

# Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

February 26, 2020

## Highlights and Action Items

### Program Management

- The St. Paul District participated in the 2020 Da Vinci Fest on 25 January that was attended by 2,500 people. District staff highlighted UMRR's successful restoration of Pool 8 islands as well as other aspects of the program. The Rock Island District is working to provide local museums with updated UMRR materials. The Missouri History Museum updated some exhibits and materials related to the program. Marshall Plumley provided an overview of UMRR at a meeting of the Friends of Port Louisa National Wildlife Refuge.
- The FY 20 appropriations measure was enacted on December 20, 2019 for the entire federal government. It included \$33.17 million, which was the level included in the President's FY 20 budget and House and Senate FY 20 appropriations measures. UMRR has obligated \$9 million of its FY 20 funds to-date.
- UMRR's FY 20 internal allocations are as follows:
  - Regional Administration and Program Efforts – \$1,250,000
  - Regional Science and Monitoring – \$10,500,000
    - Long term resource monitoring – \$5,000,000
    - Regional science in support of restoration – \$3,800,000
    - Regional science staff support – \$200,000
    - Habitat project evaluations – \$1,125,000
    - HNA II/regional project sequencing – \$375,000
  - Habitat Restoration – \$21,420,000
    - Rock Island District – \$7,280,000
    - St. Louis District – \$6,940,000
    - St. Paul District – \$7,100,000
    - Model certification – \$100,000

[Note: The allocation of HREP funds among the three districts reflects repayment for transfers in recent years.]

- **The President's FY 21 budget was released February 10, 2020 and includes \$33.17 million for UMRR.** Program execution in FY 21 will be similar to FY 20, though regional science and monitoring would receive \$100,000 less due to completion of HNA-II and the HREP selection process.
- Updates to UMRR's 10-year outlook since the October 30, 2019 UMRR Coordinating Committee quarterly meeting reflect delays to project construction and planning as a result of prolonged high water conditions. The document incorporates anticipated progress related to HREPs in progress, monitoring, adaptive management, and science activities given assumptions based on recent funding trends.



- Dennis Hamilton is scheduled to retire in spring 2020. Plumley and UMRR Coordinating Committee members expressed appreciation for his leadership, contributions to UMRR, and advocacy within the Corps on behalf of the program.
- **The UMRR Coordinating Committee is scheduled to convene a March 24, 2020 conference call regarding development of statements of significance.** On the call, Committee members will review revised draft statements organized in the following categories: partnership, natural resources, culture, recreational, navigation, and other economic benefits.
- The program will soon initiate development of the next report to Congress in calendar year 2020. The report will likely describe efforts over the recent six years related to HNA-II, the UMRR Strategic Plan 2015-2025, statements of significance, desired future condition, third edition of the LTRM status and trends report, LTRM resource monitoring, HREPs, and any recommendations to Congress about the program.
- The Lower Illinois River communications pilot *ad hoc* team has shared resources via email, but has not met since the October 30, 2019 meeting. Angie Freyermuth's position will not be backfilled, but other regional planning office staff may be available to assist in this effort.
- The Corps' ProjectWise software can be used to facilitate collaboration on document development across program partners. A username and secure password are required to access the program through a web-interface. The software allows for storage of static documents as well as collaboration on documents in development. **The Coordinating Committee will identify a project to use as a pilot test of the ProjectWise software in the coming months.**
- Communication and outreach activities in the first quarter of FY 20 include the following:
  - On November 11, 2019, Rob Burdis of MN DNR presented to Lake City's City Council about field station and LTRM research collected over the last 30 years. Staff will also present February 27, 2020 at the Lake City public library about the impact of UMRR in the area and locally. Megan Moore presented on climate change and impacts to biota using LTRM data at the October 29, 2019 UMRBA Board's quarterly meeting and at East De Pere High School and UW-Eau Claire.
  - The Minnesota Valley National Wildlife Refuge visitor center and the visitor center in Fountain City have featured pull-up banners and business cards advertising UMRR. USFWS staff have been in communication with Senator Chuck Grassley's office to discuss existing and potential new HREPs.

### **UMRR Showcase Presentations**

- Brian Ickes provided a summary of functional changes in the UMRS fish community over the last 30 years. Analysis of LTRM day electrofishing data from 1993-2014 showed clear and strong non-random trajectory in the functional responses of each of the three guilds (habitat, feeding, and reproductive) in all study reaches over time with the two exceptions of habitat and reproductive guilds in the Open River reach. Trajectories of change vary in direction and strength across reaches with functional dynamics converging in some reaches and diverging in others at various rates. These results suggest the possibility of a resilience crisis in the future.
- Michael Dougherty provided an overview of the UMRR HREP Story Map Initiative that includes creation of an interactive webpage. The interactive map allows for viewing projects at various spatial scales and with various data layers, including historic maps, to explore relationships to other HREPs or environmental features. Additional features can be incorporated into the interface, such as the LTRM spatial data query tool or refuge boundaries available through ArcGIS online.



Completed and active projects are included and project information is accessible through the interface. Project pages will include project details, features, key attributes, and photos.

### **Habitat Restoration**

- MVP kicked off planning for Reno Bottoms and plans to have a TSP for Lower Pool 10 by fall 2020. Design priorities include McGregor Lake and Bass Ponds. Channel maintenance funds will be used to move sand from McMillan channel to the top of McGregor Lake. A construction contract for Conway Lake was awarded in 2018, but the contractor deferred starting until this spring. MVP plans to award construction contracts for Bass Ponds in May 2020 and McGregor Lake in July-August 2020. Draft evaluation reports were completed for Ambrough Slough and Trempealeau and submitted to partners for review. A team was assembled to discuss repairs to Harpers Slough Island W-2 and a letter report may be completed.
- MVR's planning priorities include Steamboat Island, Lower Pool 13, and Green Island. Design work for Keithsburg Division Stage II is at 35% and continues on all project features. High water continued to delay progress on Pool 12 Overwintering Stage 2, Huron Island Stages II and III, and Keithsburg Division Stage I. Construction was completed on Pool 12 Overwintering Stage 3 and it will be closed out. Contractors were pulled off Beaver Island due to winter and ice, but plan to dredge again as conditions allow.
- MVS's anticipates completion of the feasibility report for Oakwood bottoms in September 2020. A planning charette for Yorkinut slough will be held in the next few months to start feasibility. Other projects in planning include Rip Rap Landing and West Alton Islands. A design contract was awarded for Phase 1 Crains Island, which is the first HREP on the open river. Phase II Crains Island plans and specs design is in progress. Other design priorities include Piasa and Eagles Nest and Harlow Island. Oak Hill Contractors LLC was awarded their first Corps contract for construction of Phase 1 Crains Island. Clarence Cannon Refuge has multiple contractors on site to complete work delayed by flooding in 2019. Reforestation work continues at Ted Shanks.
- The District-based River Teams recommended a suite of 16 fact sheets for consideration:

#### **FWIC**

- Multi-Pool Habitat Protection
- Lower Pool 11
- Upper Pool 13
- Geneva and Hershey Islands
- Quincy Bay
- Pool 18 Forestry

#### **RRAT**

- East Cape
- Gilbert Lake Division
- Gilead Slough
- Slim Island Division
- Spunky Bottoms
- Sterling Island Complex

#### **FWWG**

- Lower Pool 4 – Big Lake, Robinson Lake, and Tank Pond
- Bank Stabilization and Natural Levee
- Lower Pool 5 and Weaver Bottoms
- Black River Bottoms Forest Restoration

**The UMRP Coordinating Committee unanimously endorsed the fact sheets for submittal to MVD for review and approval.** The FWWG is planning to submit a fifth fact sheet, Pool 8 Poolwide Forestry, to the UMRP Coordinating Committee for consideration at the May 20, 2020 quarterly meeting.

- **River team chairs will document their respective teams' HREP selection processes and provide them to the Program Planning Team along with insights on what did or did not go well throughout the process and any suggested improvements to the HREP selection process guidance documents. The PPT will meet to discuss possible modifications to the guidance documents. [Note: The PPT will meet virtually May 6-7, 2020 to review guidance documents.]**
- Tom Novak is retiring. Plumley thanked him and noted his involvement in the program has spanned nearly three decades, including serving as the St. Paul District program manager.



## **Long Term Resource Monitoring and Science**

- Accomplishments of the second quarter of FY 20 include publication of the following:
  - Completion report, “Developing methods of estimating submersed aquatic vegetation biomass in the Upper Mississippi River to expand capabilities within the UMRR program and improve the utility of the long-term vegetation data.”
  - Manuscripts:
    - “Decadal trends and ecological shifts in backwater lakes of a large floodplain river: Upper Mississippi River.”
    - “Invasive silver carp is empirically linked to declines of native sport fish in the Upper Mississippi River System.”
    - “Status, trends, and population demographics of selected sportfish species in the La Grange Reach of the Illinois River.”
- **The 2020 UMRR Science Meeting was held January 14-16, 2020 in La Crosse.** The format was similar to the 2018 science meeting, and focused on assessing current information needs for the understanding, management, and restoration of the UMRS and developing proposals for research using 2020 funds. Approximately 90 people attended the meeting. Working groups at the meeting considered what the river will look like in 50-100 years, the distribution and abundance of habitat and biota as well as the restoration and management implications. The meeting facilitated more direct interaction between restoration practitioners, natural resource managers, and research scientists and fostered a collaborative approach around development of larger proposals. Proposals will be ranked by the A-Team, USGS, and the Corps in April 2020 and then presented to the UMRR Coordinating Committee at the May 20, 2020 quarterly meeting.
- The LTRM Status and Trends Report chapter authors are scheduled to meet in early April 2020 to discuss initial results and finalize details on formatting and layout. Writing and analysis will be completed during FY 20. Findings will be included in the 2022 report to Congress.
- UMRR’s FY 20 LTRM allocation under full funding includes \$6.3 million (\$5.0 million for base monitoring and \$1.3 million for analysis). An additional \$2.5 million is available for science in support of restoration and management. These funds will cover monitoring during the Illinois Waterway closure, development of wind fetch products, moving LTRM spatial data to web mapping services, continuing ecohydrology work for two years, and reintroducing chloride monitoring for three years (2020-2023) to allow comparisons to historic data and establish change over time. Funding available for science proposals totals \$1.9 million. Proposals are due March 20, 2020 and will be considered by the UMRR Coordinating Committee at the May 20, 2020 quarterly meeting.
- The A-Team met in-person in conjunction with the January 14-16, 2020 UMRR science meeting. It began planning a process for ranking the proposals that come out of the Science Meeting. The A-Team is planning a conference call for the week of April 6, 2020 to ask questions to project PI(s) ahead of ranking proposals. The A-Team is scheduled to meet on April 22, 2020 to rank proposals.

## **Other Business**

- Jim Rogala is retiring in March 2020. Plumley expressed appreciation for his contributions to UMRR since the program’s inception. Houser said Rogala’s leadership, creativity, and institutional knowledge are invaluable and thanked him for his work ensuring the program’s success over the years.



