Minutes of the 137th Quarterly Meeting
and
35th Annual Meeting
of the
Upper Mississippi River Basin Association

February 23, 2016
Rock Island, Illinois

UMRBA Chair Dan Baumann called the meeting to order at 9:30 a.m. Participants were as follows:

UMRBA Representatives, Alternates:

Rick Gosch	Illinois Department of Natural Resources
Harold Hommes	Iowa Department of Agriculture and Land Stewardship
Tim Hall	Iowa Department of Natural Resources
Sam Hiscocks	Iowa Department of Transportation
Dave Frederickson	Minnesota Department of Agriculture
Barb Naramore	Minnesota Department of Natural Resources (by phone)
Robert Stout	Missouri Department of Natural Resources
Bryan Hopkins	Missouri Department of Natural Resources
Dan Baumann	Wisconsin Department of Natural Resources
Jim Fischer	Wisconsin Department of Natural Resources
John Petty	Wisconsin Department of Agriculture, Trade, and Consumer Protection

Federal UMRBA Liaisons:

Sandra Schiess	Federal Emergency Management Agency
Marty Adkins	U.S. Department of Agriculture, NRCS
Donald Balch	U.S. Army Corps of Engineers, MVD
Ken Westlake	U.S. Environmental Protection Agency, Region 5
Tim Yager	U.S. Fish and Wildlife Service
Jennifer Sauer	U.S. Geological Survey

Others in Attendance:

Andy Fowler	Iowa Department of Natural Resources
Mike Griffin	Iowa Department of Natural Resources
Randy Schultz	Iowa Department of Natural Resources
Adam Thiese	Iowa Department of Natural Resources
Craig Markley	Iowa Department of Transportation
Garrett Pedersen	Iowa Department of Transportation
Kevin Stauffer	Minnesota Department of Natural Resources
Janet Sternburg	Missouri Department of Conservation
Lorisa Smith	Missouri Department of Natural Resources
Bryan Ross	Missouri Department of Transportation
Thatch Shepard	U.S. Army Corps of Engineers, MVD
Terry Birkenstock	U.S. Army Corps of Engineers, MVP
Steve Tapp	U.S. Army Corps of Engineers, MVP
Ken Barr	U.S. Army Corps of Engineers, MVR

Hank DeHaan	U.S. Army Corps of Engineers, MVR
Jim Homann	U.S. Army Corps of Engineers, MVR
Marv Hubbell	U.S. Army Corps of Engineers, MVR
Karen Hagerty	U.S. Army Corps of Engineers, MVR
Nicole Manasco	U.S. Army Corps of Engineers, MVR
Roger Perk	U.S. Army Corps of Engineers, MVR
Chuck Theiling	U.S. Army Corps of Engineers, MVR
Tim Eagan	U.S. Army Corps of Engineers, MVS
Brian Johnson	U.S. Army Corps of Engineers, MVS
Brian Markert	U.S. Army Corps of Engineers, MVS
John Peukert	U.S. Army Corps of Engineers, MVS
Michael Rodgers	U.S. Army Corps of Engineers, MVS
Julie Ziino	U.S. Army Corps of Engineers, MVS
Bob Clevenstine	U.S. Fish and Wildlife Service
Craig McPeek	U.S. Fish and Wildlife Service
Jim Rogala	U.S. Geological Survey, UMESC (by phone)
Jessica Brooks	National Weather Service
Tom Boland	Amec Foster Wheeler
Olivia Dorothy	American Rivers
Tyler Linton	Great Lakes Environmental Center, Inc.
Roger Less	HDR Engineering
Gary Loss	HTNB
Brad Walker	Missouri Coalition for the Environment
Max Starbuck	National Corn Growers Association
Gretchen Benjamin	The Nature Conservancy
Andy Burkemper	Neighbors of the Mississippi
Craig Koch	Neighbors of the Mississippi
Lee Nelson	Upper River Services
Dru Buntin	Upper Mississippi River Basin Association
Dave Hokanson	Upper Mississippi River Basin Association
Kirsten Mickelsen	Upper Mississippi River Basin Association

Minutes

Dave Frederickson moved and Robert Stout seconded a motion to approve the draft minutes of the November 17, 2015 quarterly meeting as written. The motion carried unanimously on a voice vote.

Executive Director's Report

Dru Buntin presented the Executive Director's report, noting the report is organized according to the focus areas in the 2013-17 UMRBA Strategic Plan. Among the items in the report, in the *Aquatic Nuisance Species focus area*, Buntin said he participated in a USACE Great Lakes and Mississippi River Interbasin Study (GLMRIS) Executive Steering Committee meeting in Chicago, Illinois on January 13, 2016. Buntin said the meeting included discussion of the planned schedule for formulating the Brandon Road feasibility study tentatively selected plan. The Corps still anticipates completing the plan by January 2017. However, Buntin said the Corps has moved up the schedule to May 2016 for execution of a nonbinding letter of intent from the nonfederal sponsor for the project. Corps staff indicated the letter they require is envisioned to express an interest in working with the Corps on potential project implementation as the details of the plan will not have been completed by the May date.

In the *Commercial Navigation focus area*, Buntin noted that the M-35 Marine Highway Advisory Committee met the previous day and this topic would be covered later in the agenda of the quarterly meeting. Buntin asked Kirsten Mickelsen to update the Board on her participation in the Inland Waterway Users Board (IWUB) meeting in St. Louis on December 1-2, 2015. Mickelsen said the IWUB meeting was preceded by a tour of Lock and Dam 25 on the Upper Mississippi River and La Grange Lock and Dam on the Illinois Waterway. She said the tour included presentations on structural deficiencies at the two sites as well as improvements authorized at the sites under the Navigation and Ecosystem Sustainability Program (NESP). Mickelsen said the IWUB meeting included discussion of the lock performance monitoring system (LPMS) reporting challenges, an update on Mississippi River rock pinnacles removal, a report on the Inland Waterways Trust Fund (IWTF) and cost shared projects, an overview of dam safety action classification ratings, and the evaluation process used by the Corps for navigation projects. She said basin partners are appreciative of the IWUB meeting in St. Louis and taking the time to visit the two lock and dam sites. Olivia Dorothy said that, following the discussion of potential public-private partnership (P3) projects at the November 17, 2015 UMRBA meeting, the Nicollet Island Coalition sent a January 21, 2016 letter to Rock Island District Commander Craig Baumgartner expressing concern and requesting additional information regarding a potential P3 pilot project on the Illinois or Upper Mississippi River. Dorothy said copies of the letter were available in the back of the meeting room.

In the *Ecosystem Restoration and Monitoring focus area*, Buntin highlighted the Association's efforts in conjunction with The Nature Conservancy and other program partners to advocate for funding of the Upper Mississippi River Restoration (UMRR) Program. Buntin directed the Board's attention to pages B-9 to B-13 of the agenda packet for copies of a series of letters related to UMRR funding. The first letter was the Assistant Secretary of the Army for Civil Works (ASA-CW) Jo-Ellen Darcy's December 14, 2015 response to UMRBA's August 24, 2015 letter regarding UMRR funding for FY 2016 and FY 2017. The remaining two letters are from Congressional members to the President in support of UMRR funding. Buntin noted that the President's FY 2017 budget includes $20 million for UMRR, while the FY 2016 work plan also included additional UMRR funding. Buntin said the Association continues to work with UMRR program partners and the Corps to resolve issues related to indemnification and operations and maintenance provisions of project partnership agreements (PPAs). Buntin directed the Board's attention to pages B-14 to B-15 for a letter from UMRBA to the leadership of the House Transportation and Infrastructure Committee and the Senate Environment and Public Works Committee requesting that the PPA issues be addressed in the next water resources development act. Buntin introduced Marv Hubbell who provided an update regarding UMRR' efforts to develop a logo and tagline to assist with program branding. Hubbell noted that displays of the various logo designs and taglines under consideration are available in the hall outside the meeting room and he said comments from those in attendance would be appreciated.

In the *Flood Risk Management focus area*, Buntin directed the Board's attention to pages B-16 to B-18 of the agenda packet for a copy of the Upper Mississippi, Illinois, and Missouri Rivers Association's (UMIMRA) January 15, 2016 letter to Mississippi Valley Division Commander Michael Wehr regarding the Upper Mississippi River Comprehensive Plan. Buntin noted that the Consolidated Appropriations Act for FY 2016 requested that the Corps submit a report to Congress outlining the authorization and funding requirements necessary to continue work on the Plan. The Administration's FY 2017 budget request did not include funding for the Upper Mississippi River Comprehensive Plan.

