November 16, 2021

Upper Mississippi River Basin Association

160th Quarterly Meeting

Agenda
with
Background
and
Supporting
Materials

Virtual Meeting

160th Quarterly Meeting
Virtual Meeting

Upper Mississippi River Basin Association

November 16, 2021

Agenda

Connection Information:

- Web and video conferencing: https://umrba.my.webex.com/umrba.my/j.php?MTID=m46f935bda0b390e67b0ed4e6420d6c0b
- Phone connection:
  - Dial-in: 312-535-8110 [Note: In the event that the call line provided is experiencing a high volume of calls, you may also connect by dialing 469-210-7159.]
  - Access code: 2550 686 4810
  - Password: 1234

Time	Attachment	Topic	Presenter
8:00 a.m.		Call to Order and Introductions	***Dru Buntin**, Missouri DNR*
8:05	A1-23	Approval of Minutes of August 10, 2021 Meeting	
8:10	B1-9	Executive Director's Report	***Kirsten Wallace**, UMRBA*
8:20		UMR Ecosystem and Water Quality Assessments ▪ UMRR Long Term Resource Monitoring Status and Trends ▪ UMRBA How Clean is the River Report	 ***Jeff Houser**, USGS UMESC* ***Kirsten Wallace**, UMRBA*
8:50		Report from UMRBA WQ Executive Committee ▪ Draft 10-Year UMRBA WQ Program Plan ▪ Hypoxia Task Force Report ▪ Draft UMRBA Chloride Resolution ▪ Reaches 8-9 CWA Monitoring Pilot Project	***Katrina Kessler**, Minnesota PCA* ***John Hoke**, Missouri DNR*
9:45		Break	
10:00		Navigation and Ecosystem Sustainability Program	***Andrew Goodall**, USACE*
10:15		Mississippi River Initiatives ▪ MRCTI Report ▪ Mississippi River Basin Monitoring	 ***Mayor Phil Stang**, Kimmswick, Missouri and **Mayor Bob Gallagher**, Bettendorf, Iowa* ***Heidi Mehl** and **Liz Crow**, The Nature Conservancy*
	C1	▪ Ecosystem Restoration Index	***Eileen McLellan**, Environmental Defense Fund*
11:15	D1-5	Brandon Road Interbasin Project	***Loren Wobig**, Illinois DNR*
11:40 a.m.		UMRBA Resilience Planning	***UMRBA Board***

(Continued)

UMRBA Quarterly Meeting (Continued)
November 16, 2021

Time	Attachment	Topic	Presenter
12:00 noon		Lunch	
1:00 p.m.	E1	Missouri River Container-On-Barge MARAD Project Designation	*Cheryl Ball, Missouri DOT*
1:30		Illinois River Basin NGWOS	*Jim Duncker, USGS Central Midwest Water Science Center*
1:45		2022 Water Resources Development Act ▪ Stakeholder Priorities	
1:55	F1	Administrative Issues ▪ Future Meeting Schedule	
2:00 p.m.		Adjourn	

(See Attachment F for frequently used acronyms.)

ATTACHMENT A

Minutes of the August 10, 2021 UMRBA Quarterly Meeting

(A-1 to A-23)

DRAFT
Minutes of the 159th Quarterly Meeting of the Upper Mississippi River Basin Association

August 10, 2021
Web-Based Conference Meeting

Tim Hall called the meeting to order at 8:01 a.m. Participants were as follows:

UMRBA Representatives and Alternates:

Rick Pohlman	Illinois Department of Natural Resources
Chad Craycraft	Illinois Department of Natural Resources
Loren Wobig	Illinois Department of Natural Resources
Tim Hall	Iowa Department of Natural Resources
Jake Hansen	Iowa Department of Agriculture and Land Stewardship
Katrina Kessler	Minnesota Pollution Control Agency
Jennifer Hoggatt	Missouri Department of Natural Resource
Chris Klenklen	Missouri Department of Agriculture
Matt Vitello	Missouri Department of Conservation
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
Ken Westlake	U.S. Environmental Protection Agency, Region 5
Sabrina Chandler	U.S. Fish and Wildlife Service, UMR Refuges
Scott Morlock	U.S. Geological Survey, Midcontinent Region
Verlon Barnes	Natural Resources Conservation Services

Others in Attendance:

BJ Murray	Illinois Department of Transportation
Gregg Good	Illinois Environmental Protection Agency
Randy Schultz	Iowa Department of Natural Resources
Katie Smith	Minnesota Department of Natural Resources
Megan Moore	Minnesota Department of Natural Resources
Rita Weaver	Minnesota Department of Natural Resources
Patrick Phenow	Minnesota Department of Transportation
Matthew Kirsch	Missouri Department of Natural Resources
Aaron Pruitt	Wisconsin Department of Natural Resources
Mike Halsted	Wisconsin Department of Transportation
Jim Cole	U.S. Army Corps of Engineers, MVD
Leanne Riggs	U.S. Army Corps of Engineers, MVD
Ben Robinson	U.S. Army Corps of Engineers, MVD

Thatch Shepard	U.S. Army Corps of Engineers, MVD
Renee Turner	U.S. Army Corps of Engineers, MVD
Angela Deen	U.S. Army Corps of Engineers, MVP
Steve Tapp	U.S. Army Corps of Engineers, MVP
Chris Erickson	U.S. Army Corps of Engineers, MVP
Aaron McFarlane	U.S. Army Corps of Engineers, MVP
Andy Meier	U.S. Army Corps of Engineers, MVP
Ann Banitt	U.S. Army Corps of Engineers, MVP
Kim Thomas	U.S. Army Corps of Engineers, MVR
Jodi Creswell	U.S. Army Corps of Engineers, MVR
Andrew Goodall	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Marshall Plumley	U.S. Army Corps of Engineers, MVR
Rachel Hawes	U.S. Army Corps of Engineers, MVR
Jon Klingman	U.S. Army Corps of Engineers, MVR
COL Kevin Golinghorst	U.S. Army Corps of Engineers, MVS
Michael Feldmann	U.S. Army Corps of Engineers, MVS
Jasen Brown	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
Shawn Sullivan	U.S. Army Corps of Engineers, MVS
Greg Kohler	U.S. Army Corps of Engineers, MVS
Kat McCain	U.S. Army Corps of Engineers, MVS
Lance Engle	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, Regional Planning Division North
Sharon Sartor	U.S. Army Corps of Engineers, Headquarters
Bryan Taylor	U.S. Army Corps of Engineers
Jason Daniels	U.S. Environmental Protection Agency, Region 7
Neal Jackson	U.S. Fish and Wildlife Service, UMRCC
Sara Schmuecker	U.S. Fish and Wildlife Service, Illinois-Iowa Ecological Services
Matt Mangan	U.S. Fish and Wildlife Service, Illinois Ecological Services
Tim Yager	U.S. Fish and Wildlife Service, Winona
JC Nelson	U.S. Geological Survey, Midcontinent Region
Mark Gaikowski	U.S. Geological Survey, UMESC
Kristen Bouska	U.S. Geological Survey, UMESC
Jennie Sauer	U.S. Geological Survey, UMESC
Jeff Houser	U.S. Geological Survey, UMESC
Jennifer Dieck	U.S. Geological Survey, UMESC
Andrew Bohnenkamp	Natural Resources Conservation Service
Steve Buan	National Oceanic and Atmospheric Administration, NWS
Mike Welvaert	National Oceanic and Atmospheric Administration, NWS
Molly Woloszyn	National Oceanic and Atmosphere Administration, NIDIS
Crystal Stiles	National Oceanic and Atmospheric Administration, NIDIS
Olivia Dorothy	American Rivers
Jim Koeller	Illinois Farm Bureau
Sarah Rubenstein	Great Rivers Environmental Law Center
Gary Loss	HNTB
Carolyn Mahlum-Jenkins	League of Women Voters/Naiad Consulting
Doug Daigle	Lower Mississippi River Sub-Basin Committee (Hypoxia Task Force)
Linda Loomis	Naiad Consulting

Rick Stoff	Our Mississippi
Gretchen Benjamin	The Nature Conservancy
Doug Blodgett	The Nature Conservancy
Trey Cook	The Nature Conservancy
Brent Hoerr	Upper Mississippi, Illinois, and Missouri Rivers Association/Missouri Corn Growers Association
John Winkelman	Des Moines Levee District
Paul Rohde	Waterways Council Inc.
Tom Boland	Wood
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
Janelle Gaun	Upper Mississippi River Basin Association

Minutes

Steve Galarneau moved and Rick Pohlman seconded a motion to approve the draft minutes of the May 25, 2021 UMRBA quarterly meeting as written. The motion was approved unanimously.

Executive Director's Report

Kirsten Wallace pointed to the Executive Director's report in the agenda packet for a summary of the Association's other work efforts since the May 2021 quarterly meeting. Wallace reported on new announcements since the packet publication and elaborated on a few key developments, as follows:

USEPA obligated $250,000 to UMRBA on August 3, 2021 to complete OPA work in FY 2022. This is an increase of $100,000 over the recent annual amount. The budget includes 75 percent of this award given that the funds would extend into UMRBA's FY 2023 budget – i.e., months of July 2022 through September 2022. The expenses are currently captured in OPA Wages. Mark Ellis and USEPA staff are scheduled to talk later this week on potential activities. This includes reflecting on the current draft form of a new five-year strategic plan. An initial scoping document of the strategic planning process is included in the agenda packet. The next strategic planning session is scheduled for August 17, after which we anticipate a draft will be ready for review by UMR Spills Group agencies and stakeholders. This strategic plan will likely drive the UMR Spills Group's priorities for work to advance with the additional funds.

Yesterday, on August 9, 2021, the Corps' contracting office provided UMRBA with a contract proposal for assistance in developing the 2022 UMRR Report to Congress. That work would involve drafting portions of the report and working with various program partner authors to pull together the report with a single voice. In particular, UMRBA will work with program partners in developing implementation issues assessments that will be used to inform conclusions and recommendations to include in the report. Katrina Kessler moved and Steve Galarneau seconded a motion to enter into a contract with the Corps for up to $70,000 to support the 2022 UMRR Report to Congress development. The motion carried unanimously.

Wallace provided an overview of recommended changes to UMRBA's FY 2022 budget, reflecting both income and expense estimates based on the USEPA and USACE contract. The draft budget was provided

to the UMRBA Board on August 9, 2021. Kessler moved and Galarneau seconded a motion to approve the draft FY 22 UMRBA budget amendment per the August 9, 2021 draft. The motion carried unanimously.

Wallace pointed to UMRBA's financial statements on pages B-15 to B-21 of the agenda packet. Tim Hall moved and Steve Galarneau seconded a motion to approve the Association's budget report and balance sheet as included in the agenda packet. The motion was approved unanimously.

Wallace reported that, on July 9, 2021, UMRBA received a notice from the USEPA External Civil Rights Compliance Office that it received a written complaint from Olivia Dorothy on behalf of American Rivers alleging UMRBA discriminated against communities of color living in the Mississippi River floodplain area based on race and national origin in violation of Title VI of the Civil Rights Act of 1964. The claim is that UMRBA knowingly and deliberately excluded the Black, Hispanic, and Hmong communities who live and work in the Mississippi River Basin floodplain areas from participating in the development of programs, projects and policies related to flooding along the Mississippi River. UMRBA is fully cooperating with USEPA and has hired legal counsel to assist staff in working through the process. The UMRBA Board believes that this claim is wholly without merit and expects a favorable outcome.

UMRBA staff are patiently, but eagerly, awaiting the arrival of Lauren Salvato first child expected in mid August 2021. Wallace said she will share the news with the UMRBA Board and WQEC and WQTF as appropriate.

Wallace reported that a new construction start for NESP is included in the House and Senate appropriations FY 2022 measures. Wallace expressed appreciation to the basin's Congressional members and partners on NESP, particularly WCI and TNC.

On behalf of UMRBA, Wallace testified to the House Select Committee on the Climate Crisis on Friday, June 11, 2021. The hearing focused on building resilient communities and also included the mayors of Madison, Los Angeles, and Atlanta. UMRBA testimony focused on how regional science, coordination, and planning can result in regional resilience. The testimony shared what we know about ecological resilience through the Upper Mississippi River Restoration (UMRR) program and underscored the interconnectedness of communities and river users/uses that require a collective effort at the regional or watershed scale. In addition, the testimony called for investment in UMRR, the Navigation and Ecosystem Sustainability Program (NESP), nutrient reduction strategies, and long term resilience planning.

UMRBA met in a July 15 virtual meeting with USEPA Office of Water's Office of Wetlands, Oceans, and Watersheds (OWOW) leadership. Staff were joined by UMRBA WQEC members Katrina Kessler and Chris Wieberg. UMRBA provided an overview of Upper Mississippi River management from a multi-purpose perspective, UMRBA's water quality program from its inception and today, and UMRBA's goals for working with USEPA.

Wallace expressed appreciation to Janelle Guan, who served as an intern for UMRBA throughout the summer. Guan supported UMRR and water quality-related initiatives.

UMRBA Resilience Planning

Tim Hall reported that members and alternates of the UMRBA Board held an in-person resilience planning retreat on July 27-29, 2021 at the Black Hawk State Historic Site in the Quad Cities. On behalf

of the Board, Hall expressed appreciation to Illinois DNR staff for hosting the meeting. The facility was very nice and could be a venue for future UMRBA quarterly meetings and other events.

Hall said the Board members had extensive discussion about resilience planning, the Keys to the River Report, and other issues that the states have been working through over the past few years as well as the stakeholder input received so far. A strength of UMRBA is its ability to convene the perspective of the five states and all people we represent within our states. Hall recognized the challenges of managing the river in a time of changing hydrologic and climate conditions and acknowledged the tremendous amount of work ahead of us. We need to continue to work to assemble resources. UMRBA recognizes and appreciates the partnership of the federal agencies that work with the states in managing the river. We want to facilitate more cooperative action between state and federal agencies as we work on resilience issues.

Hall explained that, during the retreat, Board members and alternates reviewed the short- and long-term actions in the areas of flood, drought, and sediment management in the draft Keys to the River Report and developed a list of key actions for UMRBA to implement over the next three years. The UMRBA Board is currently reviewing those priorities, bringing in other staff within the states to help us sort through the priorities. The Board anticipates having a more refined set of priorities and scope of work in about a month. We will use that scope to facilitate conversations with our partners, including how we can best achieve those priorities through collaboration.