Upcoming quarterly meetings are as follows:

- **May 2020 – St. Louis [Note: These meetings will only be held remotely]**
  - UMRBA quarterly meeting – May 19
  - **UMRR Coordinating Committee quarterly meeting – May 20**
- **August 2020 – La Crosse**
  - UMRBA quarterly meeting – August 11
  - **UMRR Coordinating Committee quarterly meeting – August 12**
- **October 2020 – St. Paul**
  - UMRBA quarterly meeting – October 27
  - **UMRR Coordinating Committee quarterly meeting – October 28**



**UMRR COORDINATING COMMITTEE - REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION**

Marshall Plumley  
Regional Program Manager  
St. Paul District  
Rock Island District  
St. Louis District

26 February 2020





US Army Corps of Engineers

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**UMRR PROGRAM OVERVIEW**

- FY 2020 Fiscal Update and FY 21 Outlook
- Statements of UMRR National Significance
- UMRR Communication Pilot Project
- External Communications and Outreach Events



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**USGS** science for a changing world

**US Army Corps of Engineers**

**USDA**

**A healthier and more resilient Upper Mississippi River ecosystem that sustains the River's multiple uses.**



**PUBLIC** **NGO's**

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**FINANCIAL REPORTING**

UMRR Quarterly Budget Report: St. Paul District  
FY2020 Q1: Report Date: Feb 07 2020

Project Name	Cost Estimates		FY2020 Financials			
	Non-Federal	Federal	Carry In	Allocation	Funds Available	Actual Obligations
Brown Berries		\$5,500,000		\$100,000	\$100,000	\$89,376
Marble Hill		\$1,411,000		\$300,000	\$300,000	\$296
Commodore Lake		\$13,675,000		\$300,000	\$300,000	\$296
Harpers Slough		\$17,800,000		\$450,000	\$450,000	\$38,224
Upper Pool 10		\$17,800,000	\$16,700	\$450,000	\$476,700	\$46,224
Rock Island		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Commodore		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Marble Hill		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Commodore		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
<b>Total</b>		\$72,000,000	\$16,700	\$2,100,000	\$2,116,700	\$346,240

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management			\$333,175	
<b>Total</b>			\$333,175	

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Land Management			\$96,180	
<b>Total</b>			\$96,180	

St. Paul Total				
Carry In	Allocation	Funds Available	Actual Obligations	
\$61,700	\$7,100,000	\$7,161,700	\$729,587	

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**FINANCIAL REPORTING**

UMRR Quarterly Budget Report: Rock Island District  
FY2020 Q1: Report Date: Feb 07 2020

Project Name	Cost Estimates		FY2020 Financials			
	Non-Federal	Federal	Carry In	Allocation	Funds Available	Actual Obligations
Brown Berries		\$5,500,000		\$100,000	\$100,000	\$89,376
Marble Hill		\$1,411,000		\$300,000	\$300,000	\$296
Commodore Lake		\$13,675,000		\$300,000	\$300,000	\$296
Harpers Slough		\$17,800,000		\$450,000	\$450,000	\$38,224
Upper Pool 10		\$17,800,000	\$16,700	\$450,000	\$476,700	\$46,224
Rock Island		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Commodore		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Marble Hill		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
Commodore		\$18,400,000	\$18,400,000	\$1,900,000	\$1,900,000	\$89,276
<b>Total</b>		\$72,000,000	\$16,700	\$2,100,000	\$2,116,700	\$346,240

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management			\$333,175	
<b>Total</b>			\$333,175	

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Land Management			\$96,180	
<b>Total</b>			\$96,180	

Rock Island Total				
Carry In	Allocation	Funds Available	Actual Obligations	
\$61,700	\$7,100,000	\$7,161,700	\$729,587	

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**FINANCIAL REPORTING**

UMRR Quarterly Budget Report: St. Louis District  
FY2018 Q1 Report Date: FY Feb 27, 2018  
Habitat Projects

Project Name	Cost Estimate		FY2018 Financials			
	Non-Federal	Federal	Carry In	Allocation	Funds Available	Actual Obligations
Upper Mississippi River	\$25,000,000	\$25,000,000	\$4,325	\$1,900,000	\$1,904,325	\$191,000
Lower Mississippi	\$25,000,000	\$25,000,000	\$1,900,000	\$1,900,000	\$1,900,000	\$190,000
Chattahoochee	\$27,271,000	\$27,271,000	\$403,000	\$403,000	\$403,000	\$8,470
Alabama	\$29,000,000	\$29,000,000	\$38,100	\$38,100	\$38,100	\$182,770
Florida	\$26,740,000	\$26,740,000	\$395,000	\$395,000	\$395,000	\$50,380
Mississippi	\$25,000,000	\$25,000,000	\$400,000	\$400,000	\$400,000	\$40,000
Arkansas	\$25,000,000	\$25,000,000	\$700	\$700	\$700	\$25,400
<b>Total</b>	\$124,000,000	\$124,000,000	\$2,801,325	\$2,801,325	\$2,801,325	\$287,920

**Habitat Rehabilitation**

Subcategory	FY2018 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management				\$60,770
<b>Total</b>				\$60,770

**Regional Program Administration**

Subcategory	FY2018 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Evaluation/Sequencing				\$12,240
<b>Total</b>				\$12,240

**St. Louis District**

Carry In	Allocation	Funds Available	Actual Obligations
\$403,000	\$1,900,000	\$1,903,000	\$200,470

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**FY 20 PBUD**

President's Budget	\$ 33,170,000
House	\$ 33,170,000
Senate	\$ 33,170,000
<b>FINAL APPROPRIATION</b>	<b>\$ 33,170,000</b>

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**FY20 PLAN OF WORK**

	Budget	Obligations 1 <sup>st</sup> Qtr
<b>TOTAL FY20 Program</b>	<b>\$33,170,000</b>	<b>\$3,758,545</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,250,000</b>	<b>\$ 547,030</b>
Regional Management	1,000,000	
Program Database	100,000	
Program Support Contract (UMRBA)	100,000	
Public Outreach	50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,500,000</b>	<b>\$1,425,514</b>
LTRM (Base Monitoring)	\$ 5,000,000	
(\$4,570,000 FY 19 + \$430,000 FY 20)		
UMRR Regional Science in Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	\$ 3,800,000	
UMRR Regional (Integration, Adapt. Mgmt.)	\$ 200,000	
Habitat Evaluation (split between MVS,MVR,MVP)	\$ 1,125,000	
HNA II/Regional Project Sequencing	\$ 375,000	
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$21,420,000</b>	<b>\$1,786,002</b>
Rock Island District	\$ 7,280,000	
St. Louis District	\$ 6,940,000	
St. Paul District	\$ 7,100,000	
Model Cert.	\$ 100,000	

*\$ 4,570,000 from LTRM FY 20 Allocation to Bass Ponds MVP*

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**FY20 PLAN OF WORK**

	Budget	Obligations 1 <sup>st</sup> Qtr
<b>TOTAL FY20 Program</b>	<b>\$33,170,000</b>	<b>\$3,758,545</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,250,000</b>	<b>\$ 547,030</b>
Regional Management	1,000,000	
Program Database	100,000	
Program Support Contract (UMRBA)	100,000	
Public Outreach	50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,500,000</b>	<b>\$1,425,514</b>
LTRM (Base Monitoring)	\$ 5,000,000	
(\$4,570,000 FY 19 + \$430,000 FY 20)		
UMRR Regional Science in Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	\$ 3,800,000	
UMRR Regional (Integration, Adapt. Mgmt.)	\$ 200,000	
Habitat Evaluation (split between MVS,MVR,MVP)	\$ 1,125,000	
HNA II/Regional Project Sequencing	\$ 375,000	
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$21,420,000</b>	<b>\$1,786,002</b>
Rock Island District	\$ 7,280,000	
St. Louis District	\$ 6,940,000	
St. Paul District	\$ 7,100,000	
Model Cert.	\$ 100,000	

*Crains Island, IL Contract Award*

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**FY20 PLAN OF WORK**

	Budget	Obligations 1 <sup>st</sup> Qtr
<b>TOTAL FY20 Program</b>	<b>\$33,170,000</b>	<b>\$3,758,545</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,250,000</b>	<b>\$ 547,030</b>
Regional Management	1,000,000	
Program Database	100,000	
Program Support Contract (UMRBA)	100,000	
Public Outreach	50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,500,000</b>	<b>\$1,425,514</b>
LTRM (Base Monitoring)	\$ 5,000,000	
(\$4,570,000 FY 19 + \$430,000 FY 20)		
UMRR Regional Science in Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	\$ 3,800,000	
UMRR Regional (Integration, Adapt. Mgmt.)	\$ 200,000	
Habitat Evaluation (split between MVS,MVR,MVP)	\$ 1,125,000	
HNA II/Regional Project Sequencing	\$ 375,000	
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$21,420,000</b>	<b>\$1,786,002</b>
Rock Island District	\$ 7,280,000	
St. Louis District	\$ 6,940,000	
St. Paul District	\$ 7,100,000	
Model Cert.	\$ 100,000	

*Bass Ponds, MN  
McGregor Lake, WI  
Contract Awards*

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**FY20 PLAN OF WORK**

	Budget	As of Right Now
<b>TOTAL FY20 Program</b>	<b>\$33,170,000</b>	<b>\$ 8,981,138</b>
<b>Regional Administration and Program Efforts</b>	<b>\$ 1,250,000</b>	<b>\$ 547,030</b>
Regional Management	1,000,000	
Program Database	100,000	
Program Support Contract (UMRBA)	100,000	
Public Outreach	50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,500,000</b>	<b>\$ 27.1%</b>
LTRM (Base Monitoring)	\$ 5,000,000	
(\$4,570,000 FY 19 + \$430,000 FY 20)		
UMRR Regional Science in Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	\$ 3,800,000	
UMRR Regional (Integration, Adapt. Mgmt.)	\$ 200,000	
Habitat Evaluation (split between MVS,MVR,MVP)	\$ 1,125,000	
HNA II/Regional Project Sequencing	\$ 375,000	
<b>District Habitat Rehabilitation Efforts (Planning and Construction)</b>	<b>\$21,420,000</b>	<b>\$ 1,786,002</b>
Rock Island District	\$ 7,280,000	
St. Louis District	\$ 6,940,000	
St. Paul District	\$ 7,100,000	
Model Cert.	\$ 100,000	

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FY 21 PBUD	
President's Budget	\$ 33,170,000
House	?
Senate	?
FINAL APPROPRIATION	?

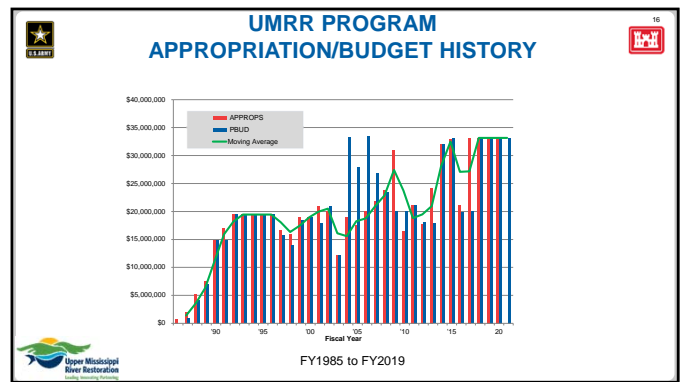
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FY21 DRAFT PLAN OF WORK		
	Budget	Change from FY 20
<b>TOTAL FY21 Program</b>	<b>\$33,170,000</b>	
Regional Administration and Program Efforts	1,250,000	
Regional Management	1,000,000	
Program Database	100,000	
Program Support Contract (UMRBA)	100,000	
Public Outreach	50,000	
<b>Regional Science and Monitoring</b>	<b>\$10,400,000</b>	<b>(\$100,000)</b>
LTRM (Base Monitoring)	5,000,000	
UMRR Regional Science In Support Rehabilitation/Mgmt.	3,800,000	
(MIPR's, Contracts, and Labor)		
UMRR Regional (Integration, Adapt. Mgmt.)	200,000	
Habitat Evaluation (split between MVS,MVR,MVP)	1,125,000	
Report to Congress	275,000	
<b>District Habitat Rehabilitation Efforts</b>	<b>\$21,520,000</b>	<b>\$100,000</b>
(Planning and Construction)		
Rock Island District	7,020,000	(\$260,000)
St. Louis District	7,125,000	\$185,000
St. Paul District	7,275,000	\$175,000
Model Cert.	100,000	

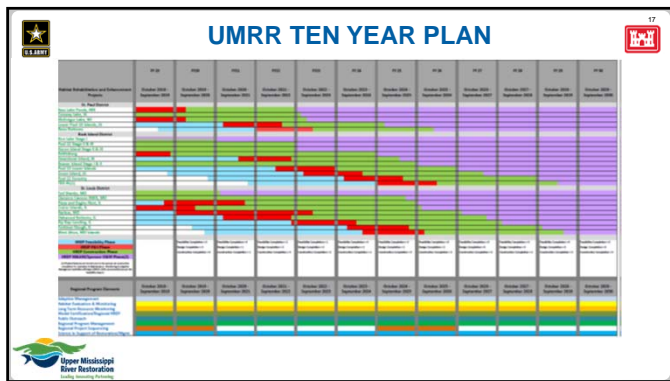
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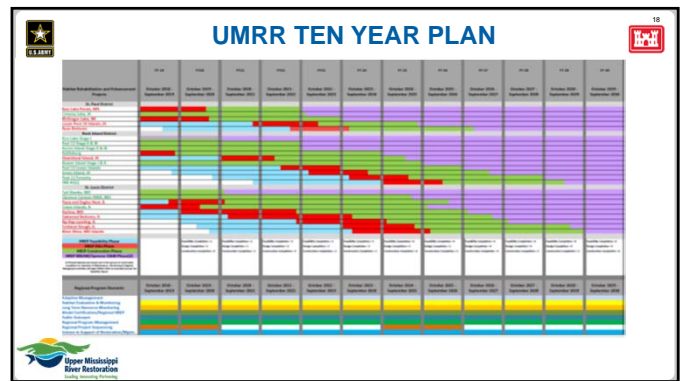
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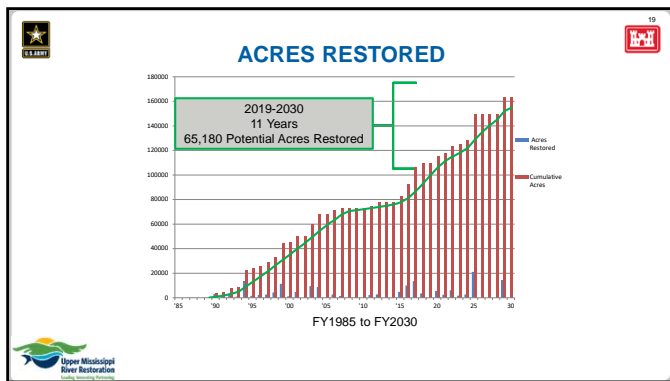