In the *Spill Response Planning and Mapping focus area*, Dave Hokanson said UMRBA Oil Pollution Act (OPA) project staff are nearing completion of the Minnesota statewide update of the Inland Sensitivity Atlas with anticipated completion in late February. Hokanson noted that a technical issue with the interactive PDF map production software has been resolved, but delayed the original schedule for November 2015 completion of the Minnesota update. While awaiting the software update, OPA staff have continued to assemble Atlas data for Illinois, which is the next state to be updated. Hokanson

said UMRBA staff and UMR Spills Group members participated in a winter response training exercise on February 17-18, 2016 in Dubuque, Iowa. Spills Group members attended the training and provided presentations during the classroom portion of the event. Hokanson said the training was held in coordination with TransCAER and CP Rail, who led field-based training components. Buntin said UMRBA staff continue to work with the National Park Service in drafting a contract for the Association to facilitate development of a spill response plan for the St. Croix National Scenic Riverway.

In the *Water Quality focus area*, Buntin indicated that Hokanson would provide a Water Quality Program update later in the quarterly meeting.

In the *Cross-Cutting Initiatives focus area*, Buntin noted that the Interstate Council on Water Policy (ICWP) will hold its Washington, DC Roundtable meeting on March 22-24, 2016. Buntin said UMRBA participates as a member of ICWP, as do several of the Association's member states and Buntin currently serves as Chair of the ICWP Board. Buntin said ICWP is also finalizing the annual letter to Congress from partners in support of the USGS streamgage network. Buntin said he will attend the March 8-10, 2016 meeting of the Mississippi River Cities and Towns Initiative (MRCTI) in Washington, DC. He indicated that UMRBA and USGS plan to enter into agreements with MRCTI at the meeting highlighting areas of common interest related to water quality and ecosystem restoration.

Buntin directed the Board's attention to page B-19 of the agenda packet for a copy of UMRBA Treasurer Jason Tidemann's statement regarding his review of UMRBA's financial statement for the period of October 1, 2015 through December 31, 2015. Tim Hall offered and Rick Gosch seconded a motion to approve the Treasurer's statement. The Board unanimously adopted the motion by voice vote.

Interbasin Diversion Consultation

UMRBA Chair Dan Baumann noted that the five states are party to the 1989 Upper Mississippi River Basin Charter. Dru Buntin explained that the Charter sets forth a notification and consultation process for any new or increased water diversion out of the basin that will exceed an average of 5 million gallons per day during any 30-day period. The Charter also requires the signatory states to report on their involvement in qualifying diversion requests at UMRBA's annual meeting. The states reported as follows:

Illinois, Rick Gosch	— no qualifying diversion requests
Iowa, Tim Hall	— no qualifying diversion requests
Minnesota, Dave Frederickson	— no qualifying diversion requests
Missouri, Robert Stout	— no qualifying diversion requests
Wisconsin, Jim Fischer	— no qualifying diversion requests

Baumann said UMRBA staff would send the customary letters to the Governors conveying the results of the states' diversion reporting.

2016 UMRBA Strategic Plan Priorities

Chair Dan Baumann reported that the UMRBA Board has adopted priorities for calendar year 2016 under the Association's 2013-2017 Strategic Plan. Baumann said Board members would highlight planned activities under the plan's different focus areas. He said activities under the *Aquatic Nuisance Species focus area* include continued monitoring and information sharing regarding advancements in the Great Lakes and Mississippi River Interbasin Study (GLMRIS) Brandon Road feasibility report as well as any related legislation. Baumann said UMRBA will also collaborate in regional efforts to address aquatic nuisance species and provide a venue for information sharing on prevention and control.

Sam Hiscocks said UMRBA planned activities in the *Commercial Navigation focus area* include continued advocacy for the states' joint perspectives regarding navigation-related issues, including maintenance and rehabilitation, modernization, cost sharing, and public-private partnerships. Hiscocks said UMRBA would continue to advocate with partners for funding for the Navigation and Ecosystem Sustainability Program (NESP). He said UMRBA would continue to staff and support the Navigation Work Group and would also provide support to the states in their efforts to develop the M-35 Marine Highway Corridor. Hiscocks said the Association would also track and analyze legislation related to commercial navigation.

Jim Fischer highlighted planned activities in the *Ecosystem Restoration and Monitoring focus area*. He said UMRBA would continue to advocate for full funding for the Upper Mississippi River Restoration Program (UMRR), while also voicing the states' positions on UMRR policy and programmatic issues. Fischer noted that 2016 is the 30th year anniversary of the UMRR program and indicated program partners are planning an event highlighting the 30 years of successful efforts under the program. Fischer said the event is tentatively scheduled to occur in August 2016 in La Crosse, Wisconsin. Fischer said UMRBA would also continue development of the UMRR 2016 Report to Congress per the terms of the contract with the Corps of Engineers. He said UMRBA would also continue to provide support services for UMRR.

Robert Stout said Association activities in the *Flood Risk Management focus area* include continued support for development of watershed-based planning tools such as a HEC-RAS model for the Upper Mississippi River. Stout said UMRBA would also continue communication with federal agencies involved in floodplain construction projects regarding the importance of coordinating with state and local governments in project formulation and implementation and complying with applicable state and local floodplain regulations. Stout said the Association would also continue to facilitate information exchange as needed among state floodplain managers. He cited the Corps implementation of the levee safety provisions of the 2014 Water Resources Reform and Development Act as an example of a potential coordination topic.

Baumann said planned activities in the *Hydropower focus area* include continued staff and support for the ad hoc Hydropower Group. Baumann said there was not much activity related to hydropower currently and indicated that the Board would be considering broadening this focus area to energy development in the next strategic plan as the majority of UMRBA coordination activity currently relates to energy issues such as frac sand mining.

Baumann said Association activities in the *Spill Response, Planning, and Mapping focus area* include continued support for the UMR Hazardous Spills Coordination Group, facilitation of training and exercises, and development of tools to support spill response work. Baumann said recent spill events have demonstrated the benefit of proactive planning and training. He complemented the UWFS Refuge staff for their leadership in efforts to respond to spills on refuge lands. Tim Yager said the Service completely supports spills planning efforts and concurred that recent spill events have shown the importance of having a plan in place.

Bryan Hopkins noted that the Association's activities in the *Water Quality focus area* include engagement with regional partners such as the Mississippi River Cities and Towns Initiative (MRCTI) to identify shared goals and collaboration opportunities related to water quality. Hopkins said recent collaboration with the Lower Mississippi River Conservation Committee on water quality monitoring is also an example of this work. He said UMRBA would continue to support pilot implementation of the *UMR Clean Water Act Monitoring Strategy* in Wisconsin and Minnesota in 2016. Hopkins said the Association would continue to provide a venue for information exchange among the states regarding nutrient issues and would also be exploring the issue of harmful algal blooms on the UMR via an interdisciplinary work group.

Dru Buntin said the 2016 priorities adopted by the Board also include cross-cutting activities such as continued participation in America's Watershed Initiative, the Interstate Council on Water Policy, and MRCTI. Buntin said UMRBA also plans to continue work with the USFWS and other partner organizations on the development of the UMR economic profile.