Hall reminded that UMRBA remains committed to multi-purpose management, balancing the interests of river uses and users. The UMRBA Board wants to continuing developing relationships with stakeholders who are impacted by what happens in terms of how the river is managed. We need to continue to learn from peoples' perspectives; particularly how actions and issues uniquely affect people.

Hall said the UMRBA Board expresses its sincere appreciation to the Corps for the work we were able to accomplish through the planning assistance to the states (PAS) agreement. Several Corps leaders met with the Board the last day of the retreat in the morning of July 29, 2021. We appreciate their time, which resulted in a good start to conversations about how we work together through these issues.

Hall reflected on the value of talking with UMRBA colleagues face-to-face. Hall said he is looking forward to UMRBA's quarterly meeting being in-person when appropriate. Those meetings provide robust opportunity for facilitating partnership and exchanging information.

Steve Galarneau echoed Hall's perspective on the value of having the retreat held in-person. While teleworking offers opportunities that will be important to retain (e.g., expanding access to meetings), meeting in-person is important for building relationships and engaging with colleagues. Jim Fischer reflected on the past several years of UMRBA focusing on resilience planning and expanding stakeholder involvement. Fischer observed that it takes time to manage complicated issues on such a complex and large river system. Fischer said he believes that the Keys to the River Report is moving the partnership in the right direction. Acknowledging that the underlying drivers for flooding and sediment are similar, Fischer observed that actions targeted at improving our knowledge of existing conditions and forecasting future conditions will benefit both flood and sediment management on the river.

Rick Pohlman said our work must begin with knowledge to improve our assessment of resilience from which we can prescribe implementable changes. The work must be done with the involvement and communication among stakeholders. During the last two years, government agencies have started building relationships with, and expanding opportunities to, people and communities who may not have

had opportunities or ability to weigh into planning and decision making. Learning from those experiences and perspectives is important for increasing our knowledge base. In partnership through a cooperative action plan, we need to identify where the issues are occurring, how they can be alleviated, and how vulnerabilities can be addressed. Pohlman said he believes the work done to-date has successfully provide a foundation for a longer-term endeavor to improve the system in a cooperative manner.

Loren Wobig concluded that the retreat was a necessary event to help the UMRBA Board springboard from Keys to the River Report, by having a focused discussion on what things need to be worked through in the near-term and what needs additional time and resources to accomplish. Wobig acknowledged that there are a lot of resources at our disposal. Through partnership with the states, federal government, academic institutions, and nonprofit entities, we can build the partnership network to help us accomplish our goals.

Jennifer Hoggatt reflected that the retreat allowed the UMRBA Board to focus specifically on what the states collectively can effectively influence and how UMRBA and the states are best suited to move these ideas into tangible results. We acknowledge that stakeholders are weary of continued study and discussions and want to see actions that result in improved resilience. Hoggatt encouraged stakeholders to work collectively, acknowledging that everyone will play a pivotal role.

Jake Hansen said it was helpful to understand how the issues occurring in Iowa are relating in other states and that the states' approaches to solving them are similar. It was also helpful to deep dive on topics that the states collectively do not have time to address, including relatable, specific examples within our states that can be applied to the broader region – e.g., localized management of drought.

On behalf of Barb Naramore, Katrina Kessler said Naramore appreciated the conversation. Kessler said resilience issues can benefit from regional, interstate cooperation – i.e., leveraging experience, problem solving, and filling knowledge gaps. Collective action will benefit all of us.

Kirsten Wallace expressed appreciation to Brian Stenquist for his facilitation services during the resilience planning retreat. Stenquist helped to make the retreat productive, allowing for us to now find that time together to be valuable.

Northern Midwest Drought

Conditions and Impact Assessment

Molly Woloszyn provided an assessment of the drought conditions and associated impacts in the Upper Mississippi River basin. Woloszyn showed an image of the current drought status in the north central states per the U.S. Drought Monitor as of August 3, 2021. In Minnesota, 97 percent of the state is in drought with 35 percent of the state in extreme drought – i.e., D3. In Iowa, 54 percent of the state is in drought with 7 percent of the state in extreme drought. It is anticipated that the highest level of drought (i.e., D4) may be soon classified in Minnesota. Earlier this summer, D3 was present in northern Illinois and southern Wisconsin but there has been recent improvement. For context, Woloszyn added that there has been exceptional drought throughout the summer in the Missouri River Basin.

Woloszyn explained that some areas in Minnesota have experienced a fast acceleration (moving through three classifications) of drought severity over the summer – i.e., June 8 to August 3. The drivers are a combination of below normal precipitation and above normal temperature, both short term over the

summer and the past year. The NASA soil moisture anomaly from August 5 shows very low in Minnesota, ranging from 40- to 45-percentile below normal. Minnesota climatology office indicates that soil moisture levels this year are comparable to 2012. USDA topsoil reports are showing that 81 percent of Minnesota farmers are saying that their soils are short to very short. Stream flows are low in Minnesota and Iowa.

As an impact assessment, there has been limited water availability in places like Sioux Falls and Des Moines, water quality issues particularly in livestock ponds, some crop stress (overall good), and smoke and fire issues. Woloszyn mentioned that the National Drought Mitigation Center's Condition Monitoring Observer Report (CMOR) is where water users can submit a relatively easy survey to report localized conditions. It is a helpful tool to understand conditions on the ground.

Future conditions are estimated to be dry in Minnesota and northwestern Iowa with temperatures above normal continuing in August and throughout October. Significant fire potential extends from the Missouri River Basin into northern Minnesota.

Woloszyn explained that NIDIS' drought response is mostly providing information – i.e., overview of current conditions, impacts, and outlooks. NIDIS hosts webinars and disseminates drought status updates via email and on its drought.gov web portal, which includes regional and localized information. NIDIS also convenes partners within a state or among interstate regions and employs post-drought assessments of overall impacts and response efforts.

Kirsten Wallace thanked Woloszyn and the NIDIS team for their efforts in sharing information on the drought severity frequency and through a variety of forms. Wallace referred to the chat forum and read a question from Olivia Dorothy asking Woloszyn for her to speak about the drought occurrence in the context of the 2021 Intergovernmental Panel on Climate Change (IPCC) report. Woloszyn said current knowledge of climate change assumptions suggests that drought tendencies in the Midwest will most likely occur more quickly and with more intensity but with some occurring over a longer duration. NIDIS is currently funding studies to better understand drought trends in the Midwest and will make the findings available via the Midwest DEWS. Woloszyn said NIDIS is also willing to serve as in a more direct partnership with UMRBA, particularly with respect to research expertise.

State Planning and Response Efforts

Minnesota

Katie Smith reported that Minnesota is experiencing a serious hydrologic imbalance, with soil moisture reserves, groundwater supplies, and lake levels and stream flows being negatively impacted. Water-dependent industries, such as agriculture, public utilities, forestry, and tourism, are being profoundly affected. Minnesota is currently in the drought warning phase, estimating how the drought might continue to unfold based on current conditions. At least five to eight inches of precipitation over the next month are needed to significantly alleviate the drought.

Smith explained that Minnesota DNR's water management responsibilities include monitoring surface and groundwater conditions, appropriating water, regulating activities affecting public waters, and managing both floods and droughts. The agency uses both low flow suspensions, protected lake elevation, well interferences as protective standards, balanced around the priority of water use. The priority is placed on domestic water supply, small appropriations, agriculture irrigation and processing, power production, and other non-essential uses.

Acknowledging that low flows and levels are essential to healthy aquatic ecosystems, Smith explained that Minnesota's drought response triggers are designed to appropriately balance managing for ecological purposes and human uses.

Smith provided an overview of the five stages of the Minnesota Statewide Drought Plan. The state is currently operating in the drought warning phase, starting to implement water use restrictions, reductions, and conservation measures. Should conditions continue to decline, Minnesota would require water suppliers to further reduce water use and appropriators to further minimize non-essential water uses. Lastly, the emergency phase would include advice to the Governor of the need for an emergency declaration and to implement emergency operations plan. Minnesota would consider requesting that the Corps release water from Mississippi River reservoir. Further measures would including further reductions from public water suppliers, limiting water to the highest priorities, and providing water as needed. Smith also provided an overview of the suite of Minnesota's drought response efforts taken so far during this drought event, including implementing low flow conditions, communications, monitoring, and fire management. Smith elaborated on water appropriation suspensions standards, which are based on sustainability and protected flows. Staff are continuing to monitor watersheds to determine when the low flow threshold has been reached that would trigger the suspensions. Smith described the agency's extensive communications efforts, including to individual permittees, media, industries, communities, residents, and livestock producers.

Kirsten Wallace read a comment from Katrina Kessler in the chat forum reporting that, in early August, Minnesota PCA initiated a low water quality study of the Minnesota River to evaluate whether any progress has been achieved stemming from the Low Dissolved Oxygen TMDL.

Iowa 2021 Drought Mitigation and Response

Tim Hall recalled that 2018 and 2019 was the wettest two-year period on record for the state of Iowa, with 30 inches of rain above normal. At the opposite end of the spectrum, the state was exceptionally dry in 2020 and 2021. Iowa is located in a transitional zone, with dry conditions in northwestern Iowa and wetter conditions in southeastern Iowa. Hall explained that these situations are complicating communications and management. Hall observed that Iowa DNR has benefited from its efforts to build relationships over the past several years with experts and individuals and organizations that aid tremendously in managing these emergency situations.

Hall provided a deeper overview of the drought conditions in northwestern Iowa. This area is vulnerable to drought because of the higher concentration of livestock production and irrigation, resulting in an exceptional amount of demand on water resources. Rural water systems report that about 90 percent to 95 percent of their water is used for animal agriculture. Additionally, this area is the most limited in terms of available, usable groundwater. Water sources are restricted to shallow alluvial aquifer systems long streams and rivers, which is heavily influenced by precipitation.

Hall explained that, in late 2019, troubling signs of drought started to occur, particularly in northwestern Iowa. That triggered Iowa DNR and its partners to begin convening and planning for informational public meetings about these issues. Prior to the drought monitoring indicating severe conditions, Iowa had already been engaging with stakeholders, convening virtual meetings in January, March, May, and June 2020. Iowa DNR meets with affected and potentially affected water users and resource managers to share the current understandings of conditions and projections. Iowa DNR also issues a monthly water summary, which includes figures and text designed to be useful for the general public.

Iowa DNR will continue to work with federal agencies and partners to remain vigilant and communicate anticipated impacts to water users. Iowa has not had to issue any limitations to water users, but anticipates having to issue warning letters to irrigators if conditions worsen.

Ken Westlake asked whether aquifer recharge during the wet years of 2018 and 2019 aided water storage capacity in 2020 and 2021. In response, Hall confirmed that the dry conditions in 2020 and 2021 are similar. But the benefit of the water storage reserves built up during 2018 and 2019 in the shallow aquifers were used for water supply in 2020. This year, the state started dry and did not have the similar benefit of water reserves and that is why the state has been operating in more of an emergency mode.

Westlake asked how Iowa DNR manages surface water reservoirs as conditions flip from high precipitation to low precipitation. Hall explained that Iowa does not have substantial storage capacity to manage beyond the Corps' three reservoirs. The state relies substantially on precipitation. Hall mentioned that water facilities in northwestern Iowa have added resilience to their systems through off-stream storage capacity and low-head dams to create small reservoirs.

Illinois Starved Rock Harmful Algal Bloom

Gregg Good reported on the harmful algal bloom (HAB) occurrence at Starved Rock on the Illinois River in early June 2021. Good mentioned that Illinois EPA established its HAB monitoring program in 2013 and has made incremental improvements since then. Good also explained that the Starved Rock location is heavily influenced by nutrient inputs from Chicago and the Fox River.

The Corps had informed him of a potential HAB at Starved Rock on June 9, 2021, triggering Illinois EPA to collect samples on June 10 of all four associated toxins: microcystin, cylindrospermospin, anatoxin-a, and saxitoxin. Only microcystin was detected at the time. The results were shared publicly on June 16 with an official press release issued on June 17. USGS continuous monitoring near Starved Rock indicated a HAB occurrence.

Sampling on June 15-16, 2021 by Illinois EPA (one sample) and USGS Next Generation Water Observing System (three samples), with three of four samples detecting microcystin levels above the 8 ug/L threshold. These results were released publicly on June 22. Following precipitation events, USGS continuous monitoring showed no HAB occurrence by June 30.

Using USGS continuous monitoring values of temperature, discharge, dissolved oxygen, pH, chlorophyll, and phycocyanin fluorescence to infer whether a HAB event is occurring. Good emphasized the value of USGS continuous monitoring for detecting and monitoring HABs. He thanked the partnership involving the Corps, USGS, Illinois EPA, and the Illinois EPA laboratory.

Good said the USGS continuous monitoring information was used to trigger Illinois EPA's field sampling on June 30, which resulted in a non-detect of microcystin. On July 28, the Corps informed of another potential HAB again using USGS continuous monitoring. However, on August 4, the Corps was on the river and did not see signs of a HAB occurrence.

Good said he is looking forward to the advancements in HAB knowledge stemming from the Illinois River Next Generation Water Observing System.

In response to a comment in the chat forum from Matt Kirsch as read by Wallace, Good explained that Illinois EPA uses the USEPA standard of 8 ug/L for microcystin as a threshold for recreational use. The Illinois Pollution Control Board has not yet adopted standards for the other toxins.

In announcing that Good is planning to retire from Illinois EPA this winter, Wallace expressed sincere gratitude for Good's tremendous contributions to UMRBA's water quality program throughout his career. Good brings a very positive energy, drive, and ambition as a leader within UMRBA. Wallace wished the best to Good and his family in retirement.

Missouri Drought Mitigation Plan

Matt Kirsch provided an overview of Missouri's ongoing drought planning effort. Kirsch explained that the existing 2002 state drought plan is limited in scope. Substantial droughts experienced within Missouri since the report's publication have underscored the need for better preparation. In late 2020, Missouri initiated a major update to its statewide drought plan. Kirsch added that, while the state typically enjoys abundant water resources, water is not always acceptable or where it is needed to meet water use needs.

Kirsch listed Missouri DNR's goals for drought planning as follows:

- Describe the types of droughts that may occur and their impacts.
- Characterize regional vulnerabilities to drought.
- Assess resiliency to drought – i.e., how prepared are water users in mitigating impacts from, and responding to, drought?
- Quantify potential economic impacts from drought.
- Establish region-specific triggers for implementing drought mitigation and response actions that consider both current conditions and drought forecasts.
- Develop a portfolio of mitigation actions that may be effective in preventing or minimizing economic and social impacts from drought.

