning	U.S. Army Corps of Engineers, MVD
Marty Adkins	U.S. Department of Agriculture, NRCS
Ken Westlake	U.S. Environmental Protection Agency (via phone)
Sabrina Chandler	U.S. Fish and Wildlife Service (via phone)
Scott Morlock	U.S. Geological Survey, Midwest Region

Others in Attendance:

Bill Milner	Illinois Department of Natural Resources
B.J. Murray	Illinois Department of Transportation
Clayton Stambaugh	Illinois Department of Transportation
Jennifer Hoggatt	Missouri Department of Natural Resources
Kaleb Phillips	Missouri Department of Transportation
Kevin Deitsch	National Oceanic and Atmospheric Administration, NWS
Sally Johnson	National Oceanic and Atmospheric Administration, NWS
Elizabeth Ossowski	National Oceanic and Atmospheric Administration, NIDIS
Thatch Shepard	U.S. Army Corps of Engineers, MVD
Jim Cole	U.S. Army Corps of Engineers, MVD
Ben Robinson	U.S. Army Corps of Engineers, MVD
Chris Erickson	U.S. Army Corps of Engineers, MVP
Col. Steve Sattinger	U.S. Army Corps of Engineers, MVR
Andy Barnes	U.S. Army Corps of Engineers, MVR
Jodi Creswell	U.S. Army Corps of Engineers, MVR
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Scott Whitney	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Steve Price	U.S. Army Corps of Engineers, MVR

Col. Bryan Sizemore	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, MVS
Michael Feldmann	U.S. Army Corps of Engineers, MVS
Hal Graef	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Brandon Schneider	U.S. Army Corps of Engineers, MVS
Shawn Sullivan	U.S. Army Corps of Engineers, MVS
Matt Vielhaber	U.S. Army Corps of Engineers, MVS
Verlon Barnes	U.S. Department of Agriculture, NRCS
Sandra Morrison	U.S. Geological Survey, Midwest Region
Mindi Dalton	U.S. Geological Survey, Water Resources Mission Area
Amy Beussink	U.S. Geological Survey, Central Midwest Water Science Center
Kelly Warner	U.S. Geological Survey, Central Midwest Water Science Center
Mark Gaikowski	U.S. Geological Survey, UMESC
Frank Morton	America's Watershed Initiative
James Kearns	Inland Rivers Ports and Terminals
Laurence Flentje	Gregory Drainage and Levee District
Maisah Kahn	Missouri Coalition for the Environment
Brent Hoerr	Missouri Corn Growers Association/Missouri Corn Merchandising Council
Nancy Guyton	Neighbors of the Mississippi
Bertha Mae Taylor	Neighbors of the Mississippi
Brad Walker	Nicollet Island Coalition
Josh Sewell	Taxpayers for Common Sense
Gretchen Benjamin	The Nature Conservancy
Antonio Arenas	University of Iowa/Iowa Flood Center
Bruce Brinkman	Upper Mississippi, Illinois, and Missouri Rivers Association
Mike Klingner	Upper Mississippi, Illinois, and Missouri Rivers Association
John Winkelman	Upper Mississippi, Illinois, and Missouri Rivers Association
Kirsten Wallace	Upper Mississippi River Basin Association
Mark Ellis	Upper Mississippi River Basin Association
Lauren Salvato	Upper Mississippi River Basin Association
Andrew Stephenson	Upper Mississippi River Basin Association

Minutes

Chris Klenklen moved and Rick Pohlman seconded a motion to approve the draft minutes of the February 26, 2019 UMRBA quarterly meeting as written. The motion was approved unanimously.

Executive Director's Report

Kirsten Wallace expanded on her written Executive Director's report as follows:

- Congressional members have been increasingly focused on the Navigation and Ecosystem Sustainability Program. On March 19, 2019, Senator Dick Durbin hosted a bicameral, bipartisan meeting among UMRS Congressional members staff to discuss their joint strategy for ensuring NESP is a high priority for the Corps in FY 2020. UMRBA was joined by TNC, WCI, Illinois Corn Growers Association, and North America's Building Trades Union to describe the context and importance of NESP.
- UMRBA testified before the House Transportation and Infrastructure Committee at its April 10, 2019 hearing regarding the shared commitment to integrated, multi-purpose management of the Upper Mississippi River's economic and ecological uses. The testimony discussed UMRBA's origins, the agreement to pursue Mel Price lock expansion and establish the Upper Mississippi

River Restoration program, and the integrated approach to the Navigation and Ecosystem Sustainability Program.