UMRS Flooding

USACE Update on Winter Flood Event

John Peukert provided information regarding the December 2015 UMRS winter flood event and summarized the impacts and status of recovery efforts. He said the flooding was the result of a 72-hour historic rainfall event that occurred from December 26 through December 28, 2015. The storm was approximately 50 to 75 miles wide and extended from southeast Missouri to central Illinois. Regional rainfall totals ranged from six to twelve inches of precipitation. Peukert said December 26, 2015 was the third wettest day ever recorded in the history of the City of St. Louis. Peukert summarized some of the impacts from the flooding, including:

- 90 levee districts sustained damages
- 7 levee districts sustained breaches
- Impacts to locks and dams
- Impacts to dikes and revetments
- Shoaling revealed by pre-dredge surveys
- Impacts to Corps of Engineers project lands (dams, campground, day-use facilities, boat ramps, access areas, shoreline erosion, bottomland forests)

Peukert said MVS fully activated all flood fighting teams on the Mississippi, Missouri, Meramec, Kaskaskia and Illinois Rivers and over 150 District personnel were deployed in support of the effort. Corps staff supported local, county, and state agencies with flood fight efforts through communications, on-the ground support and assessments. The Corps also distributed 520,500 sand bags, 233 poly rolls, and four Crisafulli pumps. Peukert said the federally-constructed levees performed as designed and prevented more than $2.4 billion in damages. He said four levees in Missouri and three levees in Illinois breached during the flood event. All breached levees were non-federally constructed.
Of the ten levee systems that were damaged in the summer 2015 flood event, nine reported sustaining additional damages by the winter flood. Peukert said both federally and non-federally constructed levees that participate in the rehabilitation program under PL84-99, and are in an active status, may be eligible for assistance to repair damages caused by the flood. He said the Corps anticipates that as many as 30 levee districts may request rehabilitation assistance. Peukert said MVS has initiated the recovery phase of response by sending out damage assessment teams, developing a construction program,

refining cost estimates for repairs or rehabilitation, and preparing project information reports for approval. Peukert said that, while all damages must be addressed, special emphasis will be given to areas with breaches in order to reestablish some level of protection as soon as possible. Given that Congress has not provided additional funding in the form of supplemental appropriations, the Corps must prioritize funding for response efforts.

Peukert said the Corps has analyzed the benefits provided by the reservoir system during the flooding event and determined the reduction in peak stage attributable to the system. At Chester, Illinois, the reservoir system reduced peak flow by 3.7 feet, while the peak stage reduction at Cape Girardeau, Missouri was 2.2 feet and at Cairo, Illinois was 1.4 feet. Peukert noted that the peak river stage at Cape Girardeau during the December event was a record high.

Peukert said Carlyle Lake reached its second highest record pool level in January 2016 causing extensive damage to shorelines, recreation areas, roads and environmental areas. He said some recreation areas may not open in spring due to lack of funding to make repairs and operate the areas. Peukert said the winter 2015 flooding resulted in Shelbyville Lake levels reaching the fifth highest ever recorded with damage to roads, parking lots, support facilities, shoreline erosion, and fish habitat.

Peukert said damages to projects in the Upper Mississippi River System are being assessed and impacts from the flood could cause significant issues for the navigation channel if no additional funds are received. He said the rapid rise and fall of the river during the flooding event caused shoaling of sediment and created an impediment to navigation traffic. The Corps' preliminary surveys indicate a need for additional dredging funding to address flooding impacts. Peukert said flooding also damaged recreational access areas and the locks and dams themselves including impacts to spillways and the saddle dam at Lock and Dam 25.

Peukert said engineering assessments of off-channel flows during the flood event have raised concerns that the navigation channel may be lost during the next flood event. He showed the Board aerial photos of bank line scour and a breach of the Len Small levee. Peukert said the levee breach at the site is over 5,300 feet long, while the bank line scour is 1,300 feet long with a depth of over 30 feet. He said the site's location offers the potential for a channel cutoff that would reduce the length of the navigation channel by 14 miles. If this happened, the navigation channel and $40 million in channel improvements would be lost. The resulting head cut would cause channel degradation to the Mississippi River and its tributaries. Peukert said bank line repair efforts were initiated on January 26, 2016 and include the deployment of 100,000 tons of grade A stone with a 10-foot crown. Peukert said Phase 1 of the repair project is estimated to cost over $1 million. Gretchen Benjamin said past breaches of the Len Small levee impacted the town of Olive Branch, Illinois. She said she understood a buyout of some properties in the area was being implemented, but was not yet complete. Sandra Schiess said FEMA has started the local assistance program for the event based on requests from local and state requests.

Peukert said the cost to repair PL84-99 structures is estimated to be $52.7 million, while the cost to repair impacts to Corps' projects is estimated to be approximately $35.6 million. He said the Corps also anticipates the need for additional dredging estimated to cost $15.32 million. In response to a question from Ken Westlake, Peukert said there is no consistent standard for how long it typically takes Congress to appropriate supplemental funding for response. Robert Stout noted that the extent of the flooding along the Meramec River was immense. He said it highlighted the need to reflect on what additional predictive tools might be required to better assist in preparation, response, and recovery efforts.

National Weather Service Spring Forecast

Jessica Brooks provided the National Weather Service's (NWS) spring flood outlook for 2016 for the Upper Mississippi River Basin. Brooks said the NWS considers a number of factors in creating the outlook, including:

- Antecedent conditions
- Snow cover and water equivalent
- Frost depth
- Soil moisture
- Stream flows
- Weather forecasts and outlooks

Brooks said antecedent conditions in the basin show that temperature has been above normal for the November 1, 2015 through February 22, 2016 period. Precipitation has also been above normal during this period, while accumulated snowfall was below average in much of the basin. Brooks said current snow cover and frost depth are both below normal, while soil moisture is very high across much of the basin. She said there are no areas of the basin currently experiencing drought conditions. Stream levels are trending down, but are currently higher than normal.

Brooks said the NWS Advanced Hydrologic Prediction Service creates a number of different forecast and outlook tools. The current 7-day and 2-week precipitation forecasts predict precipitation over much of the Upper Mississippi River Basin. The March weather outlook predicts at-to-above normal temperatures in the Upper Mississippi with the March to May outlook showing much the same. Brooks said the current Upper Mississippi River flood outlook predicts a 50 percent or greater chance for flooding in the basin. The primary threats are for minor to moderate flooding downstream of the Quad Cities, and in tributaries across Iowa, in southern Wisconsin, and northern Illinois. Brooks said the primary factors considered by the NWS were that snowpack is generally below normal and frost depth is relatively shallow. In the areas of higher threat, wet soil conditions and high stream flow exist making the areas very susceptible to flooding with March and April rains.

Brooks said the NWS will update the spring forecast on March 3, 2016. In response to a question from Dan Baumann, Brooks said she would provide information regarding an upcoming NWS conference call to UMRBA staff for distribution.

Federal Agency FY 2017 Budget Updates

U.S. Army Corps of Engineers (Corps)

Don Balch said the President's FY 2017 budget request for the Mississippi Valley Division (MVD) included generally level funding. Balch referred to the presentation on flood recovery earlier in the meeting and said it is important to understand that even if Congress passes supplemental appropriations for disaster response, limited funding must be prioritized towards a number of existing needs.

In response to a question from Bryan Hopkins, Balch said he did not know the total amount of funding necessary to address flood recovery needs. However, he said MVD has identified deferred dredging needs totaling $200 million and a maintenance backlog of $850 million system-wide. In response to a question from Dru Buntin, Balch said the $1 billion maintenance backlog often referred to by Corps staff is the total of deferred dredging and maintenance needs. In response to a question from Ken Westlake, Balch said the general trend for the backlog has been increasing. Dan Baumann said he would have expected to see a higher level of funding included in the FY 2017 budget given the size of the backlog.

Balch pointed out that the amount of funding requested in the President's FY 2017 budget was determined by the Administration. He said the Corps districts provide information regarding needs and capacity, but are essentially in competition with each other for a finite amount of funding. In response to a question from Robert Stout, Balch said that the Administration decides how to allocate any additional funding appropriated by Congress in the work plan for that fiscal year. In response to a question from Rick Gosch, Balch confirmed that any additional funds appropriated beyond the Administration's request were typically allocated to the Corps in general categories.

U.S. Environmental Protection Agency (USEPA)

Ken Westlake said USEPA's budget was in a steady state following the FY 2016 appropriations legislation signed by the President in December 2015. He said the purchasing power of the funding is somewhat eroded by inflation and a 1 percent salary increase. USEPA's staffing level is relatively flat after significant cuts in FY 2015. Westlake noted that the total amount of USEPA funding requested by the President for FY 2017 is $8.3 billion, an increase of $0.2 billion over the enacted FY 2016 funding level for the agency. He said the budget included a proposed $400 million cut to the clean water state revolving loan fund (SRF) program, a $160 million increase in the safe drinking water SRF, a slight increase for Section 106 funding, and no change in requested funding for the 319 program. Westlake provided the Board with the estimated allocation of clean water and drinking water SRF funding for each UMR state, including:

Clean Water SRF FY 2017 Estimated Allocations

State	FY 2017 estimated allocation
Illinois	$39,490,000
Iowa	$14,205,000
Minnesota	$16,951,000
Missouri	$19,129,000
Wisconsin	$16,478,000

Safe Drinking Water SRF FY 2017 Estimated Allocations

State	FY 2017 estimated allocation
Illinois	$41,533,000
Iowa	$14,940,000
Minnesota	$17,828,000
Missouri	$20,119,000
Wisconsin	$17,330,000

In response to a question from Robert Stout, Westlake said he did not know why a cut was proposed for the clean water SRF. Westlake said additional information regarding USEPA's budget could be found on the agency's website.