Kirsch added that Missouri DNR is expanding its soil moisture monitoring network in combination with ground water monitoring and is employing a study regarding the yield during drought at 50 drinking water reservoirs. The purpose being to help local communities with their drought planning.

Wisconsin

Aaron Pruitt provided an overview of the Central Sands Lakes Study, which was published in May 2021. By way of background, Pruitt characterized the Central Sands Lakes region as a shallow sand and gravel glacial aquifer that is heavily irrigated and supports production of potatoes and vegetables.

The area became famous in the late 2000s when regional lakes and waterbodies were making national news for essentially drying up. This triggered numerous studies to discover the reason for low water levels, eventually leading to the Central Lakes Study. But, by the time planning was organized and resources secured, the region experienced a hydrologic shift where those same waterbodies were facing high water levels and the public was concerned with flooding. The study continued with the specific intent to determine whether existing and potential groundwater withdrawals were causing significant reduction of the lakes' water levels to drop below average seasonal levels. The focus was further refined

to answering: to what extent do groundwater withdrawals affect lake levels and is this change "significant" to the lake ecosystems?

Because existing long term data showed that the lake levels experienced high fluctuations over time, Wisconsin DNR developed a groundwater flow model to tease apart the effects of weather and land use of water levels and to isolate the potential affects of pumping. The studies major findings were:

- The study lakes are well connected to groundwater.
- Lake levels naturally vary due to weather and geographical location.
- Average seasonal levels are somewhat irrelevant because of natural variability, which is beneficial ecologically.
- Agricultural irrigation accounts for over 95 percent of groundwater withdrawals in the lake model area.
- Recharge is important to understanding the groundwater system.
- Distance and pumping are the major factors that affect how high-capacity wells cumulatively drawdown levels on the study lakes.

Wisconsin DNR's resulting recommendation is to establish a regional water use management district composed of high-capacity well owners, landowners, county land and water representatives, and natural resource groups. This state-local partnership would allow for identifying the most impacted lakes and streams, set thresholds for surface waterbodies, and develop plans for reducing impacts from pumping. The regional district would provide oversight and coordination, and routine planning and implementation would occur on a five-year cycle.

Pruitt put forward that this presentation is a very brief synopsis of a very extensive study that occurred over multiple years. Pruitt acknowledged the contributions of many organizations that contributed to multiple teams. Pruitt reflected that the most pressing insight gained is the value of starting a long term data collection program before detecting a problem. The long term data available to use in this study was essential to understanding variability over time and using scientific data to understand the impacts of pumping on the lakes.

NIDIS Tribal Drought Engagement Strategy

Woloszyn provided an overview of NIDIS, which was established by Congress in 2006 to implement an interagency mandate to develop and provide a national drought early warning information system. The purpose was to move the nation from a reactive approach to a more proactive approach to managing drought risks and impacts. Congress authorized NIDIS to engage in partnerships with federal, state, tribal, and local partners as well as the private sector, academic institutions, and citizen scientists. Of particular note, in its 2018 reauthorization, Congress directed NOAA to develop a strategy for a national soil moisture monitoring network.

Woloszyn explained NIDIS's approach to drought early warning, providing the definition of early warning as "provision of timely and effective information that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response." The Drought Early Warning System (DEWS) includes observations and monitoring, predictions and forecasting, planning and preparedness, communication and outreach, and interdisciplinary research and applications. The Midwest DEWS covers the Upper Mississippi River basin.

The NIDIS Tribal Engagement Strategy was developed in collaboration with tribal nations located in the Missouri River basin and the Midwest Region. NIDIS views the principles of engagement as applicable in other parts of the country. Woloszyn explained that NIDIS has historically worked with tribal nations and provided funding and other resources to address drought vulnerabilities. But, NIDIS developed the 2021-2025 NIDIS Tribal Drought Engagement Strategy for the purposes of building a strategic and proactive approach to engaging with tribal nations and ensuring that their perspectives are integrated into NIDIS's work. The plan sets forth "guiding principles of engagement," including respecting tribal sovereignty, ensuring trust and reciprocity, and ensuring DEWS are culturally appropriate and useful for tribal nations. The plan's key outcomes and activities include the following:

- Interdisciplinary research and applications
- Prediction and forecasting
- Observations and monitoring
- Planning and preparedness
- Communications and outreach

NIDIS is placing a particular emphasis on expanding tribal engagement as a priority moving forward, including with tribal colleges and universities, alliances and networks, resource and water managers. Additionally, this includes coordinating with federal agencies and regional organizations.

Woloszyn announced that NIDIS recently hired Dr. Crystal Stiles to serve as a full-time tribal engagement coordinator. NIDIS has recently published a notice for a "coping with drought" grant competition, focusing on building tribal drought resilience. NIDIS is also hosting listening sessions with tribal nations to discuss the best ways to represent tribal needs on drought.gov.

Wallace congratulated Dr. Stiles on her new position and said UMRBA is looking forward to working with her in her capacity with NIDIS.

Drought Impacts on Arsenic in Private Wells

Melissa Lombard discussed the results of recent research regarding drought impacts on arsenic levels in private wells. The study was completed in partnership with the Centers for Disease Control and published in the Environmental Science and Technology in January 2021. The study explained that USEPA has a drinking water standard of 10 ug/L for public water supplies; although private wells are generally not regulated and water quality testing is the responsibility of individual homeowners.

Lombard said the research started with an original USGS groundwater arsenic model that was based on data from over 20,000 domestic wells. It showed regional difference in arsenic levels throughout the country, showing probability in Minnesota, Iowa, and Illinois where there is a greater probability of arsenic occurrences. The original model consisted of 42 predictor variables that are represented through USGS continuous data, with the most important variables being related to geologic indicators, geochemical data, and hydrologic/meteorologic variables. Using the original model, a scenario similar to the 2012 drought found that the likelihood of arsenic exceedances above the USEPA drinking water threshold increases throughout most of the continental United States. Estimates of domestic well population was then integrated to determine the number of people that may be exposed to the high arsenic levels. The analysis found that 2.6 million people are exposed to arsenic levels above the USEPA

threshold during average climate conditions and 4.1 million people during drought conditions. Additionally, longer duration of drought tends to increase the probability of high arsenic. A next step includes verifying the modeling results with field measurements.

Drought Prediction Project

Lombard provided an overview of the USGS Water Mission Area Drought Science Program, focusing on hydrologic drought (i.e., deficits in surface water and subsurface groundwater) with the following four major focal areas:

- Drought prediction methods research and development
- Prediction and early warning systems
- Impacts, risk, and resilience
- Science delivery

Minnesota River Water Storage

Rita Weaver reported that the Minnesota state legislature appropriated $1 million in FYs 2021 and 2022 to the Board of Soil and Water Resources to develop a water quality and storage program for the Minnesota River. Weaver provided an overview of Minnesota's existing suite of conservation and flood reduction programs, noting the state's emphasis on watershed planning. Weaver explained Minnesota's "One Watershed, One Plan" program, which convenes local decision-makers at a watershed scale to develop comprehensive water resource plans. The state oversees the program, but the funds are directly passed through to local entities that are responsible for all implementation aspects associated with the projects.

Weaver presented the Minnesota state statute that provides general direction and sideboards for the program. "Water quality and storage practices" is defined in state statute as "practices that sustain or improve water quality via surface water rate and volume and ecological management." The statute prescribes that the Water Quality and Storage Program "provide financial assistance to local units of government to control water volume and rates to protect infrastructure, improvement water quality and related public benefits, and mitigate climate change impacts." Weaver said the statute directs that priority be given to the Minnesota River and Lower Mississippi River basins.

Weaver discussed the Board of Water and Soil Resource's planned next steps for stakeholder engagement. Virtual sessions are being scheduled for September 2021 to seek input on a number of questions. Weaver acknowledged the substantial considerations involving a new storage program. For example, should funds be used for determining the best placement of storage projects (to have the best effect and avoid inadvertent negative consequences) or strictly to advance construction of completed plans that have already studied project benefits and other implications. Other considerations include types of practices, prioritization scheme, and whether funding should be allocated to advance drainage system improvements.

In response to a question from Lauren Salvato, Weaver said the Board of Soil and Water Resources has deliberated about whether and how prioritization should be given to applicants that are also working to advance other relating state and federal priorities – e.g., nutrient reduction.

Navigation and Ecosystem Sustainability Program

FY 2021 Status Report

Andrew Goodall provided an update on the progress in planning Navigation and Ecosystem Sustainability Program (NESP) in FY 2021 under the $5 million allocation. Navigation-related projects totaling $12.5 million include the L&D 25 lock wall modification, L&D 14 mooring cell, and Moore's Towhead systemic mitigation project on the Illinois River. Ecosystem restoration-related projects totaling $10 million include Twin Islands shoreline protection project, Alton Pool Islands, Pool 2 wingdam notching, and Starved Rock habitat restoration and enhancement. Goodall confirmed that all of these projects are anticipated to be construction-ready in FY 2021.

Goodall explained that NESP continues to advance design of L&D 22 fish passage. Public review of the project's tentatively selected plan is complete. The Corps District-based river teams are tasked with developing recommended ecosystem projects that advance priorities as established in the Navigation Feasibility Study. Goodall said a priority set of projects would be advanced to planning should NESP receive additional funding.

Olivia Dorothy recalled previous discussions during which the Lock 25 lockwall modification is suggested to be a part of the L&D 25 lock modernization. Dorothy questioned the UMRBA May 25, 2021 minutes in which Goodall is quoted as saying that the project is classified as a "small scale navigation measure." Dorothy asked for clarification and correction to the minutes if necessary. Kirsten Wallace said she will work with Goodall to review the recording of the May 25, 2021 and determine if and how a revision to the minutes is warranted. Wallace said the Board can use the November 2021 quarterly meeting as a place to correct the May 25, 2021 meeting minutes on record.

Dorothy requested that Goodall speak to the 2019 NESP economic update findings. Goodall reported that the economic update was transmitted to the ASA(CW)'s office in December 2019. Goodall explained that the District has not been provided authorization guidance to publicly release the report. The benefit-to-cost ratio of the navigation improvements is 0.19 to 1.13, which depend on the traffic forecast selected in the analysis. The analysis does not include the projected growth of containerized shipping on the river or a quantifiable impact of a single point-of-failure within the locked system such as the increases in shipping costs if a shutdown of the navigation system were to occur. Practically, the volume of tonnage moved on the waterways cannot be sufficiently handled by existing train and truck networks without major disruption. In response to a question from Dorothy, Goodall explained that the District followed the Corps' requirements for economic updates per engineering regulations. In response to a question from Dorothy, Goodall said he is not making a statement of the economic report's validity.

Water Level Management Recommendations

Lauren Salvato presented on the results of the Water Level Management (WLM) Regional Coordinating Committee's efforts to i) update the Navigation and Ecosystem Sustainability Program's 2004 Environmental Report 53 (re WLM) and ii) develop a suite of recommendations associated with WLM implementation. The major conclusions are that:

- The long term monitoring datasets on the Upper Mississippi River have allowed for a more robust analysis of acres exposed, dredging required, and success rate.
- Ecological benefits of WLM were analyzed using the Dabbling Duck Migration Model, determining that the average annual habitat unit resulting from water level management was

generally much lower than from other types of habitat projects generally constructed on the Upper Mississippi River.

- The WLM Regional Coordinating Committee is recommending implementing WLM in i) degraded pools to bring them up to "good" condition and ii) one pool in "good condition" per Corps District associated with a learning component.

Salvato reminded that UMRBA established the WLM Regional Coordinating Committee in 2018 for the purpose of developing a comprehensive plan to evaluate opportunities for more routine, systemic implementation of WLM on the Upper Mississippi River. UMRBA executed a three-year cost-share agreement under the Planning Assistance to the States (PAS) program to advance the Committee's WLM priorities. Specifically, the Committee's priorities were to update sections of the NESP Environmental Report 53 related to acres exposed, success rate, and dredging required; improve knowledge of ecosystem benefits associated with WLM; and develop ecological goals and objectives for implementing WLM. Salvato explained the major updates to the NESP Environmental Report 53, including the consideration of additional pools, a new definition of success rate, and updated methods for determining acres exposed and dredging required.

Aaron McFarlane reported on efforts to quantify ecological outputs of WLM to better estimate costs and benefits, creating a comparison of WLM among pools and to structural ecosystem restoration projects such as island building. Among the Corps' various habitat evaluation procedures (HEP) or evaluation techniques, the WLM Regional Coordinating chose to use the Dabbling Duck Migration Model because the variables measured correspond well with the direct effects of WLM – e.g., percent open water, plant community diversity, and important food plant coverage. McFarlane discussed the assumptions defined for analysis using the model. The modeling assumed that habitat benefits increased over one year during implementation and remain for five years before returning to the baseline condition in years 6 to 10. The conditions in years 11-50 are the same as existing conditions. The benefits are averaged over a 50-year period (planning project lifespan) divided by annualized costs to calculate the average annual habitat unit (AAHU).

McFarlane discussed the model outputs in individual pools and provided a comparison of Pools 2, 5, and 8. Pool 2, which is in degraded condition with little to no vegetation, is estimated to improve dramatically following a WLM event with an incredibly low cost per AAHU compared to a typical UMR habitat restoration project. Pool 8 shows a modest habitat improvement with a very low cost per AAHU. Pool 5 registers no habitat improvement until a two-foot drawdown scenario and has the most expensive implementation of all pools evaluated, but still has a reasonable AAHU. McFarlane reviewed limitations to the model analysis, but offered the important take away from the simplified analysis that WLM appears to be a reasonable, cost-effective way to improve habitat.

Salvato reported on the use of structured decision making through a series of virtual workshops held in May, June, and July 2021 to develop ecological goals and objectives recommendations for WLM implementation. Salvato said the workshop group included 15 participants, with each member tasked with representing the views of their respective agency. Salvato thanked Pat Heglund, who provided facilitation support for the workshops. Heglund is retired from USFWS Region 3 and is an early adopter of the structured decision making process. Salvato listed the following conclusions, which she acknowledged are currently under review among the partners:

- Incorporate the option for WLM as a routine function in long term (20-50-year) planning documents including pool operating manuals.

- Develop a process for categorizing the ecological condition of each pool (poor vs good), which can aid in selecting and prioritizing sections of the river for WLM.
- In general, use WLM as a tool to improve pools in "degraded" ecological conditions and maintain pools in "good" ecological condition.
- Establish a WLM team in the Rock Island District to select pools for, and oversee implementation of, WLM and utilizing an adaptive management framework.
- Develop a prioritized list of pools for WLM implementation in the next 25-50 years.
- Establish a unified, adaptive management framework for WLM, consulting USGS UMESC scientists and a trained decision analyst.
- Develop an agreed-upon adaptive management framework for all Districts to use that would maximize learning about systemic ecological responses and improve decision makers' understanding of when and where WLM will provide positive ecological benefits.