- UMRBA continue to outreach with key players regarding the Association's proposed UMRS WQ Improvement Act, including USEPA and NRCS leadership on March 6, 2019 and April 5, 2019, respectively. UMRBA also plans to attend the May 15-16, 2019 Hypoxia Task Force meeting in Baton Rouge.
- UMRBA is scheduled to relocate its office space in the Twin Cities metro area on May 29, 2019.

Wallace pointed to the Association's financial report on pages B-5 to B-9 of the agenda packet, including UMRBA Treasurer Jason Tidemann's review of the financial statement from February 2019 to April 2019. Tim Hall moved and Chris Klenklen seconded a motion to approve the Profit and Loss Statement and Balance Sheet dated May 6, 2019. The Board unanimously approved the motion by voice vote.

Navigation

Iowa Upper Mississippi Inland Waterway Report

Sam Hiscocks said Iowa DOT is finalizing an assessment of viable investment alternatives to enhance Upper Mississippi inland waterway infrastructure. In particular, the study examined the following three scenarios: a mooring cell to improve locking efficiency and reduce navigation impacts to the ecosystem, a major lock rehabilitation program to increase the navigation system's reliability, and a second, 1,200-foot chamber at three existing L&D sites on the UMR.

Ultimately, the assessment resulted in the following six recommendations:

- Specific to Iowa:
 - Employ a state-federal PPA and/or contribute funds to construct the mooring cell at L&D 14
 - Establish a regional cooperative working group with other UMR states to expand and promote micro infrastructure investments (e.g., mooring cells) throughout the UMR navigation system
 - Update the State of Iowa port authority statutes to allow for the state's ports to enter into PPAs with the Corps and develop financing tools for navigation system improvements
 - Evaluate an additional economic scenario that focuses on new markets, technologies, and innovation in the uses for transporting goods on the UMR – e.g., containerized traffic
- For federal and other regional partners:
 - Encourage Congress, the Administration, and the Corps to fund and complete necessary implementation guidance for the following authorities enacted in WRRDA 2014:
 - Sections 2004(a) to evaluate the use of federally tax-exempt bonds secured against IWTF monies
 - 2004(b) to study other potential revenue sources for inland and intracoastal waterways infrastructure
 - Section 5014 to establish a water infrastructure public-private partnership program specific to construction and major rehabilitation work in all Corps mission areas
 - Explore the potential to implement portions of NESP as separable elements (or a split delivery model), specifically to advance the first increment of mooring cells
 - Engage with regional stakeholders to consider establishment of a broader UMR port or navigation authority to promote UMR navigation improvements

Hiscocks concluded that Iowa DOT is interested in providing \$2 million in contributed funds to construct a mooring cell located 1.4 miles downstream of L&D 14. Possible funding sources include the Linking Iowa's Freight Transportation System (LIFTS) infrastructure bank funds or the National Highway Freight Program. The mooring cell would reduce the distance of the nearest fleeting location by 2.2 miles, resulting in an estimated savings to navigation of 217 hours or 9 days per year. Relative to other scenarios evaluated in the assessment, the mooring cell project resulted in the greatest benefit-to-cost ratio. The mooring cell's benefits to Iowa include reduced landside traffic congestion, infrastructure damage, and transportation costs. Iowa believes this project will demonstrate the state's commitment to the UMR navigation system and hopes it will trigger similar infrastructure investment projects by other UMR states. The project is estimated to take two years to construct, including planning and design work.

In response to a question from Ken Westlake, Scott Whitney said the mooring cell would require an updated environmental assessment to consider impacts to mussels and shoreline erosion.

Illinois Marine Transportation System Plan

B.J. Murray reported that Illinois DOT has contracted with WSP to conduct an assessment of Illinois' waterways infrastructure and develop a transportation plan for the state's waterways. The contract is for \$1.5 million over a one year term. Study components will include stakeholder outreach, facilities inventory, commodity flows, L&D closure, and funding opportunities. In particular, the study will examine statewide port facilities, users, operators, and carriers, as well as waterborne commodity flows, volumes, utilization, and capacity. Additionally, the study will assess the economic impacts of ports on the state and the economic contributions of major industries that rely on the Illinois Marine Transportation System (IMTS). An output of the study will include a port, waterway, and system-level identification of needs along with recommendations for action. Illinois DOT recently distributed a postcard broadly among stakeholders with a reference to the following website dedicated to this effort: <http://www.illinoismarinetransportationsystem.com/>.