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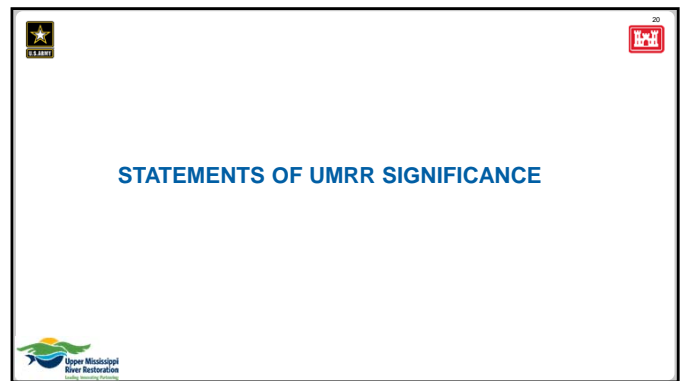


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**STATEMENTS OF SIGNIFICANCE**

- 26 November Call
  - UMRS/UMRR Distinction
  - Categories
    - » Partnership
    - » Natural Resources
    - » Culture
    - » Recreational
    - » Navigation
    - » Other Economic
  - Request from the partners for a short summary from each

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**STATEMENTS OF SIGNIFICANCE**

- Summary of Input Received
  - Revisions to the original draft
    - » Clearer articulation of navigation linkage to ecosystem degradation.
  - UMRS context for Agriculture, Rural Communities/Economies, Soil Management/Health
  - Societal value
    - » Ecosystem goods and services, personal connections, need for natural places, partnership came before the legislation
    - » Healthy ecosystems provide clean water, food, recreational opportunities, biodiversity an economic activity

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**STATEMENTS OF SIGNIFICANCE**

The UMRS is significant because it provides simultaneous value historically, culturally, ecologically, and economically. It is historically significant because of its prominence in our country's development, its use by Native Americans and European settlers. It is culturally significant as it is part of our American identity; woven into American song lyrics and literature. It is ecologically significant as it supports a complex web of life supported by the diverse and varied habitats. It is economically significant as it provides jobs through commercial navigation, commercial fisheries, and a robust tourism industry; it also provides power supply and drinking water to some communities.

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**STATEMENTS OF SIGNIFICANCE**

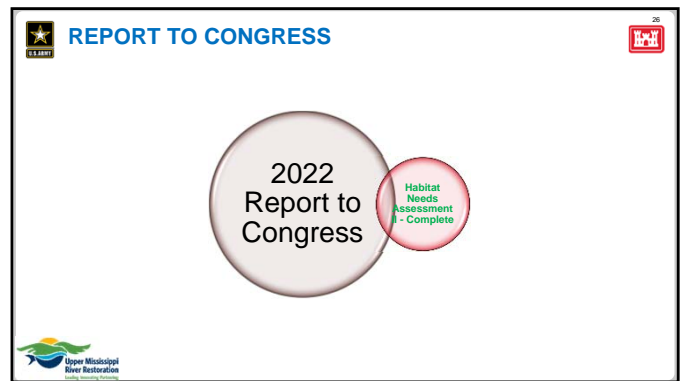
- Path Forward
  - 24 March 2020 call
  - Additional partner input
  - Revised write up that reflect the input received and incorporated into a revised format

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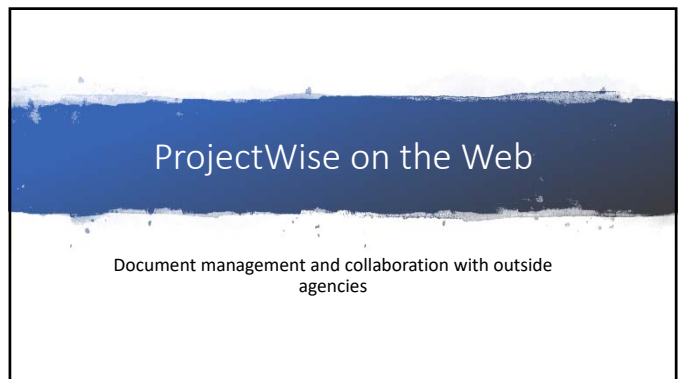


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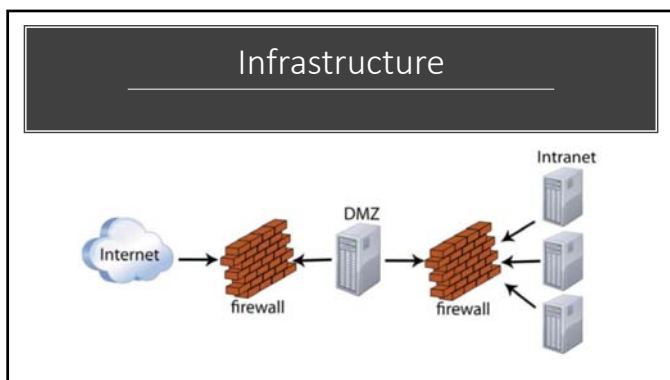




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33

### System Accounts – Cyber Security

- Require sponsorship
- Account/Password to log in to <https://ipass.usace.army.mil> to maintain and reset passwords
- Same account but separate password to access applications
- 15 characters required for Strong Passwords
- Passwords expire and must be changed every 30 days

34

### Accessing the System

- Web Client
  - <https://ipass.usace.army.mil>
  - Uses ActiveX Controls



35

### Web Client


- Windows Explorer like interface
- Easy upload of files and folders
- Simple tool for quick access and file sharing
- All files and folders utilize audit trail to track all actions

36





**EXTERNAL COMMUNICATIONS &  
OUTREACH EVENTS**

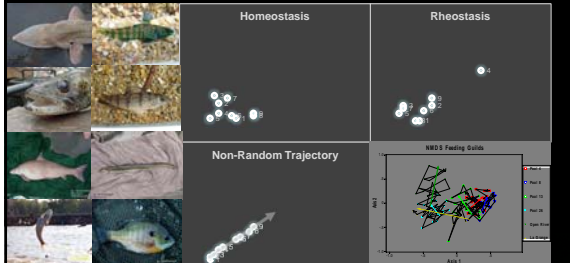




# Evidence of functional changes in the Upper Mississippi River System fish community, 1993-present: why it is important and what it means

UMRR-CC quarterly meeting (LTRM Showcase): Moline, Illinois 26 Feb 2020

Brian S. Ickes ([bickes@usgs.gov](mailto:bickes@usgs.gov))  
U.S. Geological Survey (Upper Mississippi River Restoration Long Term Resource Monitoring element (<https://umesc.usgs.gov/ltrm-home.html>))



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## Community ecology (in the UMRS under UMRR)

- Pre-2003:** No focus whatsoever, simple empirical observation
  - 2003-2011:** Faunistic community patterns and their environmental associations (see appendix)
  - 2011-2018:** Role of invasives on faunistic defined community
  - 2019-forward:** Functional community ecology approach
- Former work only assessed ecological patterns, and did so using individual species (faunistically) and their abundance
- While insightful, had some minor issues and limited management application



3

## Questions and operating hypotheses

- 1. Are functional community expressions changing over time?**  
Ho: Functional community dynamics should exhibit Homeostatic (no change) responses.

WHY: >150 years post land use change, > 80 years post impoundment, >45 years after landmark environmental legislation.

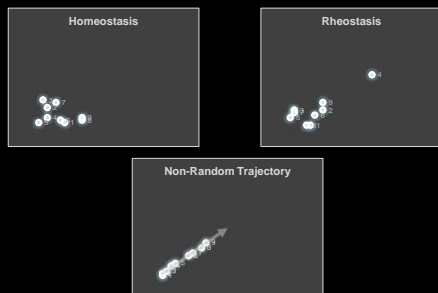
- 2. Homeostasis deviations (if observed) should prove Rheostatic (return to pre-deviation patterns).**  
Ho: No trends should be evident over time in functional responses.

WHY: Innate resilience of a faunistically and functionally diverse ecological community.



4

## Three models of functional community responses



5

## General Methods

- Use day electrofishing data 1993-2014 (N samples > 4000; N individuals > 1/2 million), catch and length data
- Use life history database to estimate weight (Mass) from length data from empirical growth models in the LH database
- Use life history database to assign each individual observed a guild class for each of three guilds (Habitat, Feeding, Reproductive)
- Calculate standard SRS design-based annual estimates of mean Mass Per Unit Effort (MPUE) for each guild class within each guild.
- Use multivariate models to model similarities/differences over time within each LTRM study reach and among LTRM study reaches
- Test for functional trends over time for each of the three guilds in each of the 6 LTRM study reaches



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## Results

### Feeding guild

All 6 study reaches exhibited significant trends  
Correlations between 66-95%

### Habitat guild

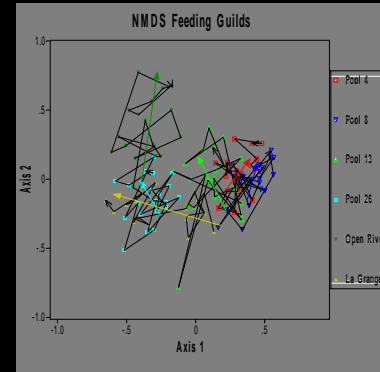
5 study reaches exhibited significant trends  
(Open River non significant)  
Correlations between 62-94%

### Reproductive guild

5 study reaches exhibited significant trends  
(Open River non significant)  
Correlations between 75-93%



7



8

## Results in a nutshell

Every LTRM study reach for each of the three guilds considered demonstrates clear and strong non-random trajectory in their functional responses over time (with the two exceptions of habitat and reproductive guilds in the Open River reach of the Mississippi)

Plots of the trajectories among the six study reaches demonstrate (in some cases) converging functional dynamics (e.g., Pools 4 and 8 in terms of feeding guild responses), while others demonstrate diverging functional responses (e.g., Pools 13, 26, La Grange and Open River away from Pools 4 and 8 in terms of feeding guild responses)

Some trajectories are much stronger than others (rate of change in functional responses) [e.g., Pools 4, 8, and 26 changing more slowly than Pool 13, La Grange and Open River in terms of feeding responses]

Similar response are evident for the other two guilds.



9

## What does this mean? Why is this important?

1. Homeostasis and Rheostasis are ruled out functional aspects of the UMRS fish community are changing over time, and in some cases quickly
2. A functionally resilient community would either resist functional change in the face of stressors or deviate briefly and then return to a homeostatic condition (exhibit a rheostatic response)
3. There is no evidence to support either of these statements
4. Data and results suggest the possibility of a resilience crisis in the future
5. The UMRS fish community is the richest fish fauna at the latitudes on the planet
6. Need to focus future efforts on better understanding the nature of these functional trajectories and their environmental associations



10

## Questions, Concerns, Discussion



11

### APPENDIX: Contributing Program Work to Faunistic community approaches

okes, B. S., M. C. Bower, A. D. Barak, D. J. Kirby, S. DeLain, J. H. Chick, V. A. Barko, K. S. Jones, and M. A. Pegg. 2005. Multi-year synthesis of the fish component from 1993 to 2002 of the Long Term Resource Monitoring Program. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin. LTRMP 2005-T005. 60 pp. + CD-ROM (Appendices A-E). (NTIS PB2005-107572)

Barko, V. A., B. S. Jones, D. P. Herzog, R. A. Hrabik, J. H. Chick, and M. A. Pegg. 2005. Spatial-temporal and environmental trends of fish assemblages within six reaches of the Upper Mississippi River System. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, February 2005. Technical Report LTRMP 2005-T002. 27 pp. (OTIS AD04-431328)

Chick, J. H., B. S. Jones, M. A. Pegg, V. A. Barko, R. A. Hrabik, and D. P. Herzog. 2005. Spatial structure and temporal variation of fish communities in the Upper Mississippi River System. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, May 2005. LTRMP Technical Report 2005-T004. 15 pp. (NTIS PB2005-106535)

Kirby, D. J., and B. S. Jones. 2006. Temporal and spatial trends in the frequency of occurrence, length-frequency distributions, length-weight relationships, and relative abundance of Upper Mississippi River fish. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, July 2006. LTRMP 2006-T002. 66 pp. (NTIS PB2006-114569)

Knight, B. C., B. S. Jones, and J. N. Houser. 2008. Fish Assemblages of the Upper Mississippi and Lower Missouri Rivers: Implications for Habitat Restoration and Management. Relevant Scales. U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, September 2008. Long Term Resource Monitoring Program Completion Report 2007APED07 submitted to the US Army Corps of Engineers, Rock Island, Illinois. 53 pp.