Salvato said next steps include advancing the recommendations stemming from the structured decision making workshops, explore policy and administrative hurdles, and advocate for WLM implementation within the Corps' authorities. Salvato added that the Corps and UMRBA will also be working with the implementing partners to finalizing the remaining tasks associated with the PAS agreement.

In response to a question from Karen Hagerty, McFarlane said the costs used to determine AAHUs are the anticipated dredging and handling expenses (at current costs). Hagerty asked about labor costs to implement WLM – e.g., gate manipulation. McFarlane said those costs are not typically a significant factor and added that the more substantial costs that are not included in the analysis are planning, partner coordination, and environmental compliance.

Jim Fischer noted that a stated goal of the structured decision making workshops was to identify "triggers" for initiating WLM and asked for an assessment on the success of reaching that goal. Salvato and Megan Moore explained that the absence of research regarding those threshold criteria is hindering partners' decision making for whether to try WLM in certain places. Moore hopes that the recommendation to explore WLM through experimentation will lead to the threshold analysis needed for more routine implementation. Gretchen Benjamin asserted that pools in "good" ecological condition might benefit from continued maintenance over the long term, utilizing the available restoration tools.

Forest Conditions and Restoration Opportunities

Andy Meier concluded that many of the trends observed in the 2012 NESP Systemic Forest Stewardship Plan remain today. Primary concerns are related to two main issues: the loss of diversity and loss of total forest area. More specifically, there has been a reduction in the prevalence of early successional forest species (cottonwood and willow), a process of forest opening (including conversion to more open forest) with breaking of the canopy and no regeneration, and a continued decline of total forest acreage that has been accentuated by recent high water events. For example, Meier showed images of Pool 9 forest loss, which is largely attributed to being tree harvesting in the 1970s (well before the recent high water) that has since converted to river bullrush and other non-forest cover types. Meier acknowledged observations of hard mast regeneration in the St. Paul District that is not currently reflected in the canopy, but recognized that hard mast regeneration remains an important factor driving forest health in the Rock Island and St. Louis Districts.

Meier recognized the tremendous work among partners in developing the NESP systemic forest stewardship planning framework. Meier provided an overview of detailed plans for forest management that NESP would implement under its authorities as well as other Corps authorities. He recalled that, following the interruption in NESP programmatic funding in 2010-2011, the Corps' operational funding was secured to finalize the 2012 Systemic Forest Stewardship Plan. It includes four main system-wide goals that stem from the NESP vision statement and overarching ecosystem goals, as follows:

- A functional, sustainable floodplain ecosystem that includes a mosaic of native vegetation communities sufficient to support important wildlife habitat
- Restore and maintain forest diversity, health, and sustainability on Federal lands
- Provide support for the restoration and maintenance of forest diversity, health, and sustainability on non-Federal lands
- Adaptive management: science-based decision-making

Meier underscored the value of the UMRS floodplain, which is a critical component of the overall, systemic vitality and resilience of river ecosystem with important connections to the aquatic systems. Given the overall forest loss since European settlement, Meier emphasized the importance of protecting the remaining floodplain forest to maintain the resilience of the entire UMR ecosystem. The forest improvements are relatively low cost, involving actions such as tree planting and invasive species control. Post-project O&M is also relatively inexpensive and infrequently needed.

Meier explained that work completed since 2012 can be used to illustrate the value and capacity to implement forest management at a systemic scale. Accomplishments since 2012 include the following:

- USFWS Refuge Comprehensive Conservation Plan and Habitat Management Plan
- Large-scale forest inventories on Corps-owned lands
- Partial forest inventories on USFWS-owned lands
- Programmatic forestry environmental assessment in the St. Paul District

Meier put forth the needs to develop landscape-scale, interagency prioritization process and secure the necessary funds to plan and implement specific forest restoration and management projects. Meier highlighted key datasets that will help systemic forest management planning – e.g., Comprehensive Forest Inventory and Forest Management Geodatabase. Meier emphasized that there is extensive information of the existing forest conditions. Since 2012, the development of the UMRS floodplain inundation model and systemic forest succession models are absolutely critical for systemic forest management and prioritization planning, including developing a system-wide assessment of existing conditions. These models can be integrated with a new forest habitat evaluation procedure model to bridge systemic insights with site-level prioritization.

Meier explained that the Corps' operational funding to support forest restoration measures on Corps-owned land is very small in comparison to the potential funding available for forest management through NESP. In addition to significantly increasing the restoration capabilities, it would expand the reach of forest management support to non-Corps federal and non-federal owned lands in the floodplain.

In response to a question from Olivia Dorothy, Jodi Creswell explained that a supplemental environmental assessment is anticipated to be published shortly related to the L&D 14 mooring cell. Bran Johnson added that the "finding of no significant impact" (FONSI) for the L&D 25 lockwall modification was deemed to be sufficient given the level of detail, but that may change as the project design develops.

Navigation Channel Conditions and Maintenance Activities

St. Paul District

Steve Tapp said 2021 was a busy year for dredging activities with 800,000 cubic yards dredged so far from the navigation channel. There have been no closures to the system over the navigation season. The St. Paul District began dredging on April 12, 2021, which is earlier than the average annual dredging start near the end of May. Six dredge plants were operated simultaneously from June through July, but there are now only two contract mechanical plants operating within the District. Additionally, a dredging crew at the McGregor Lake UMRR HREP are doing channel work as well. Tapp said the Dredge Goetz was transferred to the Rock Island District at the end of July. Tapp reported on the St. Paul District's placement site management activities, which include developing channel material management plans in Pools 2, 5, 4, 6, 9, and 10; unloading at current placement sites in Pools 6 and 7; and stabilizing placement sites in Pools 5A and 5.

Tapp explained the St. Paul and Rock Island Districts on improving the real estate process – e.g., seeking programmatic non-standard real estate agreements rather than using fee title. The request is at Division for review. The two Districts also jointly formed the Beneficial Use Work Group led by Zack Kimmel and Bre Popkn. Tapp said draft implementation guidance is anticipated by the end of August relating to Section 125 of WRDA 2020. Corps staff and partners have a lot of questions about the consideration of the full range of benefits in determining the Federal standard.

Tapp provided an overview of the St. Paul District's lock and dam maintenance activities occurring in FY 2021 and planned for FY 2022, which is particularly busy given a substantial increase in maintenance funds. The District is working with the Corps ERDC to help in communicating the value of navigation to the region and nation, including vessel traffic and destinations. Tapp showed a "heat map" of vessel traffic traveling to and from the District in 2019, showing connections throughout the Mississippi, Illinois, Ohio, and Tennessee-Tombigbee Waterways as well as the Gulf Intercoastal Waterway.

The St. Paul District is also comparing its dredging volumes and costs with other Districts, working with ports regarding their concerns and perspectives, and working towards building an outreach program to better improve the channel maintenance program. In response to a question from Steve Galarneau, the District is coordinating with the state DOTs regarding transportation related information gathering and outreach activities.

Rock Island District

Mike Klingman said the Rock Island District uses the Dredge Goetz and two strike crews on the Mississippi River and a 16-inch cutterhead pipeline and one strike crew on the Illinois Waterway. For the first time, the District is utilizing two new contract mechanical dredges on the Mississippi and Illinois Rivers but has experienced contracting challenges. Klingman explained that current conditions of the navigation channel are much better this season than the past two years, where shoaling extended across the channel. The District is currently tracking 20 locations for dredging on the Mississippi River with five

sites completed as of mid August. The Dredge Goetz was transferred to the Rock Island District in late July and is anticipated to operate within the District through the end of September. Internal crews were relied upon for channel maintenance, with the Illinois Waterway mechanical dredge began work on July 20. Pilot channels were established in two problem locations earlier this year. Klingman noted that funding is not a limiting factor this year.

Klingman said the Corps' placement site work is focused on the Spring Valley and Mackinaw River locations on the Illinois Waterway and L&D 20 and Pool 11 on the Mississippi River. Klingman provided an overview of beneficial use activities within the Rock Island District, which varies by locations. For example, there is substantial external utilization of dredged material in Pool 16. The placement site in Pool 18 is being used to support habitat restoration and the site in Pool 20 for levee repair through the PL 84-99 Program. The District has also used material to expand and rebuild islands.

Over 1,300 wingdams and closing structures are used in the Rock Island District to reduce dredging activities. The Corps is targeting chronic dredging areas to explore the potential for rock work to reduce future dredging needs. Rock is currently being placed on Harris Island in Pool 22 and case studies are being explored in Pools 11 and 13 with additional case studies anticipated for Pools 12 and 19.

Jim Fischer expressed appreciation for the update and for efforts in the Rock Island District to secure additional mechanical crews. Fischer asked if the dredging contract would be multi-year or need to be renewed annually. Klingman said the contract is a one-year contract with four additional option years, essentially serving as a five-year agreement so that the contracted crews can concentrate solely on channel maintenance dredging needs. This should allow in-house crews to focus on specific locations (e.g., Pool 11) and adding capacity at DMMP sites.

St. Louis District

Lance Engle provided a broad overview of the District's channel authority. Engle explained that river levels have been close to average but that forecasts estimate that river levels at St. Louis and the Illinois River may drop to three feet above minimum pool. The St. Louis District convenes weekly meetings of the channel maintenance project delivery team, issues a dredge schedule weekly and disseminates forecasted information to navigation industry, participates on bi-weekly meetings of the MVD shallow draft team, and routinely evaluates channel performance and structural maintenance. The Corps uses the Pathfinder and contract surveys to identify shoaling problems and set buoys.

Engle provided an example of the District's dredge schedule. The District primarily uses the Dredge Potter to meet dredging needs. The Dredge Potter completed work in Mel Price Pool and is currently operating in Pool 25 and is anticipating dredging at Schwanigan Island, various locations within the Middle Mississippi River, the southern Illinois Waterway, and the Southeast Missouri Port and Kaskaskia River tributary confluence. Thus far, 1.6 million cubic yards have been dredged within the District. The Corps communicates about channel locations and dredging activities through the weekly channel condition reports, navigation notices, virtual buoys/AIS ATONS, and dredging master plan web-map, which is available on arcgis.com.

Kirsten Wallace read a comment in the chat forum from Caroline Mahlum-Jenkins asking if the sediment is tested for contaminants prior to making it accessible for beneficial use. Wallace read a reply from Steve Tapp, explaining that the Corps has historically completed extensive testing. In general, the dredged material is composed of a very clean medium grain sand.

Matt Vitello thanked Engle for his efforts in making the Master Plan accessible via online. It is helpful and easy to work through. Engle referenced Matt Mangan's comment in the chat forum encouraging beneficial use in the St. Louis District. Engle said the Dredge Potter includes two types of pipleline: rigid and flexible floating, which is used on the open river. Successful beneficial use has been achieved at Manskers (river mile 103), but in other places, temporary islands built with dredged material lasted only a few weeks. Engle said there may be opportunities in the uplands on the Kaskaskia River.

Wallace read a suggestion from Mangan offered in the chat forum for the Corps to publish standardized annual reports across all the Upper Mississippi River Corps Districts that describe dredge quantities, beneficial use of dredged material, contaminants information, and so forth.

Federal Agency Reports

Kirsten Wallace explained that UMRBA's federal liaisons were asked to provide any relevant information from their respective agency, as available, regarding their FY 2022 funding outlook and the Administration's priorities related to climate and land conservation and equity.

U.S. Army Corps of Engineers

Renee Turner explained MVD's overall programmatic efforts and current budget development activities. Turner explained that the Corps is executing the FY 2021 program, waiting on Congressional action of the FY 2022 program, and actively working with the Army on developing the FY 2023 program. Turner discussed broader funding trends for MVD since FY 2019 as well as for Upper Mississippi River projects and programs. Turner gave more detailed information on the currently funding projects in the region, including NESP, Brandon Road, UMRR, Mel Price, East St. Louis, the Illinois Waterway major rehabilitation, and O&M work for the navigation channel throughout the system. Turner referenced the FY 2022 President's budget for an outlook of potential funding in the Upper Mississippi River basin, but acknowledged that the final appropriation is unknown particularly with the potential for community funded projects.

Turner noted that the Corps is currently evaluating how its programs and projects relate to the Administration's priorities for climate change and environmental justice.

U.S. Environmental Protection Agency

Ken Westlake said President Joe Biden published the detailed FY 2022 budget for the federal agencies in late May 2022. The budget proposes an $11 billion budget for USPEA in FY 2022, amounting to a 21 percent increase for the agency in comparison to the FY 2021 enacted levels. The Administration's priorities for the agency as reflected in the FY 2022 budget include climate change, environmental justice, improving infrastructure, supporting state and tribal partners, and rebuilding USEPA workforce. The budget proposes funding to hire an additional 1,000 new employees.

Westlake pointed out that the USEPA FY 2022 budget includes $3.2 billion in support for CWA and Safe Drinking Water State Revolving Funds. This funding level is a $460 million increase over the FY 2021 enacted levels. The American Jobs Plan and the Senate-passed infrastructure measure also includes significant funding for those programs. Westlake said the FY 2021 enacted appropriations and FY 2022 budget include a focus on replacing lead service lines. There are about 10 million homes in the United States that have lead service lines and 400,000 schools and daycares. Lead exposure is of particular risk to young children and pregnant women and their fetuses. This effort advances environmental justice

priorities given that lead service lines are more commonly found in older urban neighborhoods, which tend to be disproportionately low income and minority communities. Westlake said he anticipates substantial funding for this work as it will take many years of robust funding to get to 100 percent replacement of lead service lines, which is the Administration's stated goal.

Westlake explained that a key focus for the Administration is building resiliency into water and wastewater infrastructure in the face of continuing climate change. The FY 2022 budget includes $1.8 billion to address climate change, with about half of the funding targeted to advancing climate issues associated with environmental justice. Westlake acknowledged that environmental justice has been a priority of USEPA since the 12898 Executive Order established in 1994 to address environmental justice in minority populations and low-income populations. Environmental justice is supposed to be integrated into all of USEPA programs and a priority for all federal agencies. Westlake asserted that substantial investment is required to make those sweeping goals a reality. Westlake referred to the Justice 40 Initiative, which is the Biden Administration's goal of delivering 40 percent of federal investments to disadvantaged communities. For example, that can include financing infrastructure or USEPA permitting, inspection, and enforcement. Westlake acknowledge that, within USEPA Region 5, there is a substantial industrial base that is located in urban areas where the neighboring communities tend to be disproportionately low-income and minority. Westlake added that USEPA is also working with OMB to finalize its recommendation for the agency's FY 2023 budget.