Murray said a steering committee is being convened that includes about 30 individuals representing public port districts, private terminals and operators, and state and federal agencies. Illinois DOT plans to convene the steering committee five times at various locations throughout the state and host four roundtable engagements with broader stakeholders. Murray said the first steering committee meeting is scheduled for July 9, 2019 at the Illinois International Port District in Chicago.

Clayton Stambaugh said Illinois DOT has several other maritime transportation initiatives of about \$25 million over the past several years. Illinois DOT's renewed attention to the state's inland waterway transportation was mostly triggered by the Corps' 2012 report regarding impacts of the Panama Canal expansion and the 2012 significant drought, when the agency became acutely aware of the need to be more involved in state and federal decision making and planning. Illinois DOT began by developing a series of white papers that include goal statements. One recommendation is the IMTS plan and economic impact analysis study that Murray overviewed. Stambaugh said the overall goal for Illinois DOT is to mitigate congestion on land-based modes of transportation, increase sustainability of waterways transportation, and increase maritime competition. Other strategic recommendations include a) enhance integration of Illinois DOT and other state agencies, b) formalize and advance research activities, and c) foster collaborative relationships with stakeholders. Illinois DOT has begun providing technical assistance to ports in developing master plans and initiated work on developing performance measures and targets as well as research on beneficial uses of material dredged from the 9-foot navigation channel.

In response to a question from Cheryl Ball, Stambaugh explained that Illinois cannot directly apply its freight funds to private entities but can utilize public ports as a pass through for such investment opportunities. In response to a question from Mike Klingner regarding grant opportunities, Stambaugh

and Murray explained that state appropriations are not currently directed to do so and offered that stakeholders could elect to communicate the potential benefits to the state legislature.

Loren Wobig and Kirsten Wallace said they will serve as members of the Illinois steering committee and can provide a connection to UMRBA.

Inland Rivers Ports and Terminals Association Report

On behalf of Inland Rivers Ports and Terminals (IRPT) Association, Jim Kearns explained its proposal for an Inland Ports and Terminals Grant Program, which would offer a stand-alone discretionary program dedicated to ports and terminals. Kearns discussed there are limited federal funding opportunities to support port and terminal infrastructure investment; mostly because ports and terminals cannot compete with larger land-based transportation projects. For example, current programs require a \$5 million project minimum that far surpasses the project costs for ports and terminals.

Kearns said the Inland Ports and Terminals Grant Program would be administered by MARAD with eligible entities including both private and public facilities and with no minimum award floor. Funds may be used to construct buildings, physical facilities, equipment, bulk transload projects, and so forth as well as landside infrastructure projects. Kearns clarified that the Inland Ports and Terminals Grant Program would utilize dedicated funds from existing programs and not increased appropriations.

Kearns reported that, on May 9, 2019, the Senate Committee on Commerce, Science, and Transportation passed a Maritime Administration Authorization and Enhancement Act of 2019, which includes a provision regarding port operations, research, and technology. The bill would authorize \$600 million with 25 percent set aside for small projects (i.e., less than \$11 million). Kearns said that limitations include the lack of funding directed to rural projects and the enduring minimum funding threshold and requirement that eligible receipts be public entities or private entities with a public sponsor.

Kearns encouraged people to contact Aimee Andres, IRTP's Executive Director, at admin@irpt.net regarding IRPT's proposed legislation.

Navigation and Ecosystem Sustainability Program

Scott Whitney reported that UMRBA and USACE met on May 20, 2019 regarding the Navigation and Ecosystem Sustainability Program 2019 economic update and the historical documents outlining approaches for institutional arrangements and a transition from UMRR to NESP. Whitney said Congress invested \$65 million for NESP PED until the Congressional ban on earmarks in 2010. The program has gone essentially unfunded since then. In the FY 2019 energy and water appropriations measure, Congress directed the Corps to complete an economic update for NESP by August 2019 as a means of addressing the Administration's questions. In response, the Corps allocated \$1 million for the update. Whitney referred to pages C-9 to C-17 of the meeting agenda packet for a scope of work and schedule.

Whitney said Congressional support remains strong for NESP, pointing to the members' letter provided on pages C-5 to C-8 of the meeting agenda packet. Fifty-one members of Congress joined the letter, which requests language in the FY 2020 House and Senate energy and water appropriations measures that the Corps fund PED in order to start construction as soon as funding becomes available. Kirsten Wallace expressed appreciation to The Nature Conservancy and Waterways Council for their continued support for NESP, including helping to circulate the letter for signatures.