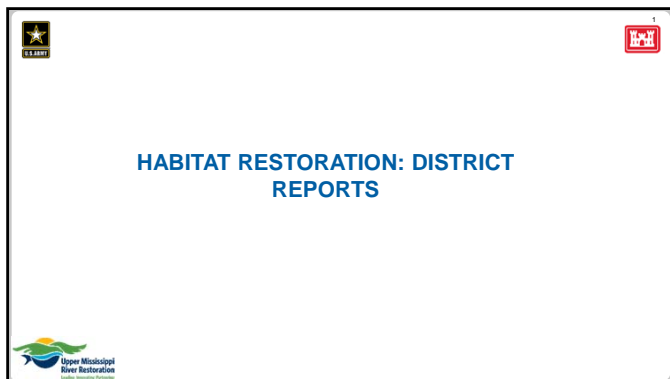
Garvey, J. B., Jones, B. S., and S. Zigler. 2010. Challenges in merging fisheries research and management in the Upper Mississippi River experience. *Hydrobiologia* 640:125-144. DOI 10.1007/s10750-009-0061-x

okes, B. S., J. S. Sauer, N. Richards, M. Bower, and B. Schuler. (2014). Spatially explicit habitat models of 28 fishes from the Upper Mississippi River System (HAB2.0). A Program Report submitted to the U.S. Army Corps of Engineers, Upper Mississippi River Restoration Environmental Management Program from the U.S. Geological Survey, Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin, January 2014. Program Report LTRMP 2014-P001. 26pp. + Appendices A-B.

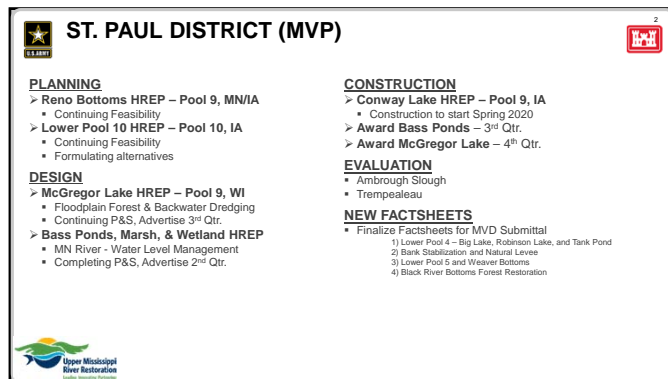


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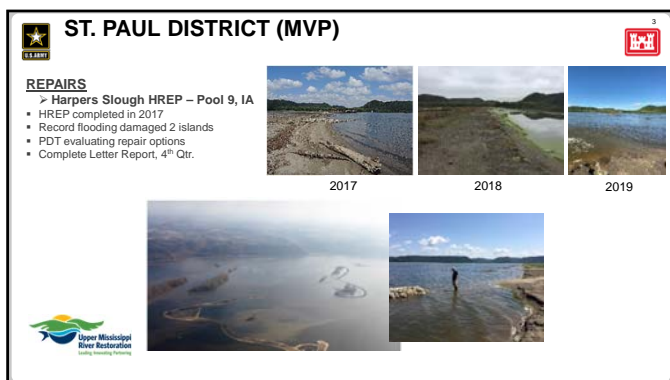




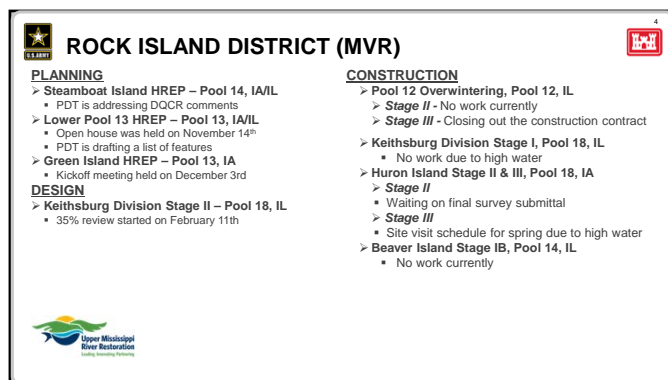
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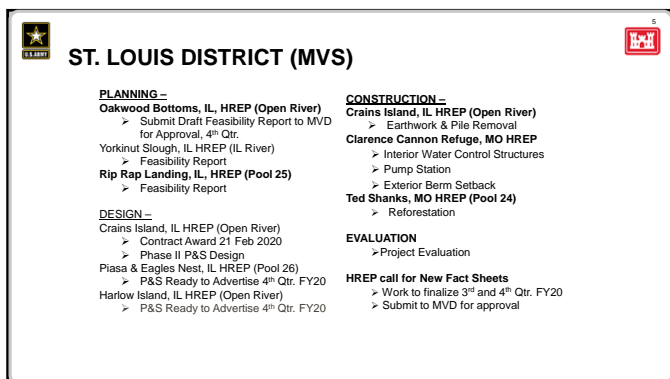
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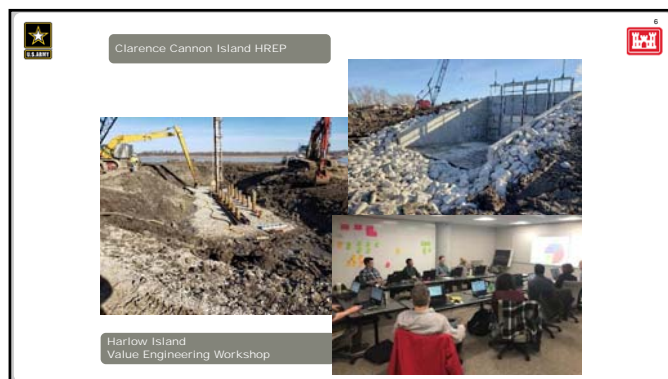
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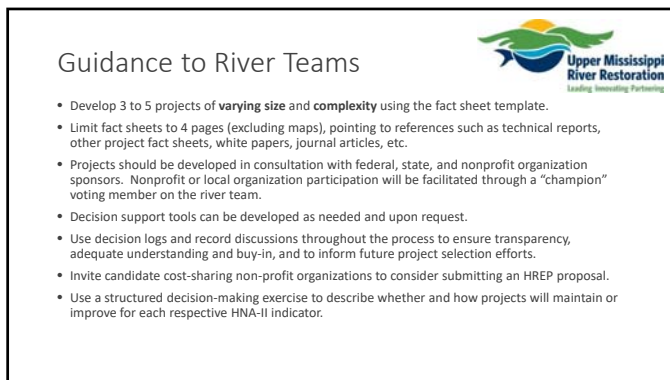




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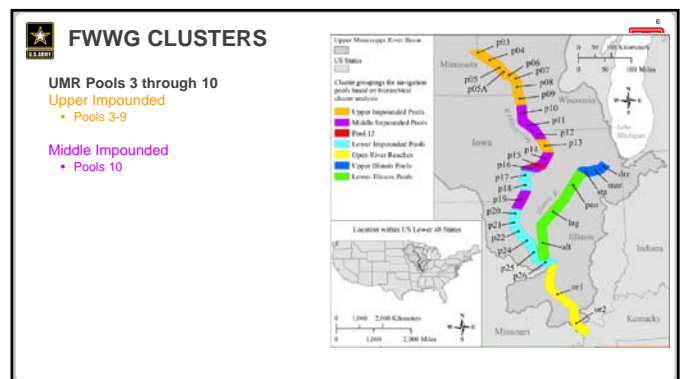
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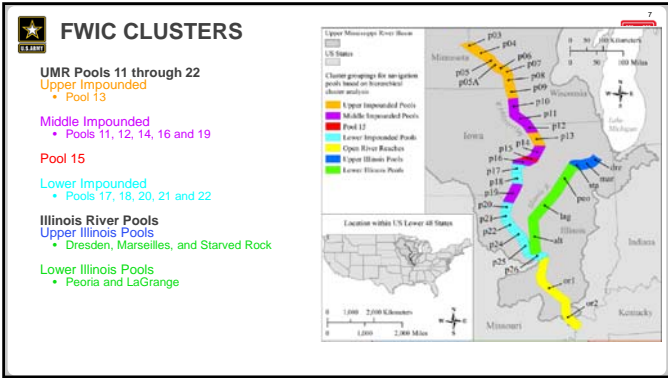


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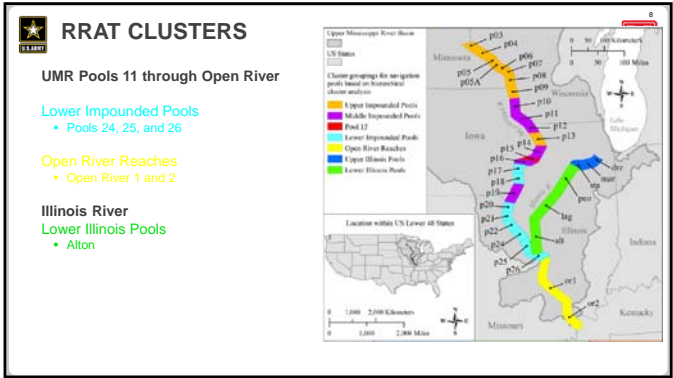


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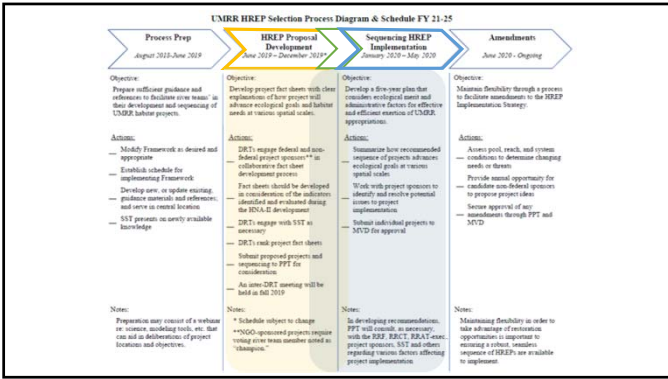




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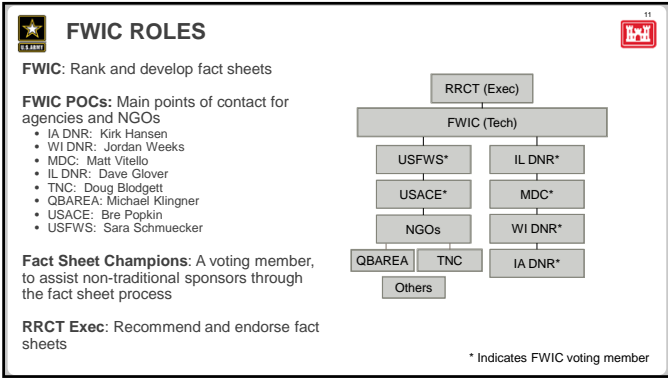
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### FWIC: NEXT GENERATION FACT SHEET DEVELOPMENT

Upper Mississippi River Resource Coordinating Committee  
Mississippi Valley Division  
Rock Island District  
Upper Mississippi River Restoration Program

Date: 26 February 2020

10



11

### FWIC SCHEDULE

Dates	Activity	Responsible Party
June	Review read-ahead material	ALL
July 9 & 10	Factsheet workshop	FWIC/ Interested Parties
July - Aug	Project factsheet development	ALL
	Request GIS support as needed	POC: Kayleigh Thomas
Aug 30	Submit initial draft fact sheet to FWIC co-chairs	Factsheet Leads
Sept 1 - 30	USACE Review and provide comments on drafts	FWIC
Sept 15 - 30	Revise fact sheets as needed	Factsheet Leads
Sept 19	RRCT fall meeting	RRCT
Sept 25	FWIC 75% factsheet review webinar	FWIC
Sept 30	Submit final draft fact sheet to FWIC co-chairs	Fact Sheet Leads
Oct 15	Final Fact Sheets due to	
Oct 23	Comments due- "Ecological Ranking Matrix" & Paired Comparison Tools	FWIC
Oct 25 - Nov 5	Review/Sequencing of fact sheets	FWIC
Nov 1	Final sequenced fact sheets to RRCT	FWIC/ RRCT
Nov 5	FWIC Voting Member Conference Call	FWIC
Nov 13	FWIC Final Fact Sheet Endorsement	FWIC/RRCT
Nov 21	Special RRCT meeting	RRCT

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**FWIC WORKSHOP**

**Tuesday, July 9**

- Welcome & UMRR Status Review
- HNA II and Indicators Summary
- Resilience
- Develop Screening Criteria**
- Structured Mapping Exercise**

**Wednesday, July 10**

- Sticker Exercise
- Review Potential Projects
- Work in Project Groups to Develop Draft Fact Sheets**
- Report to Group on Factsheets
- Wrap-up/ Assign Factsheet Leads

13

**FWIC FACT SHEETS**

14

**MULTI-POOL HABITAT PROTECTION**

Location: Pools 11-14 and 17

**Problem:** The (HNA-II) identified bankline erosion and island dissection as major factors contributing to the decline in habitat quality throughout the UMR floodplain. Wind and boat generated waves in large open water habitats created by the dams contribute to island erosion and sediment re-suspension, with banklines observed to be eroding at rates ranging from 0.3 to 3.7 feet per year. Higher annual flows resulting from a changing climate are further exacerbating island erosion and dissection (Schotter et al, 2014). Collectively, these factors reduce the number and acreage of islands throughout many UMR pools.