In response to a question from Loren Wobig, Westlake suggested that the states have ongoing, candid conversations with their respective USEPA regional program contacts in developing the states' water support grants for the upcoming fiscal year. USEPA has always relied on the states for their expertise about prioritization of capital investments to local communities, particularly based on where the greatest needs exist for alleviating water resource challenges of underserved communities. Westlake anticipates that federal capital investment priorities would ultimately flow to the states through their revolving loan funds

Kirsten Wallace noted a comment from Olivia Dorothy asking about the status of the Mississippi River Restoration and Resilience Strategy. Westlake said he will provide an answer to Dorothy at a later date.

U.S. Geological Survey

Scott Morlock reported that President Biden's FY 2022 budget includes $1.64 billion for USGS, representing a substantial increase for the bureau. Overarching ties to DOI priorities include the Civilian Climate Corps, Great American Outdoors Act, National Parks and Public Land Legacy Restoration Fund, and Land and Water Fund. The FY 2022 President's budget would result in an increase for the USGS ecosystem mission area to support priorities related to HABs and invasive carp, build the cooperative research units' quantitative fisheries capacity in Upper Mississippi River Basin, and provide operational support to the climate adaptation science centers. Within the water mission area, the increase in funds would be allocated towards research PFAS in water supplies and aquatic invasive species in the Upper Mississippi River Basin, expansion of federal priorities streamgages, and monitoring for HABs.

Morlock explained that USGS is integrated within USEPA's budget to aid in developing the Mississippi River Restoration and Resilience Strategy, which includes hosting a Mississippi River Science Forum. Morlock expanded that the House FY 2022 Interior appropriations measure includes a directive to USGS to host basin-wide Mississippi River Science Forum with relevant federal agencies. This would be similar to a USGS effort in the Great Lakes, convening than 60 partners. The outcome is a report that was recently delivered to Congress. Morlock said he will share the report when it is made publicly available. Morlock said USGS

has had preliminary conversations with UMRBA about its potential role on the Upper Mississippi River as part of this process. Wallace noted that the UMRBA Board observed during its July 2021 retreat that our region is stronger when our partners and stakeholders are working together. Wallace said the science forum would align with UMRBA's stated goals of being science-informed while understanding the economic, ecological, and social dimensions of problems and solutions. UMRBA's role can include partnering in the convening and integrating expertise from individuals and organizations within the basin working on various water resources challenges – i.e., hazardous spills, water quality management, flood and drought resilience planning, and ecosystem restoration. Wallace confirmed that she notified the UMRBA Board about this request, and that the Board is interested in working through the scoping details.

Morlock noted USGS's engagement in a group of stakeholders considering a Lower Mississippi River monitoring strategy, also acknowledging UMRBA's participation.

U.S. Fish and Wildlife Service

Sabrina Chandler provided a link to the USFWS budget briefing as follows: https://www.doi.gov/sites/doi.gov/files/fy2022-fws-budget-justification.pdf. Chandler reported that the FY 2022 President's budget proposes a total of $3.6 billion for USFWS. This includes i) $1.6 billion of mandatory spending toward permanent funding, which are typically provided in the form of grants to states and tribes for fish and wildlife restoration, and ii) $1.9 billion for discretionary spending. The increase in discretionary spending is $331 million over FY 2021 enacted levels. The FY 2022 budget would support 9,072 FTEs, which is an increase of 917 FTEs from FY 2021. Relevant program funding in the FY 22 budget proposal to the Upper Mississippi River include:

- Ecological services: $332 million in FY 2022 budget, $270 million in FY 2021 enacted
- Fisheries: $255 million in FY 2022 budget, $207 million in FY 2021 enacted
- Refuge System: $584 million in FY 2022 budget, $503 million in FY 2021 enacted

Chandler noted that the FY 2022 budget amount allocated to the Refuge System would result in the largest appropriation since FY 2010. While the FY 2021 enacted appropriations resulted in an increase of $1.5 million for the Refuge System, due to a number of factors, the realized budget for the Refuges was flat compared to FY 2020. Chandler said she anticipates a similar occurrence in FY 2022, with the realized budget remaining flat compared with the FY 2021 enacted levels.

Chandler explained that USFWS is focusing on implementing a number of DOI pillars into its conservation mission. Principle Deputy Director Martha Williams charged our directorate nationwide to work together in interdisciplinary groups across programs to focus the Service's efforts on maintaining momentum and supporting the Administration's and DOI's priorities. The Directorate has established "pillar teams" focusing on building back better, racial equity and "JEDI" (i.e., justice, equity, diversity, and inclusion) as well as accessibility, climate, and wildlife conservation. Each team is self-governed and has implemented their charges somewhat differently, but each plays a key role in developing the USFWS FY 2023 budget formulation and a USFWS strategic plan. The four pillars are folded into larger "America the Beautiful" initiative, which is a strategy to address climate change impacts on the ground and address the national climate task force report concerning restoring "America the Beautiful." That initiative recommends a framework for a 10-year locally-led campaign to conserve America's lands and waters. Chandler said Biden Administration's initiative to restore 30 percent of land and water by 2030 is also integrated into the "America the Beautiful" initiative. The report focuses heavily on voluntary conservation measures; USFWS intends to work closely with the various stakeholders either through

management of natural resources or USFWS Refuge lands. USFWS is implementing number of ongoing activities focusing on three major problems: disappearance of nature, climate change, and inequitable access to the outdoors.

Chandler reported that the Land and Water Conservation total for USFWS is $99 million, with $50 million for line-item projects, $15 million for recreational access, $11 million for inholdings and emergencies. Chandler explained that the USFWS's Executive Diversity Committee, which was established in 2009, recently updated its charter and committee leadership. USFWS recognizes the need to broaden its level of staff engagement in equity discussions and activities. The USFWS Refuge System is working to advance equity principles by focusing on urban areas and meeting accessibility standards, providing remote opportunities for engagement, among other ways.

Natural Resources Conservation Service

Verlon Barnes reported that the FY 2022 President's budget includes $5.1 billion, roughly 10 percent increase from FY 2021 enacted levels but a 20 percent reduction from FY 2020 enacted levels. Conservation operations, which includes technical assistance, has increased slightly. There are slight increases for the Environmental Quality Incentives Program (EQIP) and Conservation Reserve Program (CRP) technical assistance programs while the Conservation Stewardship Program (CSP) is down significantly.

Barnes announced that he will likely be retired by the November 16, 2021 UMRBA quarterly meeting. Wallace expressed her appreciation to Barnes for his partnership and thoughtful and valuable contributions to UMRBA and UMRR.

Administrative Issues

Future Meeting Schedule

November 2021 — Location TBD

- UMRBA quarterly meeting — November 16
- UMRR Coordinating Committee quarterly meeting — November 17

February 2022 — Location TBD

- UMRBA quarterly meeting — February 22
- UMRR Coordinating Committee quarterly meeting — February 23

May 2022 — Location TBD

- UMRBA quarterly meeting — May 24
- UMRR Coordinating Committee quarterly meeting — May 25

With no further business, the meeting adjourned at 2:42 p.m.

ATTACHMENT B

Executive Director's Report

- **Executive Director's Report** *(B-1 to B-5)*
- **Treasurer's Quarterly Statement (11/2/2021)** *(B-6)*
- **FY 2022 Budget Report and Balance Sheet (11/1/2021)** *(B-7 to B-9)*

Executive Director's Report
November 2021

ECOSYSTEM HEALTH

Upper Mississippi River Restoration

On September 13, 2021, UMRBA disseminated a survey regarding the 2015-2025 UMRR Strategic Plan to i) assess progress in achieving the plan's outcomes and success criteria and ii) inform the UMRR Coordinating Committee's evaluation of priorities for program implementation during the second half of the plan's life. The survey was distributed to agency staff and nongovernmental partners directly involved in UMRR's implementation. Staff are currently pulling the responses together in a report that will be supplied to the UMRR Coordinating Committee. This work is supported by UMRBA's support services contract with the Corps.

UMRBA staff are facilitating communications planning associated with the publication of the third decadal UMRR long term resource monitoring status and trends report. That report is currently undergoing publication support within USGS and is scheduled to be released in November 2021. The program partners are considering target audiences, including what we want them to do and what we want them to know in terms of the status and trends findings. The UMRR Coordinating Committee met on September 22, 2021 to discuss communications objectives and associated key audiences. On October 6, 2021, the Committee met with the UMRR Communications Team to develop the communications strategy and outline actions for organizing communications messages and products. This work is being supported through the UMRBA support services agreement with the Corps.

On September 28, 2021, UMRBA executed a $67,000 contract with the Corps to assist in the development of the UMRR 2022 Report to Congress. Per the contract, UMRBA staff are helping to draft various sections of the report. This includes developing a description of desired future condition of the river ecosystem utilizing various programmatic documents and partner agreements and updating and developing new implementation issue assessments. Contributing authors to the report are scheduled to convene on November 10, 2021 to discuss the drafting process and status and the implementation issue assessments.

In addition, UMRBA staff is helping to scope an upcoming UMRR LTRM planning process. The purpose being to define science goals and opportunities with existing funding as well as under the increase annual authorized appropriations levels. This has involved conference calls with LTRM program leaders and the UMRR Coordinating Committee members.

UMRBA staff participated in the July 20, 2021 UMRR Analysis Team's quarterly meeting and in monthly meetings of the UMRR Communications and Outreach Team. The team is focused on developing a set of "fast facts" on the UMRS and UMRR as well as a video to commemorate UMRR's 35th anniversary of UMRR.

Staff also participated in workshops to identify future hydrologic modeling needs of the UMRS and to conduct a vulnerability assessment of aquatic vegetation in the UMRS. These workshops were held over a series of meetings in September and October 2021.

Environmental Defense Fund Healthy and Resilient Mississippi River Workshop

UMRBA staff along with other regional partners attended the Environmental Defense Fund Healthy and Resilient Mississippi River Workshop, which was held over a series of meetings in September 2021. The stated purpose was to identify a suite of ecological targets and indicators to guide and measure progress towards improved ecosystem health and increased resilience.

The Nature Conservancy Mississippi River Basin Monitoring

In September 2021, UMRBA attended The Nature Conservancy's Mississippi River Basin Monitoring Design Workshops which were convened over a series of meetings. The purpose is to establish a consistent and integrated monitoring system in the Mississippi River Basin. Wallace contributed by providing information about the Upper Mississippi River Restoration's long term resource monitoring, UMRBA's Interstate Water Quality (CWA) Monitoring Plan, and other monitoring programs and efforts such as the Illinois LTEF and USGS Next Generation Water Observing System.

NAVIGATION

National Waterways Foundation

Kirsten Wallace participated in the National Waterways Foundation's November 2, 2021 meeting. The discussion focused on two ongoing studies regarding U.S. competitiveness and a modal comparison as well as potential future research projects. Wallace was re-elected to serve as a trustee of the Foundation.

Waterways Council

UMRBA attended the Waterways Council's November 2-3, 2021 Waterways Symposium in St. Louis, Missouri. The agenda included topics related to economics, resilience, commodities, the Navigation and Ecosystem Sustainability Program, and Upper Mississippi River navigation management.

RESILIENCE PLANNING

NIDIS Coping with Drought Grant Competition

On October 18, 2021, UMRBA submitted an application for $360,000 in a cooperative agreement partnership with NOAA through its NIDIS FY 2022 "Coping with Drought: Ecological Drought" competition as a means to conduct a thorough analysis of existing or potential uses of traditional drought indicators for ecological and resource management purposes as well as to develop recommendations for eco-drought metrics. UMRBA put forward that this project would provide a foundational understanding of existing or potential uses of traditional drought indicators for ecological and resource management purposes as well as findings and recommendations for developing ecological drought metrics. UMRBA's long term vision would be for these indicators to be assessed simultaneously to provide a comprehensive analysis of each unique, complex, and dynamic drought occurrence and to inform decision making among state, federal, and local resource managers as well as private water users. The indicators would reflect the region's ecological and socio-political vulnerabilities, including human uses related to ecological resources affected by drought.

HAZARDOUS SPILLS COORDINATION, MAPPING, AND PLANNING

Oil Pollution Act (OPA) Planning and Mapping

UMRBA hired Max Bell to serve as a new Inland Sensitivity Atlas (ISA) project employee, who began work on October 4, 2021.

UMRBA continues working on data collection and verification for the Wisconsin statewide ISA update, focusing on hazardous materials storage, aboveground oil storage facilities, boat accesses, and marinas.

UMRBA delivered an updated geodatabase to USEPA Region 5 on November 5, 2021. The update incorporated updates into the regional geodatabase from the Great Lakes Commission for lands managed by Ohio and marinas located within Michigan.

UMRBA spills-related engagements over the past quarter include the following:

- Mapping group conference calls on September 20, October 4, and November 8, 2021
- Minneapolis/St. Paul sub-area planning meeting in St. Paul, MN on October 5, 2021, which supported both in-person and virtual attendance

UMRBA led field work to verify spill response strategies in UMR Pool 24 near Louisiana, MO on October 14, 2021. Participants included staff from Missouri DNR, USFWS, and USEPA Region 5.

UMRBA supported the Regional Response Team 5 semi-annual subcommittee and general meetings on October 20-21, 2021.

Strategic Planning

The UMR Spills Group held its third five-year strategic planning session meeting on August 17, 2021 on which the Group wrapped up development of the draft plan's goals and objectives. Following the meeting, Group members facilitated review within their respective agencies and organizations. Next steps include a scheduled meeting on November 30, 2021 and finalizing external review plans.

WATER QUALITY

WQTF Meeting

The UMRBA WQTF met on September 28-29, 2021 virtually. The meeting included presentations on harmful algal blooms, states' and USEPA Region 7's water quality monitoring plans, nitrogen management, and constructed wetlands. Additionally, the UMRBA WQTF members provided updates to their respective state CWA 303(d) and 305(b) assessments as well as nutrient reduction-related work. The WQTF also discussed communications strategies related to the How Clean is the River Report, which is anticipated to be published in November 2021.