Josh Sewell asserted that a confident return on investment would be helpful for ensuring that federal money is spent well given the substantial federal debt. Given his concern with the economic update's limited scope, Sewall expressed support for additional funding and time to develop a more accurate

assessment of costs and benefits. Sewell also expressed concern regarding long term projections of transportation of agricultural goods on the Mississippi River and encouraged the Corps to include the volatility. Whitney expressed appreciation to Sewell regarding his statement, and said the upper end of the economic update estimate is very conservative. Whitney said the economic update has a far greater level of confidence than past analyses. Economists walked back trend projections. The Corps is utilizing the navigation investment model, which is fully certified and has been used on other inland river systems.

2019 Flood Report

Mississippi River Cities and Towns Initiative Perspective

Grafton, Illinois Mayor Rick Eberlin, representing the Mississippi River Cities and Towns Initiative (MRCTI), provided a perspective of Mississippi River mayors regarding this year's flood as well as proposed solutions. Eberlin said the Mississippi River mayors are better equipped to deal with major flood events since 2011 due to MRCTI's ability to provide a platform for coordination, information sharing, and cooperation among local, state, and federal levels of government as well as with private and philanthropic sources. Additionally, there has been substantial investment in restored natural infrastructure, including wetlands near Dubuque, Grafton, and Alton; new tracts of protected floodplain in Iowa; and a tributary conservation near the confluence of the Missouri River. Increased investment in disaster mitigation and planning is also paying dividends.

Mississippi River mayors are experiencing the impacts of climate-related records over the last 10 years – e.g., Iowa has received more precipitation in the last 12 months than any one-year period over the last 124 years. This year, Davenport experienced record flooding. Eberlin expressed gratitude to Davenport for its decision not to build a flood wall, alluding to potential impacts to other localities. Eberlin described the unprecedented frequency of major flood events in Grafton, Illinois. Major flood events like the one experienced this year cripple the town's businesses.

Eberlin stated that MRCTI convenes the Mississippi River mayors around a common vision of resilience and sustainability that involves all member communities absorbing disaster risk rather than moving the problem down river. Eberlin emphasized the importance of natural infrastructure in managing water to a greater benefit than conventional infrastructure.

Eberlin said MRCTI is being asked about its positions regarding agricultural levees. In response, he explained that MRCTI believes the alleged over-built levees in Illinois, Iowa, and Missouri have resulted in impacts and is eager to work with the Corps to understand those impacts and solutions going forward. The majority of MRCTI members represent rural communities where agriculture is an essential component of the economy, so MRCTI does not seek a rural/urban dichotomy in this debate but rather an opportunity to better manage the system in a more sustainable manner. Cities are both impacted by flooding and are contributors to flood conveyance.

On behalf of MRCTI, Eberlin requested that UMRBA consider the merits of a unified systemic approach to flood conveyance. The existing inconsistencies of flood protection practices and rules among the five Upper Mississippi River basin states is undesirable for MRCTI's member localities. He expressed the commitment of MRCTI to working through UMRBA's process with mayors being engaged and part of the solution. Eberlin suggested that science and data inform the process and outcomes.

Eberlin also mentioned that MRCTI has been pursuing a set of solutions to address the flooding challenges to Mississippi River localities, including increasing pre-disaster mitigation grant funding from \$22 million to \$246 million. MRCTI is also proposing that Congress establish a resilience revolving loan fund, which appears to have the necessary support to be introduced as a stand-alone measure or as part of an infrastructure package.

2019 Flood Report: Mississippi and Missouri Rivers

Antonio Arenas provided an overview of precipitation, soil moisture, and other conditions that ultimately resulted in major flood events on the Mississippi and Missouri Rivers in 2019. Arenas explained that 2018 was the wettest year for the nation on record and the wettest year on record for Iowa, with significant rainfall events in June 2018 and October 2018. Shallow groundwater wetness in much of Iowa and Nebraska was above the 95th percentile relative to 1948-2012. At the end of 2018, the soil was highly saturated with limited capacity to absorb water.

In the early months of 2019, the combination of large snowfall events followed by cold temperatures (i.e., polar vortex) through the end of February resulted in significant frozen ground with no snowmelt. The snowmelt started rapidly with many Iowa towns experiencing major flooding due to ice jams. A major rainfall event on March 13-14, 2019 (i.e., bomb cyclone) in combination with the rapid snowmelt caused significant flooding on the Missouri River. Stream gages show that flooding in on the Platte River was a primary driver of flooding on the Missouri River near Nebraska City. The Platte River's influence is also shown as the flood conditions recede. Arenas showed the extent of the flooding on maps.