Westlake said USEPA Region 5 emergency response staff are assisting in efforts to address the situation with lead in drinking water in Flint, Michigan. He noted that Robert Kaplan is now the acting Regional Administrator of Region 5. Westlake said both Congress and the USEPA Inspector General are looking into the roles and processes that allowed the situation in Flint to occur. He said he expects to see heightened attention nationwide to addressing lead in drinking water systems. In response to a question from Dru Buntin, Westlake said this increased focus was best evidenced by the Administration's request for an increase in safe drinking water SRF funding. In response to a question from Marv Hubbell regarding communities that are considering privatizing their water systems, Westlake said some private entities are eligible for SRF funding.

U.S. Fish and Wildlife Service (USFWS)

Tim Yager said the Administration's FY 2017 budget included general increases for the various mission areas of the U.S. Fish and Wildlife Service (USFWS). Yager shared with the Board the following funding totals requested by the President for the USFWS programs for FY 2017, as well as the amounts appropriated in the past two fiscal years.

USFWS National – Resource Management Accounts

	FY 2015	2016	2017 (requested)
Ecological Services	226M	234M	252M
Habitat Conservation	65M	73M	80M
Fish and Aquatic Conservation	142M	148M	153M
National Wildlife Refuge System	474M	481M	507M
Conservation and Enforcement	128M	137M	141M
Cooperative Landscape Conservation	14M	13M	18M
Science Support	32M	35M	32M
Regional Operations	38M	38M	41M

USFWS National – Other Accounts

	FY 2015	2016	2017 (requested)
Construction	15M	24M	24M
Land Acquisition	47M	69M	59M
Cooperative Endangered Species Cons.	50M	53M	53M
National Wildlife Refuge Fund	13M	13M	0
North American Wetlands Conservation	34M	35M	35M
Multinational Species/Neotrop. Migrant	13M	15M	15M
State and Tribal Wildlife Grants Fund	59M	61M	67M

Yager noted that funding in the construction account is used to build visitors' centers, maintenance building, shops, etc. at refuges and hatcheries. He noted that a new visitors' center is being constructed at the Big Muddy National Wildlife Refuge in Columbia, Missouri.

USFWS National – Permanent

	FY 2015	2016	2017 (requested)
Sport Fish Restoration	408M	431M	445M
Migratory Bird Conservation Acct.	67M	68M	80M
National Wildlife Refuge Fund	8M	8M	8M
Miscellaneous	4M	4M	4M
Federal Lands Recreation Enhancement	5M	5M	5M
Federal Aid in Wildlife Restoration	786M	830M	607M
Contributed Funds	4M	3M	3M
Cooperative Endangered Species Cons.	72M	74M	58M

Yager highlighted the proposed FY 2017 cut for the Federal Aid in Wildlife Restoration program to $607 million from $830 million.

In the Upper Mississippi River Basin, Yager said three USFWS programs (Ecological Services, Refuges and Wildlife, and Fisheries) maintain field offices. He provided information to the Board detailing the estimated need identified in these programs, beginning with the Ecological Services Program. The three Ecological Services field offices (Twin Cities, Rock Island, and Marion) that do work on the Upper and Middle Mississippi rivers focus their activities on: Corps of Engineers projects and permits; threatened and endangered species consultation and recovery; environmental contaminants assessment, response, and restoration; partners for fish and wildlife floodplain and watershed projects; and monarch butterfly conservation and recovery. Yager said the Corps and state partners are working with the USFWS to restore endangered mussels and the pallid sturgeon. However, the Service has no discretionary funds to put into the recovery of these and other species. Yager said spill planning and response is an important aspect of the environmental contaminants program in the UMR basin. He noted that the USFWS has worked on large scale spill planning exercises, but has little capacity to offer staff at the site specific spill level. Yager said the Service's environmental contaminant program currently consists of less than one fulltime equivalent per state to handle spill response as well as a myriad of other responsibilities such as contaminant impacts to lands of the national wildlife refuge system.

Yager said the USFWS Fisheries Program has resource offices in La Crosse, Wisconsin, Columbia, Missouri, and Carterville, Illinois. He said the Service also maintains the National Fish Hatchery at Genoa, Wisconsin, the UMR Fish Health Center at La Crosse, Wisconsin, and the Midwest Fisheries Center in Onalaska, Wisconsin. The program's areas of emphasis include aquatic nuisance species (ANS) control, large migratory species, endangered mussels, and habitat restoration.

Yager said the National Wildlife Refuge System has 15 staffed stations on or near the Upper Mississippi, Illinois, and Missouri Rivers. In these areas, the refuges include over 360,000 acres and enjoy nearly 3.5 million visitors per year. Yager said areas of emphasis for refuge staff include: planning for monarch butterfly conservation and recovery; construction of the visitor's center at the Big Muddy National Fish and Wildlife Refuge, involvement in the Upper Mississippi River Restoration Program (UMRR); land acquisition at Trempealeau, Winona and McGregor; and involvement in multiple energy development and transportation issues such as powerline rights-of-way, rail shipments of oil and hazardous materials, and the Interstate 90 Dresbach bridge construction.

Yager said the USFWS manages grant programs for Sport Fish Restoration, Wildlife Restoration, State Wildlife, Boating Access, Hunter Education, Aquatic Education, and Boating Infrastructure. He said the Service's funding assistance to states continues to increase and this is also true in the Upper Mississippi River Basin. Yager highlighted the USFWS Upper Mississippi River and Great Lakes Region Joint Venture Program that seeks to pursue biologically-based bird conservation planning and implementation through partnerships. Funding through the program supports bird conservation research, monitoring, and landscape design. Yager also highlighted the Service's Landscape Conservation Cooperatives (LCCs). He said LCCs are a venue for the conservation community to identify where priorities align related to the landscapes and decisions needed to sustain key fish and wildlife species. Yager said through LCCs, science tools and products are developed to help partner organizations make progress via individual missions and authorities. He said there are currently 22 individual LCCs working together as a connected network of professionals.

U.S. Geological Service (USGS)

Jennifer Sauer said the Administration's FY 2017 total budget request for USGS was $1.2 billion, a $106.8 million increase over the FY 2016 enacted budget for the agency. Sauer showed the Board a table with proposed funding levels for USGS programs, including:

FY 2017 Budget Request *(Dollars in Thousands)*					
Surveys, Investigations, and Research	**FY 2015 Actual**	**FY 2016 Enacted**	**FY 2017 Fixed Costs**	**FY 2017 Program Changes**	**FY 2017 Budget Request**
Ecosystems	157,041	160,232	701	13,005	173,938
Climate and Land Use Change	135,975	139,975	304	31,165	171,444
Energy and Mineral Resources, and Environmental Health	92,271	94,511	453	4,519	99,483
Natural Hazards	135,186	139,013	519	10,169	149,701
Water Resources	211,267	210,687	957	16,348	227,992
Core Science Systems	107,228	111,550	408	6,437	118,395
Science Support	105,611	105,611	164	4,817	110,592
Facilities	100,421	100,421	1,223	15,614	117,258
USGS Total	**1,045,000**	**1,062,000**	**4,729**	**102,074**	**1,168,803**

Sauer noted several factors resulting in a proposed $31.5 million increase for the Climate and Land Use Change mission area for USGS. She said the development of the ground system for the Landsat 9 satellite was one factor, given that the launch date for the satellite has been expedited from 2023 to 2021. Some other initiatives include enhancements to the National Water Census, the development of tools for water management, and the use of the WaterSMART program to understand patterns and manage the effect of drought nationwide. Sauer said the water resources mission area received a $17.3 million increase for refining real-time assessment of water use trends and integrating water information from multiple agencies in the WaterSMART program. The funding will also expand the use of flood inundation mapping and rapidly deployable streamgages.