Hypoxia Task Force

The Hypoxia Task Force Coordinating Committee's funding work group hosted an October 6, 2021 meeting focusing on potential funding to support the states' nutrient reduction strategies through the infrastructure package, Clean Water and Drinking Water State Revolving Loan Funds, American Rescue

Plan Act, and other active legislation. All 12 Hypoxia Task Force Coordinating Committee member states completed a survey administered by the funding work group. The results were presented by USEPA to the Coordinating Committee during the funding work group's October 6 call. A subsequent call is currently being scheduled that will continue discussions regarding the potential increase of federal investment in nutrient reduction as well as how the survey results can focus the funding work group's deliberations in 2022. UMRBA staff serve as a co-chair of the funding work group.

UMRBA staff provided a preview to the Hypoxia Task Force Coordinating Committee during its October 21, 2021 meeting of the nutrient-related results from the UMRBA How Clean is the River Report and Upper Mississippi River Restoration's long term resource monitoring status and trends report.

COLLABORATION

Mississippi River Commission

The Mississippi River Commission held a virtual meeting on September 16, 2021 to gain insights from the Upper Mississippi River stakeholder community about the Navigation and Ecosystem Sustainability Program (NESP). Kirsten Wallace explained that NESP is a product of the region's choice to pursue multi-purpose collaboration rather than being stymied by conflict. Panelists included Andrew Goodall (USACE), Paul Rohde (Waterways Council), Gretchen Benjamin (TNC), and Marty Hettel (ACBL).

America's Watershed Initiative

UMRBA staff joined America's Watershed Initiative Executive Committee on its August 31, 2021 meeting with USEPA Office of Water leadership and program staff. The purpose was to discuss Mississippi River management and potential for working among the river's major sub-basins. While not present for its September 28, 2021 annual meeting, Kirsten Wallace was elected to serve as Vice President of the AWI Board of Directors and Co-Chair of its Report Card Committee.

NOAA Roundtable

NOAA's Central Region Collaboration Team hosted a climate and equity roundtable on September 10, 2021 regarding flooding and resilience in Mississippi River Communities. The panel included representation from municipalities on the upper and lower portions of the Mississippi River as well as the Mississippi River Cities and Towns Initiative. UMRBA staff discussed the insights gained from the 2019 listening sessions, particularly related to equity.

Mississippi River Cities and Towns Initiative

UMRBA staff participated in the Mississippi River Cities and Towns Initiative's (MRCTI's) September 14-16 annual meeting. Agenda topics included a Mississippi River global investment forum, environmental impact bond challenge, resilience revolving loan fund, city parks and greenspace, natural infrastructure, building-back better for the economy and ecology, and plastic and floatable waste.

Interstate Council on Water Policy

The Interstate Council on Water Policy held its annual meeting on October 13-14, 2021. The agenda included a series of presentations focused primarily on resiliency/disaster preparedness and extreme precipitation. Wallace was elected to serve as Chair of ICWP's Legislative and Policy Committee.

FINANCIAL REPORT

Attached as page B-6 is UMRBA Treasurer Jason Tidemann's statement regarding his review of UMRBA's financial statement for the period of July 1, 2021 to November 1, 2021.

Attached as pages B-7 to B-9 are UMRBA's FY 22 budget report and balance sheet. As of November 1, 2021, ordinary income for FY 22 totaled $194,073 and expenses totaled $247,744 for net ordinary income of minus $53,671. As of this date, UMRBA's cash assets totaled $792,930.

From: Tidemann, Jason (DNR) <jason.tidemann@state.mn.us>
Sent: Tuesday, November 2, 2021 10:34 AM
To: Kirsten Wallace
Cc: Margie Daniels
Subject: RE: UMRBA February-April 2020 Treasurer Report

Hello Kirsten,

As Treasurer, I have reviewed the monthly financial statements for the period 7/1/21-11/1/21. Activity reported on the Balance Sheet, Profit/Loss Budget Overview, Check Register, Visa statements and Open Invoices Report provide a reasonable and consistent representation of the monthly financial activity for the referenced period.

Jason Tidemann

Upper Mississippi River Basin Association
FY 2022 Profit & Loss Budget Overview
July 1 through November 1, 2021

	Jul 1 - Nov 1, 21	Budget	$ Over Budget
Ordinary Income/Expense			
Income			
Contracts and Grants			
COE (UMRR)	0.00	91,242.82	-91,242.82
COE (RTC)	0.00	47,000.00	-47,000.00
EPA (OPA)	0.00	225,000.00	-225,000.00
Interstate WQ Pilot	9,466.34	86,400.00	-76,933.66
WQ Trends Report	0.00	5,500.00	-5,500.00
Total Contracts and Grants	9,466.34	455,142.82	-445,676.48
State Dues			
Illinois Dues	0.00	61,500.00	-61,500.00
Iowa Dues	30,750.00	61,500.00	-30,750.00
Minnesota Dues	30,750.00	61,500.00	-30,750.00
Missouri Dues	61,500.00	61,500.00	0.00
Wisconsin Dues	0.00	61,500.00	-61,500.00
WQ Assessment	61,500.00	102,500.00	-41,000.00
Total State Dues	184,500.00	410,000.00	-225,500.00
Interest Income			
Short Term Interest			
Short Term (Checking)	98.30	0.00	98.30
Short Term (Savings)	8.64	60.00	-51.36
Short Term (Sweep)	0.00	1.00	-1.00
Short Term (CD)	0.00	4,000.00	-4,000.00
Total Short Term Interest	106.94	4,061.00	-3,954.06
Total Interest Income	106.94	4,061.00	-3,954.06
Total Income	194,073.28	869,203.82	-675,130.54
Expense			
Gross Payroll			
Salary	106,397.45	337,357.86	-230,960.41
UMRBA Time Wages	5,276.25	12,000.00	-6,723.75
OPA Wages	13,863.71	153,900.00	-140,036.29
Benefits	26,599.40	84,339.47	-57,740.07
Benefits UMRBA Time	0.00	1,200.00	-1,200.00
Benefits OPA	734.50	4,037.30	-3,302.80
Total Gross Payroll	152,871.31	592,834.63	-439,963.32
Payroll Expenses			
SocSec Company	9,252.56	36,755.75	-27,503.19
Medicare Company	2,438.48	8,596.10	-6,157.62
SUTA (Minnesota UC)	22.97	296.42	-273.45
Workforce Enhancement Fee	22.97	296.42	-273.45
Total Payroll Expenses	11,736.98	45,944.69	-34,207.71
Travel	2,472.24	12,000.00	-9,527.76
Space Rental			
Office Rental	21,110.95	51,000.00	-29,889.05
Total Space Rental	21,110.95	51,000.00	-29,889.05

Upper Mississippi River Basin Association
FY 2022 Profit & Loss Budget Overview
July 1 through November 1, 2021

	Jul 1 - Nov 1, 21	Budget	$ Over Budget
Reproduction			
Copy Service	322.58	1,360.00	-1,037.42
Printing	0.00	500.00	-500.00
Total Reproduction	322.58	1,860.00	-1,537.42
Meeting Expenses	7,696.59	15,000.00	-7,303.41
Supplies	456.03	3,000.00	-2,543.97
Equipment			
Equipment (Maint./Rental)	249.87	1,600.00	-1,350.13
Total Equipment	249.87	1,600.00	-1,350.13
Legal and Financial			
Insurance	4,121.95	6,200.00	-2,078.05
Legal and Tax Services	12,350.00	1,300.00	11,050.00
Bank Charges	40.00	10.00	30.00
Total Legal and Financial	16,511.95	7,510.00	9,001.95
Telephone/Communications	9,487.49	6,500.00	2,987.49
Postage	87.96	1,200.00	-1,112.04
Other Services	3,545.00	7,000.00	-3,455.00
Publications	3,706.00	8,200.00	-4,494.00
State Travel Reimbursement			
Illinois	0.00	5,000.00	-5,000.00
Iowa	0.00	5,000.00	-5,000.00
Minnesota	0.00	5,000.00	-5,000.00
Missouri	0.00	5,000.00	-5,000.00
Wisconsin	0.00	5,000.00	-5,000.00
State WQ Travel	0.00	3,500.00	-3,500.00
Total State Travel Reimburseme...	0.00	28,500.00	-28,500.00
OPA Expenses			
Equipment OPA	0.00	1,000.00	-1,000.00
Equipment (Maint./Rental) OPA	7,780.81	6,500.00	1,280.81
Travel OPA	828.64	2,800.00	-1,971.36
Other OPA	0.00	800.00	-800.00
Total OPA Expenses	8,609.45	11,100.00	-2,490.55
Interstate WQ Expenses			
Travel Interstate WQ	0.00	500.00	-500.00
Data Collection/Analysis IntWQ	8,820.32	58,200.00	-49,379.68
Other Interstate WQ	59.81	1,000.00	-940.19
Total Interstate WQ Expenses	8,880.13	59,700.00	-50,819.87
Total Expense	247,744.53	852,949.32	-605,204.79
Net Ordinary Income	-53,671.25	16,254.50	-69,925.75
Net Income	**-53,671.25**	**16,254.50**	**-69,925.75**

Upper Mississippi River Basin Association
Balance Sheet
As of November 1, 2021

	Nov 1, 21
ASSETS	
Current Assets	
Checking/Savings	
Checking HT 2732	39,828.40
Savings HT 2575	337,159.48
Checking 1696	-9.69
Investment	
CD	402,481.23
Total Investment	402,481.23
Total Checking/Savings	779,459.42
Accounts Receivable	
Contract/grants	
Invoiced/Billable	9,466.34
Total Contract/grants	9,466.34
Total Accounts Receivable	9,466.34
Other Current Assets	
Prepaid Expense	
Office Rental Prepaid Expense	3,868.01
Total Prepaid Expense	3,868.01
Total Other Current Assets	3,868.01
Total Current Assets	792,793.77
Fixed Assets	
Accum. Deprec. UMRBA	-33,321.09
Accum. Deprec. OPA	-21,703.53
Accum. Deprec. WQ	-1,290.00
Accum. Deprec. 604(b)	-568.95
Accum. Deprec. STC	-2,989.68
UMRBA Equipment	33,455.89
OPA Equipment	21,705.26
WQ Equipment	1,290.47
604(b) Equipment	568.95
STC Equipment	2,989.68
Total Fixed Assets	137.00
TOTAL ASSETS	**792,930.77**
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Credit Cards	
Visa Chase 5294	1,359.51
Total Credit Cards	1,359.51
Other Current Liabilities	
Deferred MO DoC (WLM) Revenue	5,107.84
Payroll Liabilities	
SUTA (Minnesota UC)	-27.65
Workforce Enhancement Fee	-27.65
Accrued Vacation	54,764.70
Accrued Vacation FICA	4,189.50
Total Payroll Liabilities	58,898.90
Total Other Current Liabilities	64,006.74
Total Current Liabilities	65,366.25
Total Liabilities	65,366.25
Equity	
Retained Earnings	781,235.77
Net Income	-53,671.25
Total Equity	727,564.52
TOTAL LIABILITIES & EQUITY	**792,930.77**

ATTACHMENT C

Environmental Defense Fund
Mississippi River Ecosystem Metrics (11/2021)

(C-1 to C-2)

EDF ENVIRONMENTAL DEFENSE FUND®

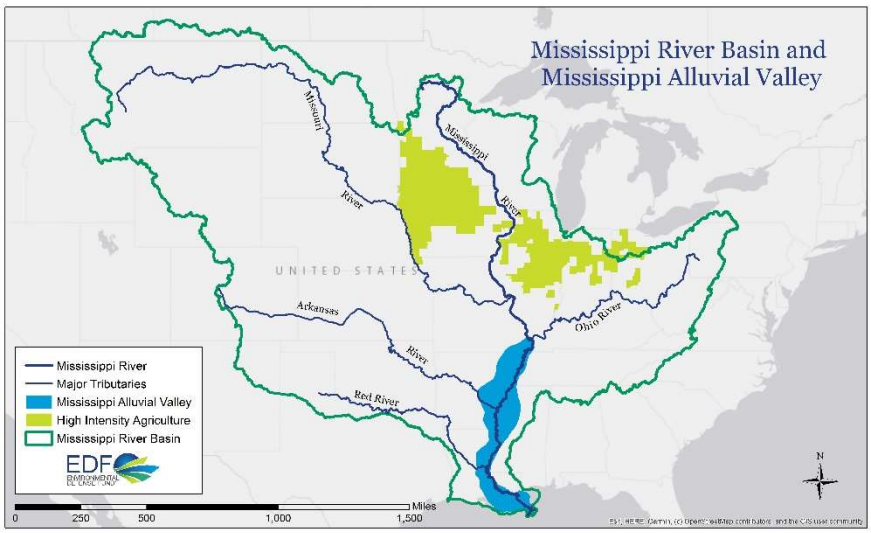
Finding the ways that work

Metrics for a healthy Mississippi River ecosystem

EDF and partners are working to develop a set of metrics that can guide, measure, and communicate progress towards a “healthy and resilient Mississippi River ecosystem.” Such metrics are important in helping policymakers understand what “success” would look like, assess the level of effort and investment needed to achieve success, and evaluate the effectiveness of various interventions. Our first step is to identify goals, targets and indicators for ecological health in the Mississippi River ecosystem that are meaningful to stakeholders, relatively simple to measure, and are scientifically robust. While this first step focuses on ecological indicators, we recognize the need for a similar effort for socio-economic indicators for the system.

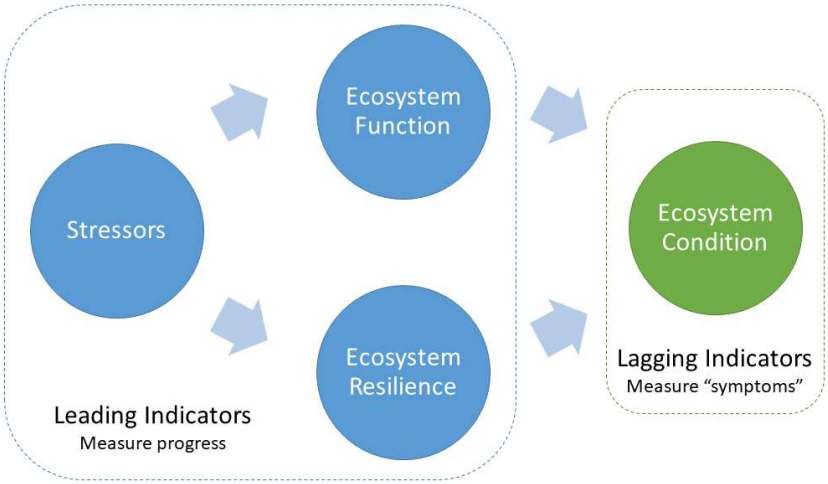
The Mississippi River ecosystem

We define the Mississippi River ecosystem as the interconnected landscapes and riverscapes of the Mississippi River, i.e., the Mississippi River itself, all the waterways that are ultimately connected to the River, and all the land that drains to those waterways (image at right). The Mississippi River ecosystem includes the high-intensity agricultural production region commonly known as the Corn Belt, the Mississippi Alluvial Valley and the Delta region, which connects the River to the Northern Gulf of Mexico. Over the past two hundred years the Mississippi River ecosystem has been transformed though large-scale river engineering and agricultural intensification. We identify three main categories of current stressors: climate change, land use change, and hydrologic alteration.