Arenas showed the extent of flooding on April 19, 2019 from Bellevue, Iowa to Clinton, Iowa, where the Mississippi River experienced the longest duration flood over a 150-year period. Davenport, Iowa also experienced record flooding in terms of duration and flood stage.

In response to a question from Michael Klingner, Arenas explained that the Iowa Flood Center received a HUD grant to work with the state's watershed management authorities to implement conservation practices that provide flood storage. At the local scale, certain landscape conservation practices can reduce flooding impacts by 25 percent. Scott Morlock said USGS received a FEMA grant for using LiDAR to document the extent of Midwest flooding this year. In response to a question from Barb Naramore, Arenas said the area with an elevated water table above the 75th percentile would cover a much larger extent. Naramore observed the localized challenges of being able to handle the pressure of an elevated water table with the aging infrastructure. Marty Adkins reported that NRCS activated its emergency watershed protection program and is particularly focused on levee repair.

UMRS Floodplain Resilience Plan

Kirsten Wallace explained that the Association has been calling for a federal-state partnership to address the challenges of managing for floods, sediment, and drought and creating systemic, comprehensive, and integrated solutions that will result in a more resilient Upper Mississippi ecosystem and economy. At its 2017 flood and sediment summit, participants shared in their ask for a system plan, a regional coordinating forum (governance body), resolution to policy impediments and financial resources needs, and improve and better utilize knowledge.

As a first step in changing the conversational dynamic around managing floods, sediment, and drought, UMRBA and USACE are scheduled to host six local open sessions as outlined below to focus on how local action can affect a systemic plan and vice versa. These open sessions are a means of both seeking input into a longer term UMRB floodplain resilience plan and building trust, transparency, and ultimately buy-in into the objectives.

- July 13 — Hannibal, Missouri
- July 20 — Muscatine, Iowa
- July 27 — Dubuque, Iowa
- August 3 — Winona, Minnesota

- August 24 — Godfrey, Illinois
- September 7 — Cape Girardeau, Missouri

Wallace explained that the structure and facilitation method is built from what is called “open space events,” where participants bring forward conversation ideas of interest to them that they would facilitate. The discussion topics would center around the question of “how can all of us do a better job addressing three key issues on the Upper Mississippi River: sediment/channel maintenance, flood risk reduction, and preparation for extended droughts?”

Brian Stenquist will be the event facilitator and will work with participants to organize the “marketplace” of conversation sessions. Each of the six workshops would have up to fifteen different conversations, with five conversations occurring concurrently for an hour. Participants can pick which conversations to attend and can decide to leave and move to another conversation as desired. The conversation lead will be asked to take notes, which meeting organizers will collect, copy, and distribute to all meeting participants at the end of the workshop. Wallace explained that this approach advances UMRBA’s goal of utilizing the method of systemically developing informed consent (SDIC), so that the process, outcomes, and key actors are well understood and enjoy regional agreement. She requested that UMRBA Board members, federal liaisons, and partners serve as a network and help to disseminate workshop announcements and subsequent products and news. Wallace said MVR is also hosting a webpage devoted to this effort that includes an opportunity for input from stakeholders unable to participate in a session.

Barb Naramore asked whether plans exist for sorting through and refining the ideas offered at the open sessions. Wallace said there will likely be some natural progression of ideas discussed among participants, with note of why some ideas are not feasible. The ultimate summary or reflection on the open sessions may need to reflect how the unfold – i.e., what is common or unique among the sessions; frequently raised questions, issues, or solutions. In response to a question from Michael Klingner, Wallace said the meetings will start at 9 a.m. and adjourn no later than 4 p.m. Klinger suggested that these sessions be followed by another communications effort to integrate science/knowledge into the questions and solutions raised.

Drought

Mississippi River Drought Trade Footprint

Elizabeth Ossowski said the National Integrated Drought Information System’s (NIDIS’s) mission and activities of providing regional early warning drought systems, prediction and forecasting, research and monitoring, planning and preparedness, collaboration, and a centralized source of drought-related information. NIDIS convenes nine regional drought early warning systems (DEWS), which utilize new and existing networks of governmental and nongovernmental entities to make climate and drought science accessible and useful for decision makers. The Upper Mississippi River basin is mostly located in the Midwest DEWS.

Ossowski reported that the NIDIS Reauthorization Act was enacted on January 7, 2019, increasing funding for NIDIS by \$1 million from FY 2019 to FY 2023. Highlights of the reauthorization include direction to engage in partnerships with the private sector; to provide resources that reflect watershed differences in drought conditions; to support improvements in seasonal, subseasonal, and low flow water prediction; and to develop a national soil moisture monitoring network strategy.