**Goals:** see fact sheet

**Proposed Features:**

- Shoreline stabilization and bank reshaping
- Closure structures constructed of rock and/or earth
- Historic island acreage restoration
- Forest creation, diversification, and enhancement activities

**Implementation Considerations:**

- Consider phased construction (Divide by State for permitting processes)
- Integration with Channel Maintenance
- Potential mussel constraints

**Financial Data:** \$5 to 10 million/100% Federal

**Sponsor:** USFWS

Figure 1: Project Area Map (Example) within Pool 11

(A) Location map of example project area (B) Example Pool 11 of the UMR (C) Example of existing bankline erosion and island dissection contributing to the decline in habitat quality throughout the UMR floodplain (D) Example of existing bankline erosion and island dissection contributing to the decline in habitat quality throughout the UMR floodplain (E) Example of existing bankline erosion and island dissection contributing to the decline in habitat quality throughout the UMR floodplain (F) Example of existing bankline erosion and island dissection contributing to the decline in habitat quality throughout the UMR floodplain

15

**LOWER POOL 11**

Location: Pools 11 (RM 590-598)

**Problem:** Several factors adversely affect the quality habitat in Lower Pool 11. According to the US Geological Survey (USGS, 2008), erosion has eliminated many islands, especially in impounded zones. Sedimentation has filled in many backwaters, channels, and deep holes. This erosion, sedimentation, and re-suspension of sediment, creates a feedback loop and inhibits a resilient system.

**Goals:** see fact sheet

**Proposed Features:**

- Forest restoration and enhancement
- Topographic diversity
- River training structures
- Island stabilization
- Small island restoration
- Pool water level management

**Implementation Considerations:**

- Species of concern (eagles, mussels, and bats)
- Conform to Refuge closed seasons
- Leverage existing H&M data

**Financial Data:** \$20-25 million/100% Federal

**Sponsor:** USFWS

Lower Pool 11 Project Area

16

**POOL 11 FORESTRY**

Location: Pools 11 (RM 614 to 591)

**Problem:** Although Pool 11 has remaining floodplain forests, they suffer from a loss of diversity, lack of natural regeneration, increased fragmentation, and loss of land from erosion. Additionally, increased flooding (both frequency and duration), sedimentation, and increased competition from invasive species are diminishing existing forest resources.

**Goals:** see fact sheet

**Proposed Features:**

- Phase 1: Forest Inventory
- Phase 2:
  - Silviculture treatments
  - Invasive species control
  - Ridge and swale habitat
  - (Topographic diversity)

**Implementation Considerations:**

- Species of concern (eagles, mussels, and bats)
- Challenging access
- Conform to Refuge closed seasons

**Financial Data:** \$5 to \$8 million/100% Federal

**Sponsor:** USFWS

Figure 1. Pool 11 Forestry Study Area

Specific project area boundaries will be identified in feasibility report.

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**UPPER POOL 13**

Location: Pools 13 (RM 540 to 556)

Crooked Slough, Pinok Lake/Lainsville Slough and Savanna Bay Complex

**Problem:** Many of the remaining floodplain forests in Pool 13 suffer from a loss of diversity, lack of natural regeneration, increased fragmentation, and loss of land from erosion. Increased flooding (both frequency and duration), sedimentation, and increased competition from invasive species also diminish existing forested areas. Island erosion/dissection, increased main channel connectivity, and sedimentation have degraded most of the deep lenic habitat throughout Pool 13.

**Goals:** see fact sheet

**Proposed Features:**

- Forest restoration and enhancement
- Topographic diversity
- River training structures
- Bank stabilization
- Small island restoration

**Implementation Considerations:**

- Large ecological footprint
- Species of concern (eagles, mussels, and bats)
- Phased construction
- Integration with Channel Maintenance

**Financial Data:** \$20-25 million/100% Federal


**Sponsor:** USFWS

Upper Pool 13 Project Areas

Crooked Slough, Pinok Lake/Lainsville Slough, Savanna Bay Complex

18





CREDIT ISLAND SLOUGH

19

**Location:** Pools 16 (RM) 478.5 and 481.0

**Problem:** Construction of a causeway (1900) blocked flow through the Credit Island Slough entirely. Sediment from Blackhawk Creek filled in the side channel, turning aquatic areas to terrestrial. Although culverts were installed under the road to restore some flow to CIS, they did not sufficient connection. The causeway slows flow during floods that would otherwise scour and maintain the side channel. Side channel habitats throughout the UMR have been greatly reduced by diverting flows via river training structures to the main channel for commercial navigation. Many species require these off-channel habitats during their life cycle, and such habitats losses have been implicated in reducing UMR biodiversity.

**Goals:** see fact sheet

**Proposed Features:**


- Causeway removal
- Backwater dredging
- Bankline Protection
- Timber Stand Improvement
- Sediment diversion berm

**Implementation Considerations:**


- Near major urban center; providing people opportunities to view and experience the UMR Programs restoration efforts
- Additional modeling and inventory of existing resources
- Benefit large river migratory fish species
- Constraints due to infrastructure

**Financial Data:** \$5 million/ 65% Federal, 35% Non-Federal

**Sponsor:** City of Davenport



19



GENEVA & HERSHEY ISLANDS

20

**Location:** Pools 16 RM 458-462

**Problem:** Hershey and Geneva Island include interconnected backwaters, flowing side channels, islands, mature bottomland forest, floodplain, and wetlands. This habitat has significantly declined due construction of the lock and dam system, which resulted in increased water elevations, frequent flooding, and high levels of Total Suspended Solids (TSS). Additionally, Hershey Island has lost approximately 80% of its landmass.

**Goals:** see fact sheet

**Proposed Features:**

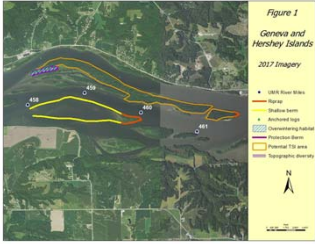
- Backwater dredging
- Topographic diversity
- Timberstand Improvement (TSI)
- Bank stabilization
- Hershey Island dike

**Implementation Considerations:**


- Pool 16 is a hinge pool
- Integration with Channel Maintenance
- Data gaps: inventory existing resources & modeling
- Hershey Island within State of Iowa boundary
- Minimal restoration efforts in Pool 16

**Financial Data:** \$8 million/100% Federal

**Sponsor:** IA DNR



20



POOL 18 FORESTRY

21

**Location:** Pools 18  
Blackhawk Island, Johnson Island, and Iowa River Delta

**Problem:** Over time, natural and anthropogenic drivers have caused all areas to mature faster, hindering its natural regeneration and younger forest growth (under 50 year old stands) to transition to large open areas of non-native invasive herbaceous species and declining mature forest. The forest is also likely to have significant loss to species diversity and structural development from potential aerial ash bore infestations to the green ash trees present on the islands of the Project area. Forested wetland diversity has greatly declined at the identified Project areas; primarily with the loss of early successional forest development and loss of tree species richness.

**Goals:** see fact sheet

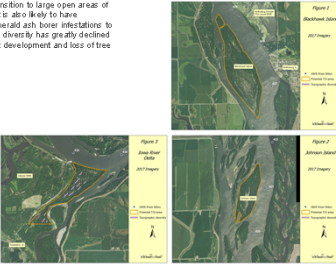
**Proposed Features:**

**Implementation Considerations:**


- Timberstand Improvement (TSI)
- Invasive species control
- Ridge and swale habitat (Topographic diversity)

**Financial Data:** \$5 to 10 million/100% Federal

**Sponsor:** IA DNR



21



QUINCY BAY

22

**Location:** Pool 21

**Problem:** Increased sedimentation and loss of connectivity has resulted in significant degradation of deepwater habitat and habitat fragmentation for fish and wildlife species as well as migratory birds. Historically, Upper Quincy Bay was an important stopover point for diving ducks during spring/fall migrations; however, there is evidence that the failure of lesser scaup and other species to use the Quincy Bay at this time has resulted in reduced reproductive output (Mentl 2018).

**Goals:** see fact sheet

**Proposed Features:**

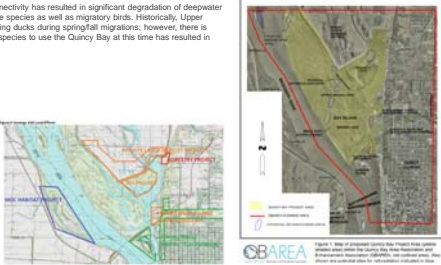
- Backwater dredging
- Rock dike/alter structure or friction channel
- Topographic diversity
- Reforestation and wetland species planting

**Implementation Considerations:**


- Synergy with many local efforts and HREPs
- Local energy
- Decline in hunting and fishing

**Financial Data:** \$15-25 million/100% Federal

**Sponsor:** CBAREA




22



FWIC RANKING METHODS

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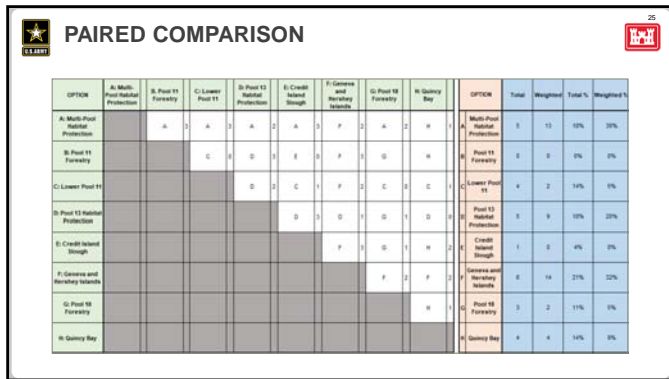
EVALUATION MATRIX

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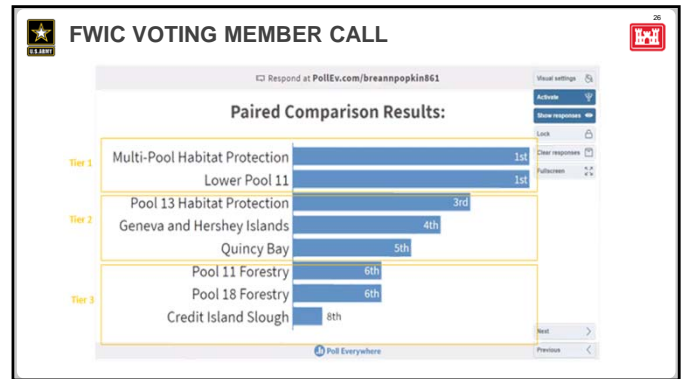
Metric	Metric Weight	Ecological Metrics & Criteria										Other Considerations	Assessment
		1	2	3	4	5	6	7	8	9	10		
Wetland Functionality	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Health	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Resilience	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Connectivity	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Biodiversity	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Carbon Storage	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Water Quality	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Soil Health	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Plant Health	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Animal Health	10	1	1	1	1	1	1	1	1	1	1	1	1
Wetland Human Health	10	1	1	1	1	1	1	1	1	1	1	1	1

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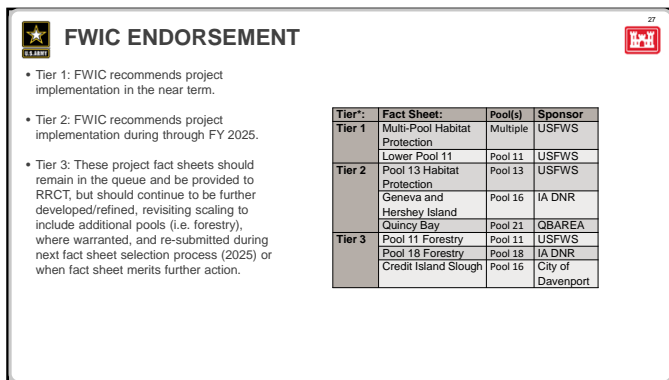