Sauer said an increase of $13.7 million in the ecosystems mission area will fund such priorities as the development of decision support tools for water ecology through the WaterSMART program. Additional funding is also directed towards invasive species work such as research on new and emerging invasive species and the development and refinement of tools for early detection and control. Sauer said the core science systems mission area also saw a $6.8 million increase. This is envisioned to fund elevation data acquisition within the National Geospatial Program, acquisition of LIDAR data and enhancement of landscape-scale 3-D maps, and completion of the National Hydrography Database at a 1:24,000 scale.

Sauer said the budget also includes funding to support Administration and Secretarial initiatives. This includes $35.3 million to support the improvement of landscape-level understanding of water resources in the Chesapeake Bay, Everglades, Puget Sound, Upper Mississippi River, Great Lakes, and California Bay Delta watersheds. Sauer said the budget also includes support for regional and cross-cutting activities in the Upper Mississippi such as detection and control of Asian carp, quagga and zebra mussels. In response to a question from Dru Buntin, Sauer said she was not aware of the details of the geographically focused initiative to improve landscape-level understanding of water resources in watersheds including the Upper Mississippi. However, Sauer said she would follow up with information regarding the initiative after this meeting.

USDA Natural Resource Conservation Service (NRCS)

Marty Adkins said the Administration's FY 2017 budget for NRCS includes generally flat funding. He said leaders in NRCS and the U.S. Department of Agriculture as a whole have been placing increasing emphasis on targeting the agency's funding. Adkins provided information regarding the FY 2016 budget allocations for Upper Mississippi River states for some NRCS programs, including:

Agricultural Conservation Easement Program (ACEP)
NRCS FY 2016 Budget Allocations

State	Financial Assistance (FA)	Technical Assistance (TA)
Illinois	$2,384,257	$913,298
Iowa	$12,334,278	$1,940,000
Minnesota	$2,148,855	$950,000
Missouri	$5,639,500	$1,699,985
Wisconsin	$2,929,150	$810,026

Conservation Stewardship Program (CStP)
NRCS FY 2016 Budget Allocations

State	Financial Assistance (FA)	Technical Assistance (TA)
Illinois	$35,319,000	$3,784,000
Iowa	$33,381,000	$3,790,000
Minnesota	$77,432,000	$7,237,000
Missouri	$24,273,000	$3,796,000
Wisconsin	$18,733,000	$2,553,000

Environmental Quality Incentives Program (EQIP)
NRCS FY 2016 Budget Allocations

State	Financial Assistance (FA)	Technical Assistance (TA)
Illinois	$10,405,714.26	$3,107,858.83
Iowa	$16,471,329.22	$4,218,964.71
Minnesota	$25,981,878.30	$4,901,134.47
Missouri	$20,299,658.31	$7,511,240.09
Wisconsin	$19,358,593.10	$4,619,904.48

Adkins said NRCS announced a new round of funding available under the Regional Conservation Partnership Program (RCPP) on February 12, 2016. He said there is no specific match amount required under RCPP, but NRCS has a goal of at least one-to-one match. Adkins said 84 projects were selected for RCPP funding in FY 2016, and nine of those projects were in UMR states. The request for RCPP proposals is anticipated to be released in early March 2016 and Adkins said he expects pre-proposals to be due in early June 2016.

Adkins also highlighted some NRCS activities not directly related to the budget. He said NRCS continues to place a priority on working with individual states to support implementation of state nutrient loss reduction strategies. Adkins said NRCS has created a Soil Health Division in the agency and continues efforts under the soil health initiative. NRCS recently hosted a soil health conference in Iowa focused on development of communications strategy to convey to producers the multiple benefits of healthy soil. Adkins said NRCS has placed renewed emphasis on producers having individual conservation plans. In response to a question from Dru Buntin, Adkins said it was not yet clear if additional rounds of Mississippi River Basin Initiative (MRBI) might be available this year.

Federal Emergency Management Agency (FEMA)

Sandra Schiess said the FY 2017 budget request included $90 million in pre-disaster mitigation funding. She said the funds are competitively available for states to fund projects in their disaster mitigation plans. Schiess said the state disaster mitigation plans also form the basis of post-disaster mitigation efforts. Each state has its own mechanism for implementing funding received from FEMA.

Channel Maintenance Planning

Association Chair Dan Baumann said the states appreciate the Corps working to better understand the challenges that the states face in permitting and participating in channel maintenance planning. Baumann said the states also understand the fiscal and resource constraints of the Corps as they relate to channel maintenance. He said there is a long history of the states and federal agencies working proactively to address channel maintenance planning, including the Great River Environmental Action Team (GREAT) studies, pool plans, and individual agreements with the Corps and states. Baumann said recent flooding and drought patterns have added to the unpredictability associated with channel maintenance.

Baumann said budget constraints, increasing sedimentation, and land use changes are just some of the challenges related to channel maintenance. He said it is important to note that channel maintenance plans also must meet state and federal legal requirements. Baumann said emergency permitting requests place state agencies in an undesirable reactive situation. He said the states also recognize that there are other federal agencies involved as partners in channel maintenance efforts. Baumann said the presentations and discussion on the topic at this meeting are meant to identify potential areas of improvement in proactively planning for channel maintenance. Baumann introduced Don Balch to provide opening thoughts on behalf of MVD.

Balch said each district on the UMRS has its own unique approach to channel maintenance to best address conditions and needs in their respective areas. He said Corps staff proactively identify likely dredging needs based upon a variety of factors including where dredging has historically occurred. Balch said the majority of dredging costs are for disposal of dredged material. He said federal guidelines require the lowest cost disposal options in order to maximize dredging with available resources. Balch said the majority of dredging is required after spring floods and during drought conditions. He said the Corps welcomes the discussion and input on potential improvements to channel maintenance efforts. He said each Corps District will next present information on its channel maintenance planning.

St. Paul District (MVP)

Steve Tapp provided an overview of St. Paul District's long-term strategic planning and information needs related to channel maintenance. Tapp said MVP is updating the Channel Maintenance Management Plan, which is now 20 years old. He said the Corps anticipates having the portions of the updated draft plan available for the next River Resources Forum meeting in April 2016 with the full draft slated to be available for the August 2016 River Resources Forum meeting. Tapp said there is a long history of agencies working together on placement site planning in the Upper Mississippi River and he cited several developments that shaped the current approach to the issue in MVP, including:

- 1974 Interagency Study of Dredging Issues
- 1981 Channel Maintenance Forum
- 1991 River Resources Forum
- Signed individual agreements with federal and state river management agencies
- Channel Maintenance Management Plan

Tapp said most of the placement site planning in MVP occurred in the early 1980s. Only two planning documents have been completed since the 1996 Channel Maintenance Management Plan. There are currently four Dredged Material Management Planning (DMMP) documents under development on Lower Pool 2, Lower Pool 4, Pool 5, and Pool 6. Tapp said there is a need to review and prioritize all reaches and MVP will likely initiate a Pool 9 DMMP in 2017.

Tapp highlighted the development of a National Placement Data Manager pilot program in the Corps' Great Lakes and Ohio River Division that is anticipated to be available agency-wide soon. Corps staff are feeding data into the system which will enable better tracking of placement site capacity and estimates of costs to maintain sites or acquire new sites. In response to a question from Dan Baumann, Tapp said the program is a planning tool. Tapp said he is not aware if other agencies will be able to access the program. In response to an additional question from Baumann, Tapp said placement sites are discussed with the River Resources Forum members. Baumann said the state resource agencies can also work with state departments of transportation to communicate regarding potential opportunities for use of dredged material.

Tapp said there are essentially three approaches to real estate acquisition of placement sites: permits, long-term leases/easements, and fee title acquisition. MVP has moved more towards long-term leases and easements for placement sites in recent years. He said fee title acquisition requires completion of a DMMP and justification for acquisition. Condemnation is possible in some cases. In response to a question from Baumann, Tapp said three to four miles is typically the maximum distance material is transported for placement.

Tapp said data shows an increasing trend for sedimentation in MVP. In comparing the period from 1991 to 2010 with the period of 1971 to 1990, there has been a 68 percent increase in flow on the Minnesota River and a 24 percent increase in flow on the Upper Mississippi River in MVP. Consequently, placement sites are filling faster. In an effort to better understand the sediment budget, Tapp said MVP is working with USGS on sedimentation monitoring on the Minnesota and Chippewa Rivers. In response to a question from Dan Baumann, Chuck Theiling said monitoring on the Minnesota River showed that sedimentation was largely from bedload and streambank erosion.