Components of a healthy ecosystem

The image at right shows that these stressors affect ecosystem function and resilience, which in turn affect ecosystem condition. Our fundamental assumption is that ecosystem condition will improve if ecosystem function and resilience improve.



Ecosystem condition is a result of changes that happened in the past, making indicators of ecosystem condition lagging indicators. If we could measure changes in ecosystem function and resilience, these would be leading indicators, which measure progress towards a target or goal. An example of an ecosystem condition indicator could be the annual number of algal blooms. An example of an ecosystem function indicator could be an increase in the area of nutrient sinks (wetlands).

Exploratory interviews and science workshop

The EDF team conducted 39 exploratory interviews with scientists and practitioners from federal agencies (USGS, EPA, USDA), state agencies, universities, and non-profits with a wide range of expertise. Our discussions explored the topic of ecological health, examined ecological stressors, and brainstormed possible indicators and targets. Our conversations focused primarily on water-related issues (water quality, water quantity, and hydrologic connectivity) though we acknowledge the importance of habitat (both terrestrial and aquatic). The EDF team organized and facilitated a multi-day virtual workshop with a subset of interviewees (23 total) to continue exploring ecological health. The goal of the workshop was to identify a suite of ecological indicators and targets to guide, measure, and communicate progress towards a "healthy and resilient Mississippi River ecosystem."

Workshop outcomes

The workshop generated the following outcomes, which were further refined through follow-up small group discussions:

- A vision and goals for a healthy and resilient Mississippi River ecosystem;
- Identification of stressors and important ecological functions in the Mississippi River ecosystem;
- Identification of potential targets to define a healthy and resilient MR ecosystem; and
- Identification of potential indicators to measure progress towards a healthy and resilient Mississippi River ecosystem.

Our upcoming presentation (November 16, 2021) will detail the synthesized results of EDF's healthy Mississippi River ecosystem project including a suite of leading and lagging indicators to measure improvements to ecosystem health.

ATTACHMENT D

Brandon Road Interbasin Project

- **Brandon Road Interbasin Project Newsletter (9/2021)** *(D-1 to D-2)*

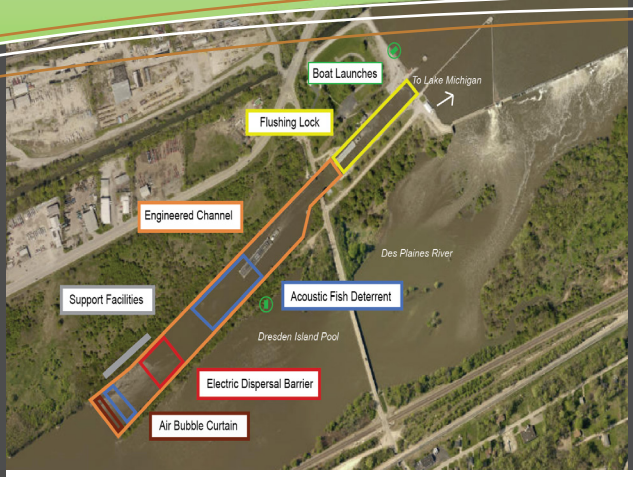
- **Great Lakes-St. Lawrence Governors and Premiers Brandon Road Resolution (9/21/2021)** *(D-3 to D-5)*

US Army Corps of Engineers
Rock Island District

BRANDON ROAD INTERBASIN PROJECT

QUARTERLY UPDATE

September 2021



The PROJECT

The Brandon Road Interbasin Project is a complex ecosystem protection effort designed to prevent upstream movement of invasive carp and other aquatic nuisance species into the Great Lakes from the Illinois Waterway.

Brandon Road Lock and Dam near Joliet, Illinois, has been identified as the critical pinch point where layered technologies could be used to prevent movement of invasive carp populations into the Great Lakes.

The PLAN

The recommended plan involves a layered system of structural and non-structural control measures.

Structural measures could include technologies such as a flushing lock, an engineered channel with electric barrier, underwater acoustic deterrent, and air bubble curtain.

Non-structural measures, implemented in conjunction with other federal agencies, could include public education and outreach, monitoring, integrated pest management, manual or mechanical removal, and research and development.

In this issue

Project Status Update

Pre-construction engineering and design (PED) of the Brandon Road Interbasin Project was initiated Dec. 29, 2020, when the state of Illinois signed a design agreement with the U.S. Army Corps of Engineers, Rock Island District. This phase of the project, known as PED, is estimated to last three years, cost $28.9 million, and be cost shared 65 percent federal, 35 percent non-federal. The state of Michigan contributed $8 million to the state of Illinois to help with the $10.1 million non-federal portion.

During the first 60 days, a project management plan was developed by the team and included establishment of a formal governance structure which will be used to make provide input and resolve conflict throughout the planning and construction of the project. A facilitated partnering meeting was held in mid-May allowing members of the Senior Executive Board, Executive Leadership Team and Project Leadership Team a chance to meet face-to-face to discuss detailed elements of the plan and sign a project charter.

Upon receipt of project funding, the team went to work on the planning and design for the project's various structural and non-structural elements. Specialized meetings, known as design charrettes, were scheduled to allow the partners to collaborate on the project's conceptual design as well as schedules, budget, cost estimates and resource allocations. Since the beginning of the year, three design charrettes have been held and several more are planned. Real estate options and alternatives for project use and acquisition are also underway.

In addition to design charrettes, the project delivery team also conducted its first navigation workshop in early June. This event provided navigation industry stakeholders with an update on the project and allowed them to provide valuable input from a users perspective on the current modeling and engineering efforts.

Over the next several months, the team will advance data gathering efforts to aid the design process. Scaled physical modeling and computer simulation will continue and bubbler safety testing will be conducted at the Peoria Lock. Geotechnical exploration will occur at the project site to determine the best location for the project controls in relation to the lock and project features.

Members of the Brandon Road Interbasin Project's Senior Executive Board, Executive Leadership Team and Project Leadership Team gather outside at the Black Hawk State Historic Site in Rock Island, Illinois, during their first facilitated partnering meeting.

Design Charrettes & Workshops Fuel Collaboration

The word charrette refers to any collaborative session in which a diverse team of designers draft a solution to a design problem. Due to the size and complexity of the Brandon Road Interbasin project, a large team of experts across the Nation have joined the team to accomplish the mission.

Over the past ten months, the Project Leadership Team has worked to develop a design plan and team for each of the structural elements included in the recommended plan. These teams then set forth a schedule for a series of design charrettes, where a collaborative planning process is used to harness the talents and energies of all interested parties to create a well-informed design.

The first charrette was held in April and focused on overall development of the project and its various structural elements. A second was held in June and was geared toward the Engineered Channel feature which would extend the walls of the existing lock chamber allowing for increased space for the installation of layered technologies recommended in the plan. A third charrette was held in late August and featured discussions about the Flushing Lock and how its design would impact operations.

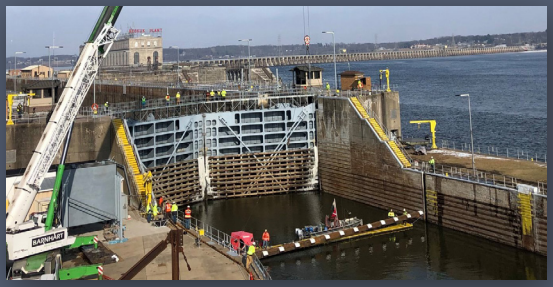
Additional charrettes are planned in the coming months and will cover deterrent elements, supporting facilities and site development.

A navigation workshop was also held earlier this year to give industry stakeholders a chance to learn more about the project and provide information to the design teams about navigation concerns. These workshops will continue throughout the design process.

Acoustic Deterrent Testing at Lock 19

In January, a group of scientists, engineers and contractors installed a temporary, experimental underwater acoustic deterrent system at Mississippi River Lock and Dam 19 between Keokuk, Iowa, and Hamilton, Illinois. Installation of the system is part of an ongoing study being conducted by the U.S. Geological Survey and the USACE Engineer Research and Development Center to better understand how invasive carp respond to acoustic, or sound, signals.

If the deterrent is effective at controlling upstream movement of invasive carp with limited effects on native species or impacts to the navigation system, this or similar technology could be deployed at other critical locations such as Brandon Road Lock and Dam to help prevent the spread of invasive carp.



An underwater acoustic deterrent system is installed into the approach channel at Lock 19 in Keokuk, Iowa, by the U.S. Geological Survey and U.S. Army Engineer Research and Development Center.

Click here to learn more.

Completed EVENTS

DECEMBER 2020
Design Agreement Signed

APRIL 2021
Design Charrette #1

MAY 2021
Facilitated Partnering Session #1

JUNE 2021
Navigation Workshop #1
Design Charrette #2

AUGUST 2021
Design Charrette #3

Upcoming EVENTS

OCTOBER 2021
Design Charrette #4
Navigation Workshop #2

NOVEMBER 2021
Facilitated Partnering Session #2

Stay CONNECTED

Looking for more information about the Brandon Road Interbasin Project? Click the website link below or scan the QR code with the camera app on your mobile device to learn more about the project's next steps, key leadership involved, and how to contact the project team.

https://go.usa.gov/xF79Xa

SCAN ME

September 21, 2021

Great Lakes St. Lawrence Governors and Premiers
Full Federal Funding for the
Brandon Road Lock & Dam Project

WHEREAS, the Conference of Great Lakes St. Lawrence and Governors & Premiers ("the Conference") sustains a long history of nonpartisan collaboration and cooperation to address aquatic invasive species (AIS); and,

WHEREAS, the introduction and rapid spread of AIS to the Great Lakes St. Lawrence Basin result in environmental and economic impacts that compromise the benefit of native biota, water quality, fisheries, commercial navigation, and recreational boating; and,

WHEREAS, nonnative species of carp, such as bighead, silver, and black carp, collectively known as invasive carp, pose an imminent threat to the Great Lakes and St. Lawrence River ecosystem and economy because of their ability to reproduce rapidly and consume large quantities of food, and once established would be difficult to eradicate or control, thereby joining sea lamprey, zebra mussels, and other AIS that federal, State and Provincial governments, local governments and businesses in the region spend millions of dollars per year to mitigate and control; and,

WHEREAS, the Great Lakes provide the backbone for a multisector US$6 trillion regional economy that includes a US$7 billion commercial and sport fishing industry and a US$15 billion recreational boating industry that could be severely impacted if invasive carp become established in the Great Lakes St. Lawrence Basin; and,

WHEREAS, the eight U.S. Governors and two Canadian Premiers of the Great Lakes St. Lawrence Basin are committed to preventing the introduction of invasive carp into the Basin; and,

WHEREAS, invasive carp are not known to inhabit the Great Lakes St. Lawrence Basin, yet are established in lower portions of the Illinois River in the Mississippi River Basin and increasing their distribution in the US; and,

WHEREAS, the Brandon Road Lock and Dam on the Des Plaines River in Illinois provides a strategic focal point that can provide additional and enhanced controls as part of any comprehensive suite of measures to prevent invasive carp from moving closer to the Great Lakes; and,

WHEREAS, the US Army Corps of Engineers (USACE) completed a Chief's Report to the US Congress with a plan of action at the Brandon Road Lock and Dam to prevent invasive carp from entering the Great Lakes St. Lawrence Basin at this focal point; and,

WHEREAS, the U.S. Congress authorized the Great Lakes and Mississippi River Interbasin Brandon Road Project in the Water Resources Development Act (WRDA) of 2020, which was included in the Consolidated Appropriations Act, 2021 and is authorized at US$858,047,000; and,

WHEREAS, the USACE and the State of Illinois signed a design agreement on December 29, 2020, to complete pre-construction engineering and design (PED) for the Brandon Road Project, sponsored by the State of Illinois; and,

WHEREAS, the PED is estimated to cost US$29 million and take 3-4 years for completion, and the States of Illinois and Michigan have committed to provide the 35% non-federal cost share for this phase; and,

WHEREAS, the balance of project cost for design, construction, operation, and maintenance is beyond the capacity of the States to match, resulting in a coalition of States to support full federal funding for this project; and,

WHEREAS, the responsibility of the US federal government to address this project is consistent with other large-scale projects that have a strong bearing on the regional and US economy; and,

WHEREAS, protection of the Great Lakes St. Lawrence Basin is a shared responsibility of the Great Lakes St. Lawrence States and Provinces; and,

WHEREAS, the Great Lakes Commission, at the request of the States of Illinois and Michigan, and through its convening authority provided in the Great Lakes Basin Compact of 1955, has hosted two meetings of the "Brandon Road States and Provinces Forum," which serves as a venue for the States and Provinces to discuss progress, policy, and other issues related to the engineering and design of the AIS prevention project proposed for the Brandon Road Lock and Dam.

NOW, THEREFORE, BE IT RESOLVED that the Great Lakes St. Lawrence Governors support full US federal funding for remaining design, construction, operation, and maintenance via the Water Resources Reform and Development Act recognizing that this project is a national priority and that the federal cost-share for the entirety of the project would minimize the fiscal burden on the nonfederal sponsor and other supporting States and Provinces.

BE IT FURTHER RESOLVED, that the Great Lakes States and Provinces call for the following principles to guide the implementation of the design work covered by the PED agreement:

- the final design must appropriately protect public safety;
- the final design must satisfy the statutory and regulatory permitting requirements of applicable Illinois state statutes and regulations;

- the final design must be considerate of social and environmental justice impacts and appropriate minimization and mitigation of those impacts.
- the final design must incorporate the most effective technical measures to protect the Great Lakes from invasive carp;
- the final design must be fiscally responsible and avoid unnecessary costs for construction and maintenance of the project; and
- the final design must be implementable and practicable, accounting for the costs, logistics, existing technologies, and other factors applicable to the project.