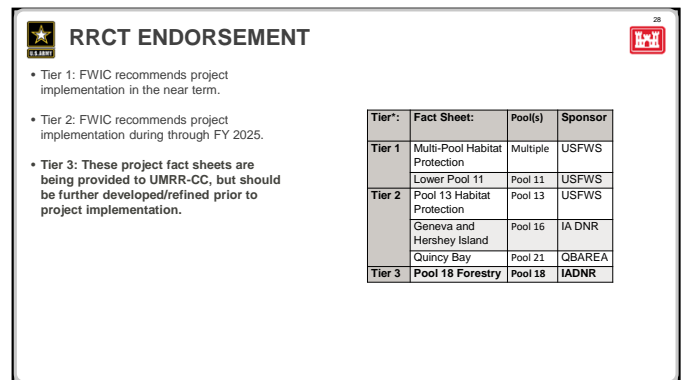
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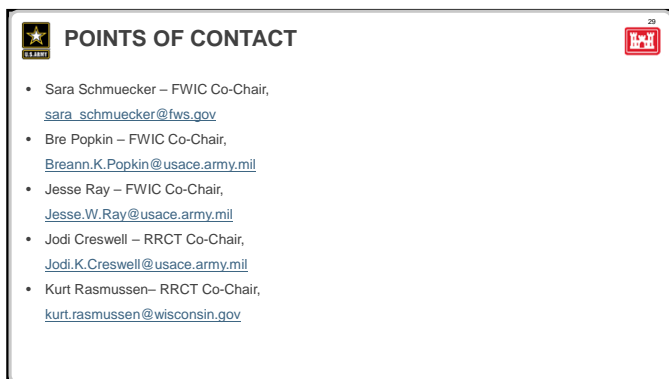
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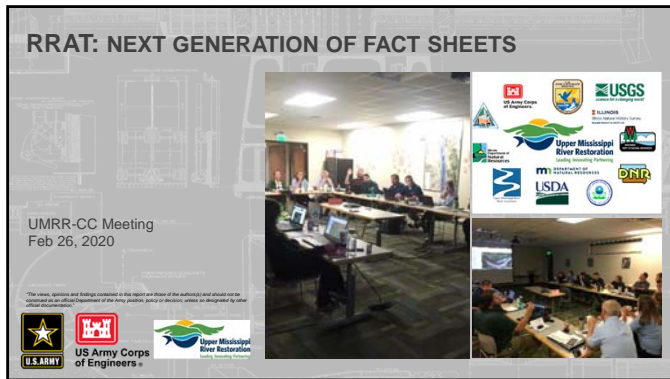


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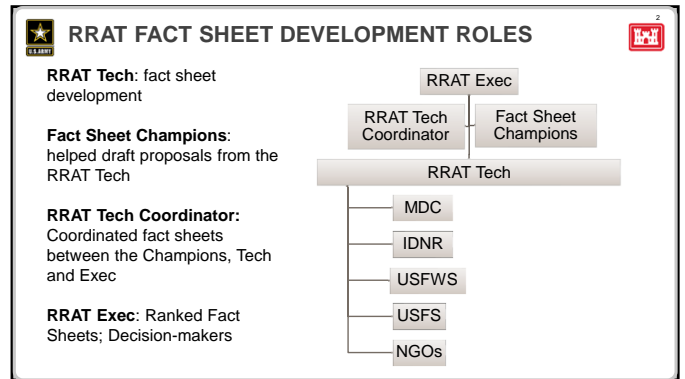


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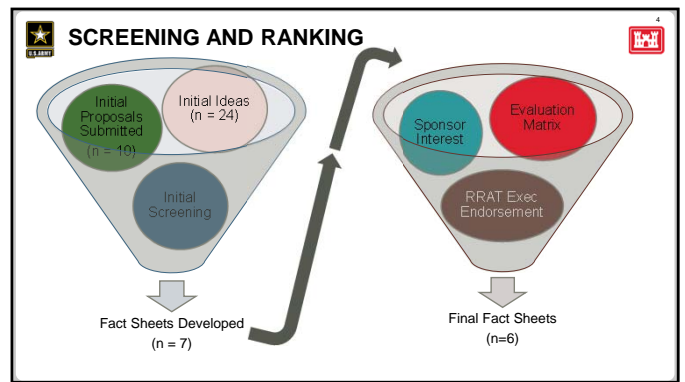
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## RRAT FACT SHEET DEVELOPMENT PROCESS

- RRAT Tech Information Webinar (Jun 2019)
- RRAT Tech Face to Face Meeting (Aug 2019)
- Fact Sheet Development (Aug –Sept 2019)
- RRAT Exec Review (Oct 2019)
- RRAT Exec Ranking and Endorsement (Nov 2019)
- Fact Sheet Finalization (Dec 2019)
- RRAT Exec Submitted to Program Planning Team (Jan 2020)
- Seeking UMRCC Endorsement (TODAY)

The Nature Conservancy  
The National Great Rivers Research & Education Center  
HEARTLANDS  
Conserving the Nature of Southwestern Illinois  
Upper Mississippi River Restoration

3



4

## EVALUATION RANKING MATRIX FOR NEW PROPOSALS

Initial Screening Assessment (ISA) 1  
Low Importance - weighted 0.25  
Medium Importance - weighted 0.50  
High Importance - weighted 1.00  
Request: Positive = 1, Neutral = 0.5, Negative = -1

Non-ecological Factors  
Medium Importance - weighted 0.5  
High Importance - weighted 1.0  
Score: Score from 1 (Most Favorable) to 2 (Least Favorable)

Proposals in the same final grouping are considered equivalent

5

## RRAT EXEC VOTING OF NEW PROPOSALS

Project Name	Pool	Sponsor	RRAT Exec Voting X – yes to move forward for final fact sheet development			
			USACE	USFWS	IDNR	MDC
Slim Island	25	USFWS	X	X	X	X
Gilead Slough	25	USFWS	X	X	X	X
Sterling Island Complex	25	MDC	X	X	X	X
Gilbert Lake	ILR	USFWS	X	X	X	X
Spunky Bottoms	ILR	TNC/IDNR	X	X	X	X
East Cape	OR	USFS	X	X	X	X
Schenimann/Windy Bar	OR	MDC				

6



**EAST CAPE – SHAWNEE NATIONAL FOREST**

**Location:** Open River Reach (RM 36-54)

**Sponsor:** USFS (100% Federal)

**Problem Identification:**


- Degraded emergent marsh, wetlands, and BLH
- Modified hydrology

**Preliminary Objectives:**

- Restore wetland hydrological functioning
- Improve floodplain topographic diversity
- Restore a wetland mosaic
- Increase forest diversity, including BLH

**Preliminary Proposed Features:**

- Water control structures
- Pump station
- Timber stand improvement
- Tree planting
- Wetland planting



7

**GILBERT LAKE – TWO RIVERS NWR**

**Location:** Alton Pool (IL River 3.8-4.0)

**Sponsor:** USFWS (100% Federal)

**Problem Identification:**


- Sedimentation
- Degraded wetland and aquatic habitats

**Preliminary Objectives:**

- Increase seasonal connectivity with main channel
- Improve floodplain and aquatic vegetation diversity and abundance
- Improve hydrologic functioning

**Preliminary Proposed Features:**

- Water control structures/ gravity drain
- Pump
- Excavation
- Tree planting



8

**GILEAD SLOUGH– TWO RIVERS NWR**

**Location:** Pool 25 (RM 246-251)

**Sponsor:** USFWS (100% Federal)

**Problem Identification:**


- Loss of connectivity, depth, and flow in side channels and backwaters
- Sedimentation
- Reduced floodplain and aquatic vegetation

**Preliminary Objectives:**

- Enhance side channel connectivity, flow, and depth diversity
- Enhance backwater connectivity and depth
- Enhance aquatic and FP vegetation

**Preliminary Proposed Features:**

- Dredging and excavation
- Sediment deflection berm
- Water control structures and pump
- Notch existing closing structures



9

**SLIM ISLAND – GREAT RIVERS NWR**

**Location:** Pool 25 (RM 263-267)

**Sponsor:** USFWS (100% Federal)

**Problem Identification:**


- Sedimentation
- Degraded floodplain forest and wetlands

**Preliminary Objectives:**

- Enhance floodplain topographic diversity
- Increase FP vegetation diversity
- Increase bathymetric diversity in side channel

**Preliminary Proposed Features:**

- Dredging
- Sediment deflection berm
- Ridge & Swale
- Modify existing closing structures
- River training structures
- Tree plantings



10

**SPUNKY BOTTOMS**

**Location:** La Grange Pool (ILR 75 -78)

**Sponsor:** TNC and IDNR (65%/35% cost share with NFS)

**Problem Identification:**


- Altered hydrology
- Sedimentation
- Conversion of habitat

**Preliminary Objectives:**

- Increase depth diversity of off-channel areas
- Improve floodplain and aquatic veg
- Improve hydrological functioning and connectivity

**Preliminary Proposed Features:**

- Levee modification
- Ridge and swale
- Water control structures
- Timber stand improvement & tree plantings



11

**STERLING ISLAND COMPLEX**

**Location:** Pool 25 (RM 251-258)

**Sponsor:** MDC (65%/35% cost share)

**Problem Identification:**


- Loss of islands and side channel habitats
- Degraded aquatic habitat
- Sedimentation

**Preliminary Objectives:**

- Increase depth and flow diversity
- Enhance aquatic habitat structure
- Reduce island erosion
- Increase aquatic and FP veg diversity


**Preliminary Proposed Features:**

- Modify existing river training structures
- River training structures, island bullnose
- Dredging
- Woody structure placement




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## SEEKING UMRR-CC ENDORSEMENT FOR THE FOLLOWING FACT SHEETS:



Project Name	Sponsor
East Cape	USFS
Gilbert Lake	USFWS
Gilead Slough	USFWS
Slim Island	USFWS
Spunky Bottoms	TNC/IDNR
Sterling Island Complex	MDC



## POINTS OF CONTACT



Brian Markert – St. Louis District UMRR Program Manager  
[Brian.J.Markert@usace.army.mil](mailto:Brian.J.Markert@usace.army.mil)

Brandon Schneider- St. Louis District UMRR Project Manager  
[Brandon.M.Schneider@usace.army.mil](mailto:Brandon.M.Schneider@usace.army.mil)

Kat McCain – RRAT Tech Coordinator; UMRR Science Support Team  
[Kathryn.McCain@usace.army.mil](mailto:Kathryn.McCain@usace.army.mil)

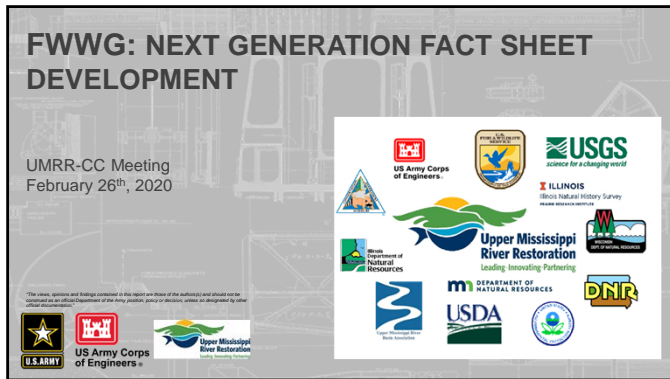
Brian Johnson – RRAT Exec Co-Chair  
[Brian.L.Johnson@usace.army.mil](mailto:Brian.L.Johnson@usace.army.mil)

Matt Mangan – RRAT Exec Co-Chair  
[Matthew\\_Mangan@fws.gov](mailto:Matthew_Mangan@fws.gov)

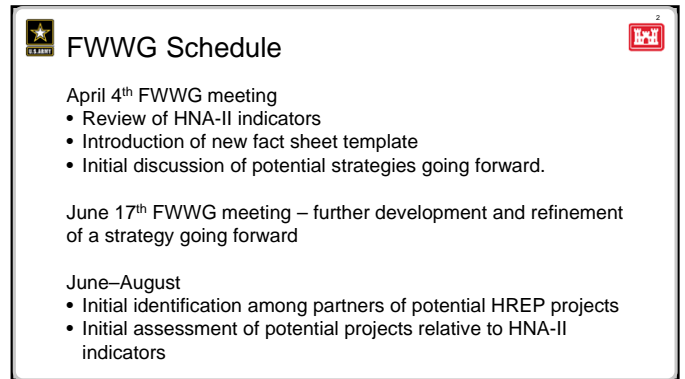
Sponsor Champions:  
 Matt Vitello – MDC      Jasen Brown – USFS      Butch Atwood – IDNR