Ossowski announced that NIDIS is scheduled to host its second National Drought Forum on July 30-31, 2019 in Washington, D.C. Goals for the forum are to assess the status of national drought readiness, to

discuss progress since the first forum in 2012, and to help provide new information and guidance for coordination to improve the nation's preparedness to drought.

Ossowski recalled the impacts of the 2012 drought to the Upper Mississippi River basin, acknowledging that the Mississippi River corridor is at the center of the nation's weather and climate impacts. Therefore, NIDIS is partnering with USDA, NOAA, and the Mississippi River Cities and Towns Initiative to develop a Mississippi River Drought Trade Footprint Study. The study will lend a better understanding of the sensitivity of the Mississippi River corridor to drought and assess the impacts and opportunities for reducing risks to communities. Focus areas of the study will include agricultural production, commercial navigation and transportation, manufacturing, and recreation and tourism. The study's research objectives as follows:

- How does drought impact trade on the Mississippi River in select geographical units?
- What are the economic implications in the river corridor when the river's capacity is limited in providing for commercial navigation due to low water levels?
- Where are those impacts felt within the global marketplace?
- What are the economic implications of drought in the basin on the manufacturing industry along the corridor?
- What are the economic implications of drought on the region's ability to support recreation and tourism along the river?

The study will include more in-depth community-based drought vulnerability assessments in three to four pilot locations. The objective is to better understand long term drought risk – i.e., how do drought events filter to local communities, what are options to reduce risk, activity alternative economic resources, and seek broader relief. The footprint is intended to provide a foundation for corridor-wide guidance to build economic and community resilience. The study will examine the onset (timing, rate), persistence (i.e., duration), and demise. Ossowski said a NIDIS anticipates securing a full time economist to develop the study's approach to estimating the economic impact and trade footprint in summer 2019 and completing the report in 2021.

Groundwater and Streamflow Information Program

Mindi Dalton provided an overview of USGS's Water Mission Area and its plans for developing short- and long-term national water availability assessment. Dalton explained that the National Academies of Sciences, Engineering, and Medicine published a 2018 report recommending that USGS's Water Mission Area explore the following strategic questions:

- What is the quality and quantity of atmospheric, surface, and sub-surface water, and how do these vary spatially and temporally?
- How do human activities affect water quantity and quality?
- How can water accounting be done more effectively and comprehensively to provide data on water availability and use?
- How does changing climate affect water quality, quantity, and reliability, as well as water-related hazards and extreme events?
- How can long-term water-related risk management be improved?

Dalton said USGS's Water Mission Area has four major priorities as follows: 1) modernizing the National Water Information System to maximize data integrity, reliability, and accessibility while simplifying data delivery; 2) develop the next generation water observing system to measure, collect,

and deliver data to help address water resource challenges; 3) develop water prediction models to support daily to decadal forecast-based management of water supplies and infrastructure ; and 4) perform integrated water availability assessments to evaluate availability in terms of spatial and temporal distribution of water quality and quantity.

Dalton explained that USGS's Integrated Water Availability Assessments (IWAAs) address requirements provided in the 2009 Secure Water Act. The requirements include assessing the status and trends of water quality and quantity, developing national scale indicators of availability, and developing and applying predictive tools. Specifically, the IWAAs are intended to evaluate current water supply and demand, quality, and use as well as long term trends in water availability; to provide seasonal to decadal forecasts of availability; and to inform water resource decisions through socioeconomic tools. USGS's FY 2019 priorities for its Water-Use Data and Research (WUDR) program are to improve the collection, Q/A processes, and transfer to USGS of water use data; to improve water-use data for irrigation, public supply, or industrial users (e.g., collection of monthly rather than annual withdrawals); and to research methods and/or coefficients to improve water-use estimates. Dalton stressed the importance of improving state processes to acquire, maintain, document, and electronically deliver water use data in USGS's goal to report daily water use estimates by 2022 for 90 percent of the total water use in the nation.

USGS received FY 2019 appropriations to evaluate 10 pilot IWAA projects, including two in the Upper Mississippi River basin – i.e., the Cambrian-Ordovician aquifer and Fox-Wolf-Peshtigo basins. Both pilot projects will inform how water quality affects water use availability. The Cambrian-Ordovician pilot project will assess the characterization and prediction of pathogen and radium concentrations, which can have adverse impacts on water availability and human health. This information will be especially important given that the aquifer supplies 631 million gallons of water per day for public supply, supporting a population of about 26 million people. USGS will advance the first of three stages for the Fox-Wolf-Peshtigo basin that will ultimately develop a model that will integrate nitrate transport below the root zone to domestic wells with nitrate source information and management scenarios.