In light of recent extreme weather events, Tapp said MVP continues to refine procedures for response, while also maintaining the most current emergency contact staff listings. He said MVP continues planning for additional placement sites as well as working to restore capacity at existing sites through unloading and beneficial use. Tapp said escalating costs and the difficulty in securing placements sites within feasible distances add to the challenge. He said funding has increased somewhat recently, but is still not sufficient to meet the need. As a result, the Corps must reduce the scope of site unloading resulting in inefficiencies. Tapp said the Corps also continues to work with the National Weather Service to incorporate the agency's spring flood forecasting into channel maintenance efforts. He said the Corps is also working with USGS on ways to incorporate an early indication of sedimentation and potential dredging needs into monitoring.

Tapp said personnel limitations have also constrained channel maintenance efforts, but he said he is optimistic that this message is being heard. He said there is also a tremendous amount of competition within the Corps for limited funding as the total backlog of maintenance needs continues to grow. Tapp showed the Board a table summarizing channel maintenance expenditures from 1997 to 2015. He said the overall recent trend in funding has been a slight increase, but MVP continues to express a capacity for more channel maintenance funding than what has been received.

Tapp said MVP is striving to keep current the agreements it has in place with Iowa, Minnesota, and Wisconsin agencies. He said MVP is in the process of renewing state permits and agreements. Tapp said the Corps also continues to investigate potential strategies for incorporating channel maintenance

work into other programs such as the Upper Mississippi River Restoration (UMRR) program, although timing and funding do not always align. He said the River Resources Forum has been successful as a venue to discuss and coordinate on channel maintenance work. Tapp said MVP anticipates potential dredging needs this year in Lower Pool 2 and at the head of Lake Pepin with the Minnesota and Chippewa Rivers as the sediment sources. In response to a question from Dan Baumann, Tapp said MVP is working with the Lake Pepin Alliance on potential regional approaches to sediment management. In response to a question from Jennie Sauer, Tapp said this work is being funded through the Corps' Engineer and Research Development Center (ERDC).

Tapp said insights from the previous planning efforts highlight the importance of building contingencies into the plan. He said that, while it is not possible in all cases, beneficial use of dredged material is a shared goal. In response to a question from Garrett Pedersen, Tapp said the Corps did not charge the Wisconsin Department of Transportation for dredged material used on the construction of the Interstate 90 bridge at Dresbach, Wisconsin. He said the only cost was for the transportation of the material, which was used as general fill. In response to a question from Tyler Linton, Chuck Theiling cited a Lake Pepin study as an example of the analysis of sedimentation on aquatic communities. In response to a question from Ken Westlake, Tapp said an increase of impervious surfaces may be one factor in the increase in flows on the Minnesota River. However, Jim Fischer said there has also been a large increase in the installation of tile drainage in the watershed. In response to a question from Janet Sternburg, Tapp said he could not think of any beneficial uses of dredged material not currently being pursued in MVP.

Rock Island District (MVR)

Jon Klingman provided an overview of Rock Island District's long-term strategic planning and information needs related to channel maintenance. Klingman said that GREAT II study formalized a series of river teams, including the River Resources Coordinating Team (RRCT), the Fish and Wildlife Interagency Team (FWIC), the On-Site Inspection Team (OSIT), and the Committee to Assess Regulatory Structures (CARS). The RRCT is the overarching review and advisory group, while the FWIC focuses on fish and wildlife resources, the OSIT on dredged material disposal, and the CARS on channel regulating structures.

Klingman said MVR coordinates with the OSIT on placement site planning. MVR has developed DMMPs for most of the dredging reaches, and Klingman said OSIT members are consulted during planning of new DMMPs. He said new DMMPs typically also involve development of new environmental assessments (EAs) and MVR receives recommendations from the OSIT when determining selected alternatives of the DMMP and the EA. Klingman said the OSIT holds a winter meeting each year to review the previous year of dredging and anticipate possible dredging locations for the upcoming year. He said OSIT members also conduct site visits in the spring of each year as necessary to identify potential placement sites.

Klingman described MVR's coordination with the OSIT for dredging events. He said OSIT approval is sought for bank line, inland, or in-water placement. Approved sites are often referred to as historic placement sites and are identified in the Environmental Impact Statements (EIS) for both the Mississippi and Illinois Rivers. Klingman said MVR maintains Clean Water Act Section 404 (b)(1) permits for historic placement sites and obtains associated 401 water quality certification from each state. Historic placement sites within individual dredging reaches are also included in the DMMPs.

Klingman said the CARS typically meets annually to discuss opportunities for rock structures and prioritize placement based on channel maintenance, erosion protection, restoration needs, environmental complexity, and available funding. He said recent funding levels have reduced the purchase of rock and reduced how often the CARS has met.

Klingman said MVR coordinates with other agency partners on placement site planning in order to meet regulatory and compliance requirements for new sites, or existing sites with changed conditions. This includes through Clean Water Act permitting as well as National Environmental Policy Act (NEPA) processes. Klingman showed the Board a table reflecting the status of DMMPs in MVR, including the date of execution and the projected end date. He said most of the planning was completed in the early 1990s. There is currently one DMMP in the process of being updated. Klingman said most DMMPs have a significant amount of time left based on projection and/or have additional land acquisition planned. He said there are some sites that are filling faster than originally projected. Klingman also showed the Board maps identifying placement sites and their capacity on both the Mississippi and Illinois Rivers.

Klingman highlighted two placements sites on the Illinois River that are at or near capacity. The Mackinaw River site has sufficient capacity for one or two dredge placement events and Klingman said additional real estate acquisition is likely in 2016 or 2017. The Beardstown site also has one-to-two remaining events capacity. Klingman said material is being transferred by truck from this site, and there is also a potential beneficial use for material for the new highway 67 bridge project.

Klingman said two additional sites approaching or at capacity are the Hurricane Island and Finley's Landing sites in Pool 11 of the Mississippi River. Hurricane Island is a historic placement site last used in 2007. He said Wisconsin expressed concern that sand placed at the site was eroding and impacting downstream and backwater areas. Finley's Landing is beyond intended capacity. The site receives extensive recreational use and the local park officials do not want additional material placed there. This is due to concern about the height of the existing placement site, erosion of the site causing unsafe conditions, as well as visibility issues for park rangers. Klingman said MVR is working on a DMMP to address dredging in this reach.

As in MVP, Klingman said MVR approaches real estate acquisitions through permit, long-term lease/easement, and fee title acquisition. Fee title acquisition requires completion of a DMMP and justification for acquisition. MVR has used both voluntary and involuntary condemnation for acquisition. Klingman said MVR has recently acquired a 90 acre site in the Keithsburg Reach of Pool 18 and a 7.5 acre site in Pool 19. Both of these sites have potential for beneficial use of material. MVR is finalizing acquisition of a site in the LaGrange Pool of the Illinois River that will add 2.4 million yards of capacity. In response to a question from Dru Buntin, Klingman said real estate permits typically allow one-time placement at a site.

Klingman said there may be a need to update the June 2000 Upper Mississippi River and Illinois Waterway Cumulative Effect Study to refine sedimentation trends. Major tributaries to the Mississippi River within MVR include the Mackinaw, Sangamon, Iowa, and Des Moines Rivers. Klingman provided information regarding the volume of dredged material since 1965 on the Illinois River and noted a slight upward trend over the last 50 years, but a slight downward trend since 1998. Dredging material volume for the same period on the Mississippi River shows a downward trend over the past 50 years, but an upward trend since 1998.

Klingman said both flood and drought conditions can pose challenges to maintaining the navigation channel. During drought or flood-related closures, he said placement typically occurs in existing DMMP sites, historic bank line sites, or in-water (thalweg) placement sites. Klingman said MVR has side-cast material into planned dredge cuts to reopen the channel during emergency conditions and later picked up the material. MVR uses the OSIT to communicate and coordinate on response activities during such events. Klingman said MVR monitors both National Weather Service flood forecasts and in-house water level forecasts along with near term and long range forecasting to prioritize dredging activities.

Klingman highlighted the escalating costs for channel maintenance activities. He said land acquisition costs for placement sites are rising. MVR is also losing the ability to place at certain historically used sites. Klingman said it is also extremely expensive to transport mechanically dredged sand. All of these factors combine to make funding for channel maintenance a concern. As with MVP, Klingman said the backlog of maintenance needs for the locks and dams make prioritization of limited funding difficult. He said reduced staffing is also a resource constraint, with recent indications of potentially moving toward more seasonal positions.