1



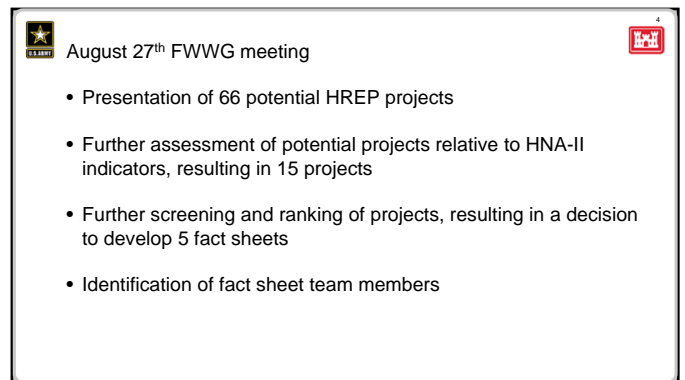
2

# Project Impact on HNA-II Indicators

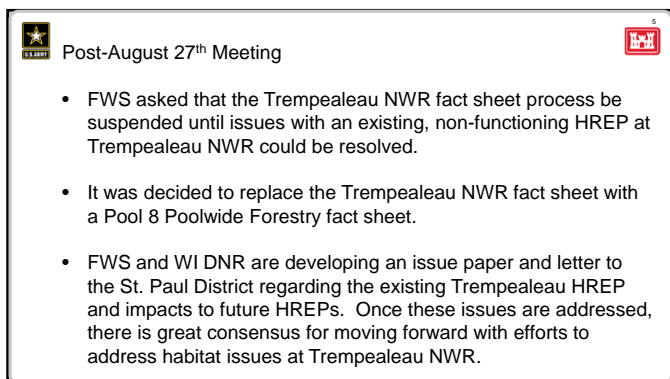
Score: +1 Positive, 0 No Impact, -1 Negative

Restoration Need / Project Name	Project Impact on HNA-II Indicators										Project Scale	Feasibility	Added to Fact Sheet?	Priority	Total Indicator
	W. T. Wetland	W. T. Forest	W. T. Wetland	W. T. Forest	W. T. Wetland	W. T. Forest	W. T. Wetland	W. T. Forest	W. T. Wetland	W. T. Forest					
Big Lake	0	0	0	0	0	0	0	0	0	0	Large	10-20 M	Yes	3	7
Restoration and Rehabilitation	0	0	0	0	0	0	0	0	0	0	Medium	10-20 M	Yes	3	3
Lower Pool 8 / Timber	0	0	0	0	0	0	0	0	0	0	Large	10-20 M	Yes	3	7
Black River	0	0	0	0	0	0	0	0	0	0	Large	10-20 M	Yes	3	7
Pool 8 Forest	0	0	0	0	0	0	0	0	0	0	Large	10-20 M	Yes	3	8
Pool 8 Forest	0	0	0	0	0	0	0	0	0	0	Medium	10-20 M	Yes	3	3

3



4



5

# September–January

- Development of fact sheets by fact sheet teams
- Assessment of fact sheets using HNA-II indicators and pair-wise comparisons

FWWG HREP RANKING TOOL

PAIRED COMPARISON WORKSHEET

OPTION	Score	Weighted	Total %	Weighted %	Rank
A. Western Bottom/Lower Pool 8	3	6	20%	20%	1
B. Black River	2	3	20%	14%	2
C. Lower Pool 4	4	8	40%	41%	3
D. Bank Stabilization and Pool 8	1	2	10%	9%	4
E. Pool 8	0	0	0%	0%	5
F. Pool 8	0	0	0%	0%	6
G. Pool 8	0	0	0%	0%	7
H. Pool 8	0	0	0%	0%	8
TOTAL	10	20	100%	100%	

6



## December 2<sup>nd</sup> RRF meeting – report on FWWG progress

January 13<sup>th</sup> FWWG meeting

- Presentation of fact sheet pair-wise comparison results and FWWG agency ranks
- Selection of final FWWG ranks

January 17<sup>th</sup> submission to RRF of issue brief with prioritized list of four fact sheets and request for endorsement

- Four fact sheets are awaiting endorsement
- A fifth fact sheet is still being developed and will be ready before the May UMMR-CC meeting

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## Lower Pool 4: Big Lake, Robinson Lake. Tank Pond

- Location: Pool 4 (RM 752-760)
- Sponsor: USFWS (100% federal) Financial Data: \$12 – 45M\*
- Problem Identification:
  - Sedimentation and loss of bathymetric diversity
  - Erosion/loss of islands
  - Declining quality/quantity of floodplain forest; incursion of RCG
- Preliminary Objectives:
  - Protect/stabilize/enhance existing and constructed/re-constructed islands as well as historic and current dredge material placement sites
  - Protect existing, develop additional, and promote regeneration of floodplain forest
  - Reduce sedimentation inputs to backwater lakes
  - Enhance the quality of migratory bird habitat with an emphasis on waterfowl and neo-tropical migrants
- Preliminary Proposed Features:
  - Project plan to be developed in three "stages" per title
  - "Traditional HREP" island construction and backwater dredging
  - Stabilization/enhancement of existing islands
  - Address water quality and nutrient issues in Tank Pond

\*Big Lake and Indian Slough: \$12-\$18M  
Robinson Lake: \$6-\$12M  
Tank Pond and Buffalo River: \$10-\$15M

8

## Bank Stabilization and Natural Levee

- Location: Multiple potential locations throughout Pools 4 to 11
- Sponsor: USFWS, other Financial Data: \$5 - 20M
- Problem Identification:
  - Bankline, island, and natural levee erosion and dissection resulting in loss or degradation of aquatic and terrestrial habitat
  - Increased connectivity and flow → sedimentation into backwaters
- Preliminary Objectives:
  - Identify multiple locations where relatively small, similar habitat protection efforts can be implemented in a cost effective and flexible manner
  - protect, maintain, and enhance existing habitat quality at various locations throughout the UMR floodplain in the St. Paul District
- Preliminary Proposed Features:
  - Shoreline stabilization features such as rock wedges, off-shore rock mounds, rock-log breakwaters, vanes, groins, biological bank stabilizations, etc.
  - Closure structures in areas where connectivity should be reduced.
  - Historic island restoration, including partnering with the MVP O&M program to utilize areas behind rock protection as dredged material placement sites.
  - Forest creation/enhancement activities, including increased topographic diversity using dredged material and tree plantings to enhance or restore natural levees.

9

## Lower Pool 5 and Weaver Bottoms

- Location: Pool 5 (RM 738-747)
- Sponsor: USFWS (100% Federal) Financial Data: \$18M
- Problem Identification:
  - Sedimentation from main channel, Zumbro, and Whitewater rivers
  - Wind fetch and sediment resuspension
  - Loss of hydrologic variability
- Preliminary Objectives:
  - Improve longitudinal connectivity for fish and wildlife
  - Reduce lateral floodplain connectivity
  - Improve and maintain Aquatic Functional Class 1 and 2
  - Improve diversity and resilience of aquatic vegetation diversity
- Preliminary Proposed Features:
  - Peninsular extensions and main channel border islands
  - Partial closures at MN-7 and other strategic locations
  - Forest creation on newly constructed features
  - WLM to promote moist soil and perennial emergent vegetation
  - Consider fish passage and/or invasive fish deterrence at LDS

10

## Black River Bottoms Forest Restoration

- Location: Pool 7 (RM 708-712)
- Sponsor: USFWS and potentially state of WI Financial Data: \$8M
- Problem Identification:
  - Loss of late-successional, flood tolerant tree species (green ash, American elm)
  - Dominance of understory by RCG, nettle, etc.
  - Lack of tree regeneration, conversion to RCG dominated wet meadow
- Preliminary Objectives:
  - Maintain and enhance existing forest habitat
  - Reestablish forest in historically forested areas
  - Improve wet and sedge meadow habitats for wildlife species of concern
- Preliminary Proposed Features:
  - Enhance/maintain conditions on up to 1,500 acres of existing forests.
  - Re-establish forest on 300 acres of historically forested areas
  - Increase elevation diversity on up to 30 acres of wet meadow and sedge meadow
  - Increase species and structural diversity on 247 acres of wet meadow, sedge meadow and open forest mosaic habitats
  - Improve access to the project area for future O&M

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## Pool 8 Poolwide Forest Restoration HREP

- Location: Pool 8 (RM 683-702)
- Sponsor: USFWS and potentially others
- Problem Identification: Loss of forest cover and lack of forest regeneration
- Preliminary Objectives:
  - Protect, enhance and restore quality forest and other terrestrial habitats for native wildlife, trust resources and refuge ROCs
  - Backwater restoration for improvement of water quality for native fish species and SAV growth for refuge ROCs; backwater restoration will augment terrestrial restoration

**Still in development**

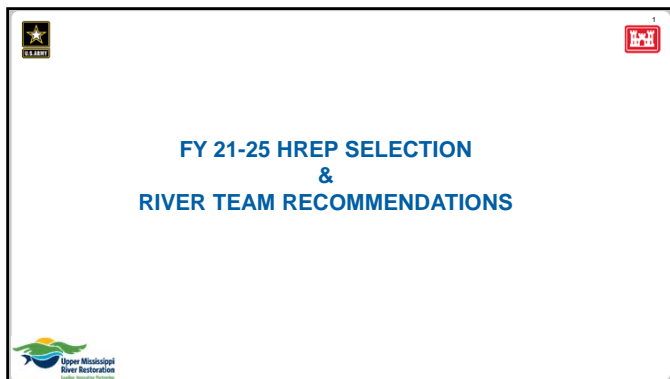
- Fact sheet team met on December 20<sup>th</sup>
- Next fact sheet team meeting is February 28<sup>th</sup>
- Anticipate a fact sheet that is ready by May

Change1890\_2010

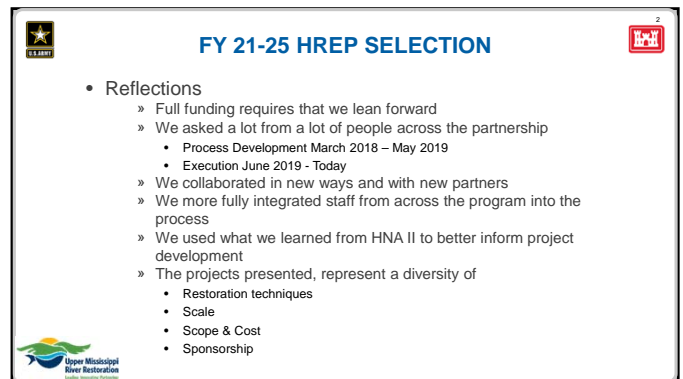
- Agriculture:Forest
- Sand/mud:Forest
- Developed:Forest
- Marsh:Forest
- Open water:Forest
- Forest:Forest
- Forest:Agriculture
- Forest:Grass/forbs
- Forest:Marsh
- Forest:Open water
- Forest:Sand/mud
- Forest:Developed

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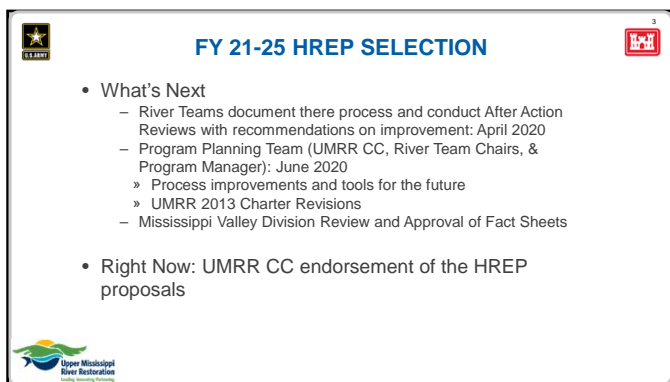




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2



3



4





1



2

## an opportunity

- 2020 funding
- River/floodplain science
- Mix of extensive experience and fresh perspectives
- Time to think and discuss
- Collaborative, relevant projects

Photo provided by J. Janvrin (WDNR)

Upper Mississippi River Restoration

3

## big picture

**Goal:** Identifying and understanding plausible futures for the hydrology and geomorphology of the UMRS and the implications regarding the structure, function, and management and restoration of the river-floodplain ecosystem.

- What will the river look like in 50 – 100 years?
- What does this mean for the distribution and abundance of habitat (aquatic areas) and biota?
- What are the implications for current restoration and management actions?