In the next year or two, USGS will continue to develop a Delaware River Basin holistic workplan addressing potential impacts of the drought of record under current supply and demand conditions. Additionally, USGS will advance the 10 pilot projects that will ultimately support the development of national and regional integrated water availability assessments. Dalton said the projects will be conducted with state and local partners through cooperative matching funds. By 2021, USGS plans to serve daily water availability indices inclusive of quantity, quality, and use as well as to implement full assessments in western states.

In response to a question from Loren Wobig, Dalton said USGS intends to work through the state Water Science Centers as a means of coordinating with state and local stakeholders.

Missouri 2018 Drought Response Report

Jennifer Hoggatt provided a report on the 2018 drought event in Missouri and the state's response activities. Hoggatt said drought conditions develop throughout the entire state in 2017, with the Climate and Weather Committee convening its first meeting on January 29, 2018. Conditions subsequently appeared to improve following early spring rain. However, drought conditions reappeared after an abnormally cool April and record warmth in May, particularly in the north western corner of Missouri. The Climate and Weather Committee reconvened again on June 7, 2018 and June 13, 2018 as conditions deteriorated. Per the Committee's recommendation, Governor Michael Parson issued an executive order for all counties experiencing severe, extreme, or exceptional drought through December 1, 2018. The order triggered the Drought Assessment Committee to convene and directed all state agencies to examine how they could assist in the state's response. The Committee includes representatives from

24 state and federal agencies, universities, and various local government entities. Suspension of administrative rules and appropriations facilitated the state's ability to provide assistance. Hoggatt said Missouri's communications and coordination throughout the state and with a broad array of stakeholders resulted in tremendous input into the National Drought Mitigation Center.

Hoggatt said Missouri agriculture-related responses included easing restrictions on hay transportation, utilizing federal assistance through USDA programs, providing emergency hay and water access on public lands, and assisting in implementing BMPs such as planting cover crops. To address drinking water issues, Missouri issued mandatory conservation measures in three communities, provided emergency financial assistance, and monitored for potential leaks in rural water sources.

Hoggatt explained that peak drought conditions in Missouri were reached on August 14, 2019. About eight to 12 inches of rainfall in northern Missouri through September 26, 2019 alleviated the drought conditions. The final meeting of the Drought Assessment Committee was held on September 27, 2018, and Governor Parson's executive order was expired on December 1, 2018. Hoggatt pointed to the 2018 Drought Report for more detailed information on the state's drought response actions, located at www.dnr.mo.gov/drought.htm. Missouri is also scoping a new drought mitigation plan.

In response to a question from Marty Adkins about what other states are reporting in terms of drought, Hoggatt said information sharing typically occurs through a drought-related listserv and at national and regional water-related forums. Tim Hall said Iowa is focusing its drought planning in the northwestern part of the state where there is greater vulnerability due to shallow groundwater and agriculture. Adkins asked if Missouri communities are revising local ordinances to reduce vulnerability to significant droughts. Hoggatt said Missouri intends to provide a more comprehensive toolkit for municipalities in the drought mitigation plan. Chris Klenklen added that the North Central Climate Adaptation Science Center hosts a monthly conference call, which is especially helpful for sharing information during significant events.

Federal Agency Reports

U.S. Army Corps of Engineers

Brian Chewning reported that the FY 2019 USACE work plan includes the following Mississippi River-related programs and projects:

- \$150,000 for GLMRIS
- \$57.5 million for LaGrange lock major rehabilitation
- \$33.17 million for UMRR
- \$95.198 million for East St. Louis flood risk reduction project
- \$254.359 million for O&M of the 9-foot navigation channel on the Upper Mississippi and Illinois Rivers
- \$2.5 million to reduce or eliminate combined sewer overflow from the Illinois Madison and St. Clair Counties into the Mississippi River

Additionally, per the FY 2018 disaster supplemental appropriations, \$117.5 million is allocated to the Cedar Rapids flood risk management project and \$11.3 million to the Bois Brule levee deficiency correction.

U.S. Environmental Protection Agency

Ken Westlake said Congress enacted the FY 2019 appropriations measures for most federal agencies including USEPA, which was appropriated \$8.85 billion. That amount is consistent with the agency's FY 2018 funding level. While a major cut is proposed for USEPA in the President's FY 2020 budget, Westlake anticipates that Congress will appropriate at past-year levels. Program and project-related allocations have not yet been released, but Westlake said he anticipates relatively stable funding for the Clean Water Act revolving loan funds.