MVR has recently obtained renewal of state water quality certifications in Illinois and Missouri. Klingman said Iowa issues site-specific certifications, and MVR is working toward renewing a memorandum of understanding (MOU) with Wisconsin. He said the Corps now has improved information related to erosion rates at placement sites, but said additional study of the fate of eroded sediments was being proposed. Klingman said beneficial use of dredged material is difficult to accomplish in MVR as most areas where chronic dredging occurs are remote and/or have multiple sources of sand that make hauling sand from placement sites a more expensive option.

While existing coordination mechanisms on channel maintenance planning are working well, Klingman acknowledged the need to provide as much lead time as possible when circumstances change. He said at this point anticipated hot spots for sedimentation within MVR are at the major tributaries, in pools with hinge-point operation, and at failing control structures. Klingman again stressed the importance of additional information to better understand tributary input and the total sedimentation budget. He said we need to better understand what is in the system already, what additional sediment input is coming from tributaries and shoreline erosion, and how material can be moved through the system more effectively. Klingman echoed Steve Tapp's comments regarding insights from previous planning processes. He said it is important to build into the planning process the flexibility to respond to changing conditions. Klingman it is also important to be mindful of investing too far in advance in solutions that might not address future priorities.

St. Louis District (MVS)

Mike Rodgers provided an overview of St. Louis District's (MVS) long-term strategic planning and information needs related to channel maintenance. Rodgers said channel improvement programs have been authorized since 1881 by various rivers and harbors acts, mainly the Rivers and Harbors Acts of 1910, 1927, and 1930. MVS maintains a 9-foot deep and minimum of 300-foot wide navigation channel on 300 miles of the Mississippi River, 80 miles of the Illinois River, and 36 miles on the lower Kaskaskia River. St. Louis is the third busiest port on the inland waterway system, handling approximately 110 million tons annually. Rodgers said estimates show that the availability of commercial navigation reduces overall transportation costs by over $3 billion annually. He said the material shipped in a 15 barge tow would require 216 rail cars and six locomotives if shipped by rail, and 1,050 large semi tractor-trailers if shipped by truck. To move identical amounts of cargo by rail generates 30 percent more carbon dioxide, and by truck generates 1,000 percent more carbon dioxide than moving the cargo by barge.

Rodgers said MVS channel improvement efforts include both the impounded river pools as well as the open river, but the majority of dredging occurs in the open river. Channel improvement tools used by MVS include dikes and other river training structures, weirs, dredging, rock removal, and off-bank revetments. Rodgers showed the Board a table depicting the volume of material dredged in 2015 in the Mississippi River pools, the open Mississippi River, the Illinois River, and the Kaskaskia River. No dredging has occurred in Pool 24 in the last four years and Rodgers said this can be attributed to the success of modifications to river training structures. Rodgers said the vessel Thomas George was completed in FY 2014 and was equipped with 2,400 feet of flexible dredge pipe that allows the creation

of ephemeral islands with dredge spoil to enhance and/or maintain environmental diversity. Rodgers said approximately 60 percent of MVS dredging by volume included flexible dredge pipe in 2015.

Rodgers shared with the Board a series of visual depictions of typical cross-sections of the river and how dikes and other training structures are used to manage the systems' energy and maintain required channel depth and width. He said river training structures can also reduce the need for dredging. The materials used for River training structures and the specific design have evolved over the years with bendway weirs and blunt nose chevrons being introduced in the 1990s. MVS also began notching some dikes to provide habitat benefits. Rodgers said bendway weirs are used to improve channel depth and width, while also improving safety for commercial navigation. Chevrons allow for improved connectivity, habitat, and recreation, while also reducing the need for dredging. Rodgers said "W-Dikes" are another example of training structures designed to maintain the channel and provide environmental benefits. Rodgers shared with the Board photos of all of these types of training structures.

Rodgers shared information regarding the reduction in dredging volume on the open river during specific low water periods from 1988 to 2013. He said overall dredge volume decreased, the channel was maintained to greater depths, channel maintenance costs were reduced, channel reliability increased, and safety was improved with no groundings occurring during low water periods. Rodgers also provided information showing the top ten dredging locations in terms of volume in 1989 and the reduction in dredging at these locations in 2012.

Rodgers said MVS is unique within the Corps in its approach to channel maintenance in that the district collaborates with partners and stakeholders through each phase of projects. He said the annual River Resources Action Team (RRAT) boat trip with partners is one example of such collaboration. Rodgers said MVS also collaborates with the Engineer Research and Development Center (ERDC) Engineering with Nature Initiative that seeks sustainable development of water resources infrastructure supported by solutions that beneficially integrate engineering and natural systems.

Rodgers said priority projects impacted by winter flooding that impact channel maintenance include the Len Small levee bank-line failure at river mile 33.3, the Ste. Genevieve levee number two at river mile 120.5, and the Powers Island bank-line failure at river mile 35.5. In response to a question from Brian Ross, Rodgers said the Len Small bank-line work would be completed in March, but would not include repair of the levee. In response to a question from Bryan Hopkins, Rodgers said in some cases private levees and whether or not they are restored after failure also impacts the maintenance of the navigation channel. Julie Ziino said the Len Small levee district participates in the P.L. 84-99 program and has indicated a desire to restore protection. In response to a question from Chris Klenklen regarding an estimated date of completion for the Len Small levee project, John Peukert said there are 22 impacted projects in MVS and the Corps is prioritizing projects to address regionally with available funds.

Rodgers provided an update on MVS rock removal work at Thebes and Grand Tower. Low Mississippi River stages impact MVS' ability to maintain the navigation channel in the Thebes and Grand Tower reaches because of the remnants of the rock outcropping geology at the location. He said that, while these are typically referred to as "rock pinnacles," they are actually what remains from previous efforts to remove the rock from the channel. These rock structures are hazards to navigation at any time of the year, but Rodgers said is especially true in low water. MVS has completed phase one of rock removal work and phase two focused on channel width is under way. Rodgers said the environmental assessment (EA) for the rock removal required MVS to minimize the impact to the environment and allowed only a minimal "taking" of fish. He said multiple sampling efforts during the work documented "taking" of only two fish. Rodgers showed photographs of rock removal work and said MVS used the drill and blast method after mechanical methods proved unsuccessful.

U.S. Geological Survey (USGS) – Upper Midwest Environmental Sciences Center (UMESC)

Jim Rogala provided information regarding potential sedimentation studies needed for ecological assessments under the Upper Mississippi River Restoration (UMRR) program. This information was provided in case these studies might also assist in information needs for channel maintenance. Rogala cited two reports regarding sediment transport resulting from UMRR workshops and completed in 1994 and 2002. The 1994 report identified the following tasks:

- Literature review
- Review of hydraulic, sediment, and geomorphic data
- Obtain floodplain elevation data
- Map the geomorphology of the UMRS floodplain
- Establish an expanded sediment monitoring network
- Estimate tributary sediment discharge
- Investigate and quantify sedimentation processes
- Develop backwater sedimentation budgets
- Synthesize and estimate future configuration of UMRS

Rogala said the 2002 working group report recommended:

- UMRR – Long Term Resource Management serve as the sediment data curator
- Place high priority on acquisition of floodplain elevation data
- Sedimentation transects in backwater areas
- Development of a qualitative system model
- Creation of a geospatial database of bed material
- Research on bed material transport
- Detailed geomorphological analysis of backwater areas to be used in developing a transition matrix to estimate future geomorphology
- Development of a systems model to estimate pool-scale changes in morphology

Rogala provided some examples of information included in backwater sedimentation studies. He said potential morphometric change studies related to channels could look at decadal changes in side channels and around channel structures. Studies could also address large-scale changes within years, as well as small-scale structural changes to dunes and scours.

Partner Discussion

Mike Griffin said there is a need to develop new approaches to maximizing beneficial use of dredged material. He said this requires collaboration among the state and federal agencies and a commitment toward future planning. Jim Fischer agreed with the need to focus on beneficial use, but said floodplain restrictions limit options for some uses. Griffin said it might be possible to change current requirements where they unnecessarily inhibit uses. In response to a question from Dru Buntin, Griffin said some of the states have more restrictive state floodplain management requirements that limit placement of material in beneficial ways if they are modeled to impact flood height at all. In response to a question from Dan Baumann, Griffin said it would be important to include state floodplain managers and representatives from FEMA in the discussion. Bob Clevenstine said some Corps policies also may be limiting beneficial use of dredged material.