BE IT FINALLY RESOLVED, that the Great Lakes St. Lawrence Governors request that the US Congress immediately authorize and appropriate the Brandon Road Lock & Dam Project to allow construction to begin as soon as possible to protect the health of the Great Lakes and their benefits to the fullest.

Adopted by the Great Lakes and St. Lawrence Governors and Premiers on this 21st day of September, 2021.

ATTACHMENT E

Missouri River Container-On-Barge
MARAD Project Designation (8/2021)

(E-1)

Missouri River Container-on-Barge Service receives Marine Highway designation

One of six new Marine Highway Projects named nationally

JEFFERSON CITY - The Missouri Department of Transportation has received one of six Marine Highway Project designations from the U.S. Department of Transportation's Maritime Administration (MARAD) as part of the America's Marine Highway Program (AMHP). The application to initiate a container-on-barge service was developed in partnership with AGRIServices of Brunswick (ASB), the largest multimodal transportation provider on the Missouri River.

This is MoDOT's first designation and only 52 such designations have been approved since the program's inception in 2010. A Missouri Department of Agriculture grant to ASB was used to develop the application with technical support from MoDOT's Multimodal Division.

The AMHP encourages the use of America's navigable waterways for the movement of freight and people as an alternative to land-based transportation. This Container-on-Barge Project will expand options for the transportation of goods on inland waterways beginning with agricultural products at ASB in Central Missouri to international markets in the Gulf of Mexico as early as 2022. The service could then expand to other products along the Missouri River.

"Container on barge has the potential to be transformational for cost effective and efficient movement of freight, broadening the commodities that can be shipped," said Tom Waters, chairman of the Missouri Highways and Transportation Commission. "We are proud of the collaborative public-private partnership to successfully receive this designation. The more freight we can shift to the uncongested rivers, the more capacity we open on the interstates and rail lines in the state."

"It is very exciting to see an idea, which was seeded by a grant from the Missouri Agricultural and Small Business Development Authority, bring much needed additional freight capacity to our state," said Missouri Department of Agriculture Director Chris Chinn. "Our farmers and agribusinesses will be more competitive on the global market with this expanded use of the Missouri River."

Dru Buntin, director of the Missouri Department of Natural Resources concurred, "Our core mission involves promoting the use of our resources to benefit all Missourians – this project does that. It provides environmentally sound and efficient use of our waterways, and we are excited to see AGRIServices setting the example with this opportunity."

Products being transported in rail containers into the Midwest is growing rapidly. Services such as container-on-barge can use this supply of available containers to move Missouri produced goods at a low-cost and environmentally friendly method.

"Missouri's greatest competitive advantage is our location," said U.S. Sen. Roy Blunt, R-Mo. "This designation will allow our state to further capitalize on that advantage by expanding freight capacity on the Missouri River – getting more goods to more markets more efficiently."

U.S. Rep. Sam Graves, R-Mo. commented, "By containerizing grain right here in Missouri, we're opening endless opportunities to ship all sorts of consumer products in and out of our state. Congratulations to all who worked hard to secure this important designation."

"The MASBDA grant allowed us to pull together a talented team to develop this plan", said Lucy Fletcher, Business Development Manager at AGRIServices at Brunswick, "The container-on-barge service builds redundancy in the freight supply chain between the Missouri River, Norfolk Southern and highways making sure products get to market in the most cost-effective way. Each mode working together builds capacity needed for the increased freight volume anticipated in the next few years."

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For more information, call MoDOT at 888-ASK-MODOT (275-6636) or visit www.modot.org. To receive the latest statewide news and text alerts, signup for e-updates.

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Districts Involved

STATEWIDE

Published On: Wed, 08/25/2021 - 10:30

ATTACHMENT F

Additional Items

- **Future Meeting Schedule** *(F-1)*
- **Frequently Used Acronyms (12/21/2017)** *(F-2 to F-7)*

QUARTERLY MEETINGS
FUTURE MEETING SCHEDULE

FEBRUARY 2022	
Location to be determined	
February 22	UMRBA Quarterly Meeting
February 23	UMRR Coordinating Committee Quarterly Meeting

MAY 2022	
Location to be determined	
May 24	UMRBA Quarterly Meeting
May 25	UMRR Coordinating Committee Quarterly Meeting

Acronyms Frequently Used on the Upper Mississippi River System

AAR	After Action Report
A&E	Architecture and Engineering
ACRCC	Asian Carp Regional Coordinating Committee
AFB	Alternative Formulation Briefing
AHAG	Aquatic Habitat Appraisal Guide
AHRI	American Heritage Rivers Initiative
AIS	Aquatic Invasive Species
ALC	American Lands Conservancy
ALDU	Aquatic Life Designated Use(s)
AM	Adaptive Management
ANS	Aquatic Nuisance Species
AP	Advisory Panel
APE	Additional Program Element
ARRA	American Recovery and Reinvestment Act
ASA(CW)	Assistant Secretary of the Army for Civil Works
A-Team	Analysis Team
ATR	Agency Technical Review
AWI	America's Watershed Initiative
AWO	American Waterways Operators
AWQMN	Ambient Water Quality Monitoring Network
BA	Biological Assessment
BATIC	Build America Transportation Investment Center
BCR	Benefit-Cost Ratio
BMPs	Best Management Practices
BO	Biological Opinion
CAP	Continuing Authorities Program
CAWS	Chicago Area Waterways System
CCC	Commodity Credit Corporation
CCP	Comprehensive Conservation Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CG	Construction General
CIA	Computerized Inventory and Analysis
CMMP	Channel Maintenance Management Plan
COE	Corps of Engineers
COPT	Captain of the Port
CPUE	Catch Per Unit Effort
CRA	Continuing Resolution Authority
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSP	Conservation Security Program
CUA	Cooperative Use Agreement
CWA	Clean Water Act
DALS	Department of Agriculture and Land Stewardship
DED	Department of Economic Development
DEM	Digital Elevation Model

DET	District Ecological Team
DEWS	Drought Early Warning System
DMMP	Dredged Material Management Plan
DNR	Department of Natural Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	Department of Conservation
DOER	Dredging Operations and Environmental Research
DOT	Department of Transportation
DPR	Definite Project Report
DQC	District Quality Control/Quality Assurance
DSS	Decision Support System
EA	Environmental Assessment
ECC	Economics Coordinating Committee
EEC	Essential Ecosystem Characteristic
EIS	Environmental Impact Statement
EMAP	Environmental Monitoring and Assessment Program
EMAP-GRE	Environmental Monitoring and Assessment Program-Great Rivers Ecosystem
EMP	Environmental Management Program [Note: Former name of Upper Mississippi River Restoration Program.]
EMP-CC	Environmental Management Program Coordinating Committee
EO	Executive Order
EPA	Environmental Protection Agency
EPR	External Peer Review
EQIP	Environmental Quality Incentives Program
ER	Engineering Regulation
ERDC	Engineering Research & Development Center
ESA	Endangered Species Act
EWMN	Early Warning Monitoring Network
EWP	Emergency Watershed Protection Program
FACA	Federal Advisory Committee Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FDR	Flood Damage Reduction
FFS	Flow Frequency Study
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management
FRST	Floodplain Restoration System Team
FSA	Farm Services Agency
FTE	Full Time Equivalent
FWCA	Fish & Wildlife Coordination Act
FWIC	Fish and Wildlife Interagency Committee
FWS	Fish and Wildlife Service
FWWG	Fish and Wildlife Work Group
FY	Fiscal Year
GAO	Government Accountability Office
GEIS	Generic Environmental Impact Statement
GI	General Investigations

GIS	Geographic Information System
GLC	Governors Liaison Committee
GLC	Great Lakes Commission
GLMRIS	Great Lakes and Mississippi River Interbasin Study
GPS	Global Positioning System
GREAT	Great River Environmental Action Team
GRP	Geographic Response Plan
HAB	Harmful Algal Bloom
HEL	Highly Erodible Land
HEP	Habitat Evaluation Procedure
HNA	Habitat Needs Assessment
HPSF	HREP Planning and Sequencing Framework
HQUSACE	Headquarters, USACE
H.R.	House of Representatives
HREP	Habitat Rehabilitation and Enhancement Project
HU	Habitat Unit
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IBI	Index of Biological (Biotic) Integrity
IC	Incident Commander
ICS	Incident Command System
ICWP	Interstate Council on Water Policy
IDIQ	Indefinite Delivery/Indefinite Quantity
IEPR	Independent External Peer Review
IIA	Implementation Issues Assessment
IIFO	Illinois-Iowa Field Office (formerly RIFO - Rock Island Field Office)
ILP	Integrated License Process
IMTS	Inland Marine Transportation System
IRCC	Illinois River Coordinating Council
IRPT	Inland Rivers, Ports & Terminals
IRTC	Implementation Report to Congress
IRWG	Illinois River Work Group
ISA	Inland Sensitivity Atlas
IWR	Institute for Water Resources
IWRM	Integrated Water Resources Management
IWTF	Inland Waterways Trust Fund
IWUB	Inland Waterways Users Board
IWW	Illinois Waterway
L&D	Lock(s) and Dam
LC/LU	Land Cover/Land Use
LDB	Left Descending Bank
LERRD	Lands, Easements, Rights-of-Way, Relocation of Utilities or Other Existing Structures, and Disposal Areas
LiDAR	Light Detection and Ranging
LMR	Lower Mississippi River
LMRCC	Lower Mississippi River Conservation Committee
LOI	Letter of Intent
LTRM	Long Term Resource Monitoring

M-35	Marine Highway 35
MAFC	Mid-America Freight Coalition
MARAD	U.S. Maritime Administration
MARC 2000	Midwest Area River Coalition 2000
MICRA	Mississippi Interstate Cooperative Resource Association
MIPR	Military Interdepartmental Purchase Request
MMR	Middle Mississippi River
MMRP	Middle Mississippi River Partnership
MNRG	Midwest Natural Resources Group
MOA	Memorandum of Agreement
MoRAST	Missouri River Association of States and Tribes
MOU	Memorandum of Understanding
MRAPS	Missouri River Authorized Purposes Study
MRBI	Mississippi River Basin (Healthy Watersheds) Initiative
MRC	Mississippi River Commission
MRCC	Mississippi River Connections Collaborative
MRCTI	Mississippi River Cities and Towns Initiative
MRRC	Mississippi River Research Consortium
MR&T	Mississippi River and Tributaries (project)
MSP	Minimum Sustainable Program
MVD	Mississippi Valley Division
MVP	St. Paul District
MVR	Rock Island District
MVS	St. Louis District
NAS	National Academies of Science
NAWQA	National Water Quality Assessment
NCP	National Contingency Plan
NIDIS	National Integrated Drought Information System (NOAA)
NEBA	Net Environmental Benefit Analysis
NECC	Navigation Environmental Coordination Committee
NED	National Economic Development
NEPA	National Environmental Policy Act
NESP	Navigation and Ecosystem Sustainability Program
NETS	Navigation Economic Technologies Program
NGO	Non-Governmental Organization
NGRREC	National Great Rivers Research and Education Center
NICC	Navigation Interests Coordinating Committee
NPDES	National Pollution Discharge Elimination System
NPS	Non-Point Source
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NRDAR	Natural Resources Damage Assessment and Restoration
NRT	National Response Team
NSIP	National Streamflow Information Program
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&M	Operation and Maintenance

OHWM	Ordinary High Water Mark
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OPA	Oil Pollution Act of 1990
ORSANCO	Ohio River Valley Water Sanitation Commission
OSC	On-Scene Coordinator
OSE	Other Social Effects
OSIT	On Site Inspection Team
P3	Public-Private Partnerships
PA	Programmatic Agreement
PAS	Planning Assistance to States
P&G	Principles and Guidelines
P&R	Principles and Requirements
P&S	Plans and Specifications
P&S	Principles and Standards
PCA	Pollution Control Agency
PCA	Project Cooperation Agreement
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PED	Preliminary Engineering and Design
PgMP	Program Management Plan
PILT	Payments In Lieu of Taxes
PIR	Project Implementation Report
PL	Public Law
PMP	Project Management Plan
PORT	Public Outreach Team
PPA	Project Partnership Agreement
PPT	Program Planning Team
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RCP	Regional Contingency Plan
RCPP	Regional Conservation Partnership Program
RDB	Right Descending Bank
RED	Regional Economic Development
RIFO	Rock Island Field Office (now IIFO - Illinois-Iowa Field Office)
RM	River Mile
RP	Responsible Party
RPT	Reach Planning Team
RRAT	River Resources Action Team
RRCT	River Resources Coordinating Team
RRF	River Resources Forum
RRT	Regional Response Team
RST	Regional Support Team
RTC	Report to Congress
S.	Senate
SAV	Submersed Aquatic Vegetation
SDWA	Safe Drinking Water Act
SEMA	State Emergency Management Agency

SET	System Ecological Team
SONS	Spill of National Significance
SOW	Scope of Work
SRF	State Revolving Fund
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered
TEUs	twenty-foot equivalent units
TIGER	Transportation Investment Generating Economic Recovery
TLP	Traditional License Process
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSP	Tentatively selected plan
TSS	Total Suspended Solids
TVA	Tennessee Valley Authority
TWG	Technical Work Group
UMESC	Upper Midwest Environmental Sciences Center
UMIMRA	Upper Mississippi, Illinois, and Missouri Rivers Association
UMR	Upper Mississippi River
UMRBA	Upper Mississippi River Basin Association
UMRBC	Upper Mississippi River Basin Commission
UMRCC	Upper Mississippi River Conservation Committee
UMRCP	Upper Mississippi River Comprehensive Plan
UMR-IWW	Upper Mississippi River-Illinois Waterway
UMRNWFR	Upper Mississippi River National Wildlife and Fish Refuge
UMRR	Upper Mississippi River Restoration Program [Note: Formerly known as Environmental Management Program.]
UMRR CC	Upper Mississippi River Restoration Program Coordinating Committee
UMRS	Upper Mississippi River System
UMWA	Upper Mississippi Waterway Association
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VTC	Video Teleconference
WCI	Waterways Council, Inc.
WES	Waterways Experiment Station (replaced by ERDC)
WHAG	Wildlife Habitat Appraisal Guide
WHIP	Wildlife Habitat Incentives Program
WIIN	Water Infrastructure Improvements for the Nation Act
WLMTF	Water Level Management Task Force
WQ	Water Quality
WQEC	Water Quality Executive Committee
WQTF	Water Quality Task Force
WQS	Water Quality Standard
WRDA	Water Resources Development Act
WRP	Wetlands Reserve Program
WRRDA	Water Resources Reform and Development Act