U.S. Fish and Wildlife Service

Sabrina Chandler reported that USFWS's FY 2019 appropriation is consistent to FY 2018, including allocations to Upper Mississippi River programs. The FY 2020 President's budget proposes relatively consistent funding levels for the Service with the exception of \$509.5 million for the National Refuge System, representing a nearly \$20 million increase and the highest funding level for refuges. Of particular note, the budget would increase funding for O&M of refuge facilities that would help advance resource needs on UMRB habitat projects.

Internal discussions regarding the planned DOI reorganization continue to occur. Questions still remain about potential implications for USFWS work that spans Illinois and Iowa given that the new boundary splits between the states. The roles and responsibilities of the DOI regional directors are still under consideration.

Matt Vitello reported that Missouri DoC and Missouri DNR convened a call with DOI intergovernmental affairs. DOI staff said regional directors are not yet assigned but that agency representation in interstate organizations such as UMRBA will be determined once those positions are filled. Chandler expressed USFWS's continued commitment to remain actively engaged in UMRBA for the time being.

U.S. Geological Survey

Scott Morlock reported that USGS's FY 2019 appropriation is \$1.16 billion, which is a \$12 million increase above its FY 2018 appropriation. Most of the increase is directed to the agency's water mission area. The President's FY 2020 budget proposes \$983 million. Morlock said detailed allocations can be found online.

Morlock said the DOI reorganization should not have significant impacts to USGS's roles and responsibilities. Most of the agency's science is conducted and delivered through the state Water Science Centers. USGS will move from seven to 11 regions under the new construct, but will not hire any additional regional directors. Therefore, one or more regional directors will be responsible for multiple regions. Morlock said he will continue to be actively engaged in UMRBA and greatly appreciates the partnership that the Association facilitates. Amy Beussink added that, although the new region will split along the Mississippi River between Illinois and Missouri and Iowa, the three states will still be combined in one Water Science Center.

U.S. Department of Agriculture

Marty Adkins reported that NRCS anticipates rolling out new rulemaking following changes to the RCPP authorized in the 2018 Farm Bill. Adkins said the UMRBA states will receive about \$107 million in FY 2019 funding under the Environmental Quality Incentives Program (EQIP). Iowa was recently granted an additional \$7 million to implement projects that were unexpended by other

states. The Conservation Stewardship Program was allocated \$700 million for national projects. Adkins noted that the Watershed Protection Program received funding for the first time since FY 2011.

Adkins announced that he is scheduled to retire in August 2019 and Verlon Barnes will represent NRCS as its federal liaison to UMRBA. Barnes serves as NRCS's Upper Mississippi and Missouri River Basin Coordinator and liaison to the Corps.

America's Watershed Initiative

Frank Morton introduced himself as America's Watershed Initiative's new Executive Director. Morton said his background is mostly in the barge and towing business with experience throughout the Mississippi River watershed.

Morton said AWI's goals for the next year include the following:

- An updated report card of the Mississippi River watershed originally published in 2015. The report card evaluates management of the river for six broad goals: ecosystems, recreation, flood control and risk reduction, economy, water supply, and transportation. The updated report card will also assess management of the river for energy.
- A series of webinars to connect watershed stakeholders. The first webinar is scheduled for June 25, 2019 and will essentially replay on June 27, 2019. The webinar will also be recorded and available on AWI's website. The first webinar's focus is about the changing dynamics of water moving through the watershed. The AWI Board acknowledges that the volume and velocity of water moving to the Mississippi River is increasing and affecting all major uses and purposes of the river system.
- A white paper written by previous MVD Commander Duke DeLuca outlining a vision statement for America's Watershed and describing the challenges facing the country in managing for the river's sustainability.

Morton explained that AWI is also focusing on fundraising, connecting with various businesses, foundations, and other stakeholders throughout the basin.

Administrative Issues

Future Meeting Schedule

August 2019 — La Crosse

- UMRBA quarterly meeting — August 20
- UMRR Coordinating Committee quarterly meeting — August 21

October 2019 — St. Paul

- UMRBA quarterly meeting — October 29
- UMRR Coordinating Committee quarterly meeting — October 30

February 2020 — Dubuque, Quad Cities, or Muscatine

- UMRBA quarterly meeting — February 25
- UMRR Coordinating Committee quarterly meeting — February 26

With no further business, the meeting adjourned at 3:20 p.m.