Griffin and Baumann suggested UMRBA might be the appropriate organization to convene the discussion. Fischer agreed, but also highlighted that securing additional resources for channel maintenance activities was also important. Baumann suggested that UMRBA staff work with Mike Griffin and other state staff to further analyze potential improvements and more proactive approaches to

channel maintenance. Steve Tapp said the states' engagement on this topic has been helpful in highlighting the need. In response to a question from Fischer, Dru Buntin said UMRBA has submitted a letter to MVD on this topic, but has not explicitly requested additional channel maintenance funding from Congress. Karen Hagerty said this might also be an opportunity for the Corps to work with states and NRCS in better understanding how upland conservation practices effect sedimentation. Chuck Theiling suggested that climate change adaptation funding might also support sedimentation research. Baumann suggested that any partners wishing to participate in further discussion contact UMRBA staff or Mike Griffin.

Water Quality Program Update

Dave Hokanson provided an update on UMRBA Water Quality Program activities. He reminded Board members that priority action areas in 2016 include: monitoring and assessment tools; nutrients; partner engagement; support of the Water Quality Executive Committee, Water Quality Task Force, and other Association work groups; enhancement of capacity; and advocacy. Hokanson noted the creation of a Harmful Algal Bloom (HAB) Work Group per the Board's direction after discussions at the November 18, 2015 quarterly meeting. He said the HAB Work Group participants have begun initial discussions regarding potential coordination opportunities on the topic. This nutrient-related topic has developed as a national water quality issues and the August to October 2015 bloom on the Ohio River demonstrated the implications for large river systems. Regarding the occurrence of HABs on the Upper Mississippi River system, Hokanson said:

- Backwater and off-channel areas are more susceptible
- There is a prominence of blue-green algae in the UMR phytoplankton community
- There is concern for impacts to recreation, drinking water, and aquatic life uses
- There is currently no system-wide monitoring, tracking, notification, or response planning in place

Hokanson said the purpose of the Association's HAB Work Group is to explore the issue and evaluate whether additional steps are needed to appropriately address HABs on the UMR. He said the scope is still being determined, but may include: uses affected; roles of organizations and agencies; action/advisory levels; reporting, notification, communication, and contact persons; media and messages; and causative factors/occurrence. The HAB Work Group includes representatives from state Clean Water Act and Safe Drinking Water Act programs, USEPA, USGS, USACE, USFWS, drinking water systems, and universities, with the potential for adding others such as local health departments as discussions progress. Hokanson said the Work Group held a February 3, 2016 discussion in conjunction with the Water Quality Task Force meeting. The group heard a presentation from staff with the Ohio River Valley Water Sanitation Commission (ORSANCO) regarding the Ohio River bloom and began preliminary consideration of scope, goals, and tasks. The next HAB Work Group call is scheduled for March 10, 2016 and will include discussion of current capacities and monitoring, current notification processes, development of contact lists, and potential future work.

Hokanson provided an update regarding Minnesota-Wisconsin pilot implementation of the *UMR Recommended Clean Water Act Monitoring Plan.* He said pilot monitoring on reaches 0 through 3 will begin in May 2016. Participating agencies and organizations include the Minnesota Pollution Control Agency, Minnesota Department of Natural Resources, Minnesota Department of Health, (Twin Cities) Metropolitan Council, Wisconsin Department of Natural Resources, Wisconsin State Laboratory of Hygiene, and UMRBA. Hokanson said recent activities include chemistry split sampling tests in November 2015 and February 2016, desktop site review and transect determination, and work on the graphical viewer and field operations manual. Upcoming work includes review of outcomes from the chemistry split tests, finalization of the field operations manual, and continued preparation for May monitoring start. Hokanson demonstrated the water quality viewer for the project. Hokanson said

UMRBA staff will assist the Water Quality Task Force and Water Quality Executive Committee in documenting the outcomes and lessons learned from pilot implementation of the plan, further mining of existing data, testing and refining the provisional assessment methodology, discussion of data management, and strategies for additional implementation. Jim Fischer expressed appreciation to Dave Hokanson and UMRBA staff for their work in support of the monitoring strategy. In response to a question from Marty Adkins, Dru Buntin said he would be attending the April 2016 meeting of the Gulf Hypoxia Task Force in St. Louis, Missouri.

M-35 Marine Highway Advisory Committee

Kirsten Mickelsen provided an overview of the February 22, 2016 M-35 Marine Highway Advisory Committee meeting. She directed the Board's attention to pages F1 to F2 of the agenda packet for a copy of the M-35 brochure that includes the background, purpose, strategic vision, mission, and implementing strategies and governance architecture for the corridor. Mickelson said the Advisory Committee includes representatives from industry umbrella groups, municipal planning organizations, environmental and flood control/flood risk organizations, academia, and federal agencies. She said the Committee discussed a vision of improving freight mobility and relieving landside congestion by improving the nation's overall transportation system. The Committee supported funding the Navigation and Ecosystem Sustainability Program (NESP) as a way to improve the reliability and efficiency of the inland waterway system, while also fostering economic development and ecosystem restoration on the Upper Mississippi.

Mickelsen said the M-35 Advisory Committee discussed action plans for the topic areas of infrastructure, marketing and service development, planning and organization, and advocacy and awareness. She said members were very interested in identifying and pursuing tangible actions in the near, medium, and long range timeframes. Some of the action items in each topical area recommended by the Committee include:

- Infrastructure – pursue additional national funding through MARAD's TIGER and Marine Highway grant program, as well as FAST Act funding; conduct regional asset inventory of non-Corps dock size, rail access, commodities moved, etc.; support funding for operations and maintenance of the locks and dams; support funding for NESP; pursue development of intermodal connectors; request that the Corps update the environmental review documents for the small scale navigation projects authorized in NESP.

- Marketing and Service Development – create a marketing plan to communicate the river's ability to support commerce; raise awareness regarding foreign trade zones, and federal and state tax incentives supporting movement of shipments to the river as well as port development; analyze the viability of container shipping on the UMRS; identify and prioritize M-35 projects on which to seek designation from MARAD.

- Planning and Organization – support preliminary engineering and design (PED) funding for NESP; consider working with vocational and community colleges on educational approaches; identify critical issues and partners who need to be engaged; consider existing research and new data needs.

- Advocacy and Awareness – work with all partners to communicate to Congress and the Administration the need to fully utilize all Inland Waterway Trust Fund (IWTF) dollars, and to budget and appropriate funding for NESP and MARAD programs; engage the Mississippi River Congressional Caucus; show the risk of failure if sufficient funding is not provided for inland waterway infrastructure; communicate the lower cost and environmental benefits of navigation; work with partners to promote the value of the Upper Mississippi River System to the nation.

Mickelsen said she would keep the Board apprised of developments in the M-35 Marine Highway corridor work. Sam Hiscocks said the state departments of transportation are looking forward to the development of the action plan. Ann Schneider, who facilitated the M-35 Advisory Committee meeting, said she heard consensus from members regarding increasing use of the inland waterway as well as increasing the investment necessary for a reliable system.

Administrative Issues

Election of Officers

Rick Gosch offered and John Petty seconded a motion to elect a slate of UMRBA Officers, including Robert Stout as Chair, Tim Hall as Vice Chair, and Jason Tidemann as Treasurer. The motion was approved unanimously on voice vote.

Future Meeting Schedule

Baumann said the next meeting series will be held May 24-25, 2016 in St. Louis, Missouri with the UMRBA Quarterly meeting on the 24th, and the UMRR Coordinating Committee on the 25th. The August meetings will be held August 9-10, 2016 in La Crosse, Wisconsin with the UMRBA quarterly meeting on the 9th, and UMRR Coordinating Committee on the 10th. The November quarterly meetings will be held November 15-16, 2016 in St. Paul, Minnesota with the UMRBA quarterly and joint Water Quality Executive Committee meeting on the 15th, and the UMRR Coordinating Committee on the 16th.

With no further business, Dan Baumann offered and Tim Hall seconded a motion to adjourn. The motion passed unanimously, and the meeting adjourned at 3:45 p.m.