Upper Mississippi River Restoration

4

## 2020 Science Meeting as a forum for developing Science in Support of Management projects

- Foster collaborative approach and larger projects
- More effectively incorporate UMRR LTRM's unique strengths
- Facilitate a more direct interaction between restoration practitioners, natural resource managers, and research scientists during proposal development process

Upper Mississippi River Restoration

5

## meeting goals

- Primary goal: Develop proposals for consideration in FY 2020.
  - **7 February:** Descriptive title and brief abstract for presentation at the UMRR CC in February
  - **28 February:** Initial draft of proposal and budgets due. Main purpose is budget review.
  - **20 March:** Final proposals due
- Other meeting outcomes:
  - Ideas for future work
  - Better network of restoration professionals and river/floodplain scientists

Upper Mississippi River Restoration

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2020 UMRR Science Meeting Working Groups
<b>WG1: Hydrologic and geomorphic changes</b> <i>Jim Rogala (UMESC), Jon Hendrickson (USACE), Molly Van Appledorn (UMESC)</i>
<b>WG2: Side channels</b> <i>Molly Sobotka (MDC)</i>
<b>WG3: Aquatic vegetation and wildlife</b> <i>Danelle Larson (UMESC)</i>
<b>WG4: UMRS fish community dynamics</b> <i>Brian Ickes (UMESC)</i>
<b>WG5: Water quality and eutrophication</b> <i>Kathilo Jankowski (UMESC)</i>
<b>WG6: Floodplain ecology</b> <i>Nathan De Jager (UMESC)</i>

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## WG1: Hydrologic and geomorphic changes

- UMRS Hydrology Database and Future Hydrologic Scenarios** (*Molly Van Appledorn (USGS) & Lucie Sawyer (USACE)*)
  - How has the hydrologic regime of the UMRS changed over time?
  - What are likely future changes in UMRS hydrology, given plausible climate change and land use scenarios?
- Development of a GIS database with additional GIS analyses, mapping and interpretation for the UMRS hydrogeomorphic classification system** (*Jayme Strange (USGS) & Faith Fitzpatrick (USGS)*)
  - Where is hydrogeomorphic change occurring in the UMRS and at what rates?
  - What are the reaches and hydrogeomorphic units that are most prone to hydrologic, hydraulic, or sediment-related change?
- Understanding the Relative Roles of Altered Water Levels, Engineering Structures, and Geomorphic Context on Bank Erosion** (*Faith Fitzpatrick (USGS), Jon Hendrickson (USACE), Kara Mitvalsky (USACE), Jeff Janvren (WDNR)*)
  - What is the geomorphic context for bank erosion?
  - What is the relation between bank erosion and main channel/off channel connectivity?
  - How do engineering structures interact with bank erosion?

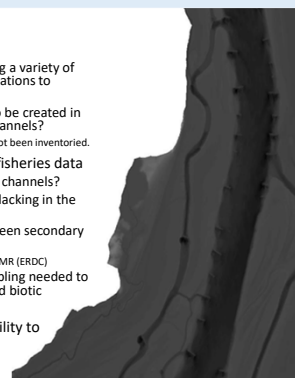


8

## WG 2: Side Channels

*Molly Sobotka*

- Classification of side channels
  - Side channel can be classified using a variety of metrics. Can we link these classifications to function or habitat?
  - What other metrics would need to be created in order to effectively classify side channels?
    - A variety of data sets exist but have not been inventoried.
- Biological associations using LTRM fisheries data
  - What fish community is using side channels?
  - Where is key side channel habitat lacking in the system?
  - How can we investigate links between secondary production and side channels?
    - Exploration of work occurring in the LMR (ERDC)
  - Where is additional, targeted sampling needed to clarify functional classifications and biotic associations?
- Results intended to improve our ability to create / manage side channels?




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## WG3: Aquatic vegetation and wildlife

*Danelle Larson*


### QUANTIFYING AQUATIC VEGETATION BIOMASS AS AN LTRM METRIC


Tuesday, ~2-4pm



### WILD RICE EXPANSION IN THE UMRS- genetics, phenology, island expansion, & waterfowl linkages

Wednesday, all day





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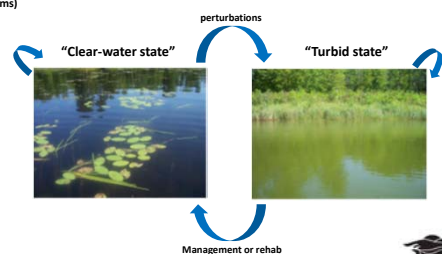

## WG3: Aquatic vegetation and wildlife

*Danelle Larson*

### EMPIRICALLY TESTING ALTERNATIVE STATE CONCEPTS

Tuesday, ~4pm: Introduction to concepts and applicability

Wednesday afternoon: Develop hypotheses, and approaches (e.g., LTRM data, HREP experiments, mesocosms)





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## WG 4: Achieving a systemic understanding of UMRS fish community dynamics

*Brian Ickes*

- Systemic questions that address both intrinsic and extrinsic forces shaping UMRS fish community dynamics.
  - Roles of geomorphology, hydrology, river health condition, invasive species in structuring trophic, reproduction, and habitat guild patterns and trends
  - Identifying counter-gradients in trophic composition and structure
  - Why aren't bigheaded carps everywhere in the UMRS?
  - Are UMRS fish communities functionally stable or changing over time in non-random ways (and if so, why)?
  - Is there any evidence HREP activities have altered functional aspects of the UMRS fish community (and if so, in what ways)?
  - Population vital rates (continued)
    - Genetics
    - Microchemistry
    - Age/Growth
    - Recruitment
    - Natality
- Emphasize identifying and understanding functional relationships, within the UMRS fish community, and relationships to the wider UMRS ecology and environment.
- Emphasize questions that have applied relevance to river management issues throughout the full UMRS.
- Key guidance driving work within this group includes Ickes et al. (2005), Ickes (2018) and past and present UMRR partnership input.



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## WG5: Water Quality & Eutrophication

Kathijo Jankowski

- 1. Winter ecology and overwintering (Jankowski (USGS))**
  - Where, how often do backwaters meet overwintering conditions? Has that changed over time? (LTRM and HNA data)
  - What are the drivers of spatial and temporal patterns in overwintering conditions? (LTRM and HNA data)
  - How do ice cover and winter conditions change through the season across backwater lake types (depth, connectivity)? (field study – Pools 4, 8 and 13)
- 2. Potential for harmful algal blooms in the UMRS and implications for HREP selection, planning, or design (J. Larson (USGS))**
  - How does connectivity affect cyanotoxin production? (backwater field study and experiment)
  - What is the current status of cyanotoxins in the UMRS? (field collection from all pools – main channel and backwaters; existing data synthesis)
- 3. Prevalence of microplastics in habitats and fish of the UMRS (Strauss; UWL)**
  - What are the current baseline, regional abundances of microplastics in the water column and select fish species of the UMRS?
    - Are microplastic distributions related to inherent and restored spatial heterogeneity (backwater, main channel, HREPs)? (analysis of water in zooplankton samples for microplastics from Fulgoni/Sobotka project)
    - Does vegetation density affect microplastic abundances via increased sedimentation? (experiment)
    - Do patterns exist within and among fish species? (analysis of microplastics in LTRM vital rates project fish guts)
  - Is there a correlation between water column concentrations and fish gut microplastic abundances?

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## WG6: Floodplain ecology

Nathan De Jager

- Further development of linked flood inundation – forest succession model
- Apply model to evaluate effects of alternative hydrological and management scenarios on forest ecosystem resilience
- Identify a suite of alternative hydrological and management scenarios to evaluate
  - A) climate and land use change effects on water levels
  - B) water-level management
  - C) pseudo-natural and artificial geomorphic modification of the floodplain
  - D) invasive species control
  - E) timber harvest
- Identify the most appropriate spatial scales for evaluating different scenarios (e.g., at specific HREP locations, collections of navigation pools, entire river system)
- Improve various components of the forest succession model through analysis of existing data or collection and analysis of new data
  - A) species and age-specific mortality in relation to flooding
  - B) species-specific establishment/regeneration
  - C) growth and competition.



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## Thanks to...

- Jennie Sauer
- Karen Hagerty
- Carol Lowenberg
- Working group leaders
- Everyone who provided comments on the Focal Areas document and other suggestions for the meeting
- Everyone who attended the meeting
- Everyone who filled out post-meeting survey...



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## Post-meeting survey summary

- 49 responses / 89 attendees
- More detailed summary available (contact: [jhouser@usgs.gov](mailto:jhouser@usgs.gov))
- What people liked (broad agreement):
  - Overall structure and degree of organization
  - Spending most of the time doing actual working and thinking in small groups
  - Having a clear goal for the meeting
  - Opportunities for collaboration and interaction among agencies and fields of expertise
  - Meeting new people and making new connections
  - Opportunity to switch groups (some disagreement)
  - Overall positive energy and enthusiasm



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## Post-meeting survey summary

- What people thought could be improved (lots of ideas, some contradictory):
  - More preparation ahead of time so things are further along by the face to face meeting
  - Designated facilitator in each group
  - Smaller groups—consider one person from each agency
  - More opportunities to switch groups vs. don't encourage switching groups
  - Better connection between proposals and HREPs vs. HREP planning/design is important but not the only purpose for improved understanding of the river in support of management and restoration
  - Timing of meeting
    - More time between holidays and meeting?
    - Meet in November?
    - More time between science meetings?
  - Lots of facilities / logistics suggestions



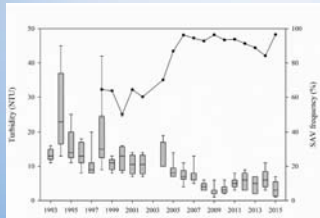
17



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Publication: R.M. Burdis, S.A. DeLain, E.M. Lund, M. Moore, W. Popp. 2020. Decadal trends and ecological shifts in backwater lakes of a large floodplain river: Upper Mississippi River. *Aquatic Sciences* 82:27



- Hydrological conditions appeared to be associated with changes in SAV
- SAV abundance increased and shifted towards more lentic species
- SAV provided feedback creating a stable, resilient, clear water state
- Fish community shift was associated with vegetation cover and turbidity
- Fish community shifted towards more clear water and vegetation associated species
- Results imply that management tools could be used to improve water clarity and positively affect aquatic vegetation and fish communities

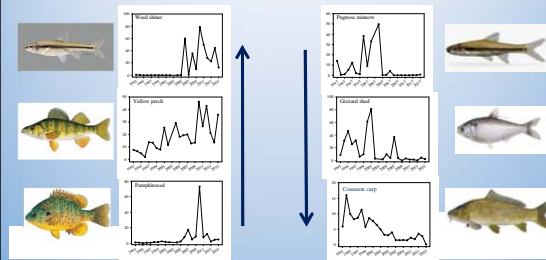
Aquatic Sciences 2020.



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Decadal trends and ecological shifts in backwater lakes of a large floodplain river: Upper Mississippi River

## Fish Community Shift

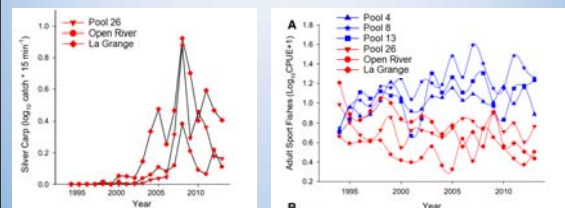


20

Chick, J.H., D.K. Gibson-Reinemer, L. Soeken-Gittinger, A.F. Casper. 2020. Invasive silver carp is empirically linked to declines of native sport fish in the Upper Mississippi River System. *Biological Invasions*. 22:723-734



Invasive silver carp is empirically linked to declines of native sport fish in the Upper Mississippi River System



21

22

Publication: **Status, trends, and population demographics of selected sportfish species in the La Grange Reach of the Illinois River.** Illinois Natural History Survey Bulletin 42:2019002.

Solomon, L. E., R. M. Pendleton, K. A. Maxson, J. N. McQuaid, D. K. Gibson-Reinemer, C. A. Anderson, R. L. Anderson, E. G. Lampo, J. T. Lamer, and A. F. Casper. 2019.

### Objectives:

- Assess trends and population demographics of 6 fish species of recreational importance on the ILR (2012-2016)

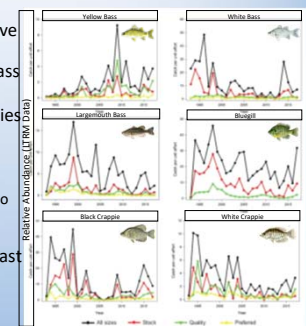


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Status, trends, and population demographics... (Solomon et al. 2019)

### Results:

- Significant declines in relative abundance of all study species except for Yellow Bass (increasing)
- Populations of 4 study species dominated by young fish, with few individuals exceeding 3 years of age
  - Sample sizes were too small to analyze Largemouth Bass and White Crappie
- Study species are growing fast and dying young



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### Status and Trends, 3<sup>rd</sup> edition

<b>1 April</b>	Chapter authors meet to discuss initial results, figures. Format for chapters finalized. Report card ideas discussed.
<b>1 May</b>	Analyses completed
<b>5 June</b>	Initial draft of each chapter distributed among report contributors
<b>3 July</b>	Comments back to chapter authors
<b>31 July</b>	Revised chapters to assembled
<b>28 August</b>	Draft for A team review distributed
<b>18 Sep.</b>	A team comments due
<b>30 Oct.</b>	Penultimate draft circulated to all authors
<b>13 Nov.</b>	Final revisions due
<b>4 Dec.</b>	Submit to SPN.

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Questions?

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## UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty  
Rock Island District  
26 February 2020





The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.

1

## UMRR MONITORING & SCIENCE FY20


 

**2 SOWs in FY20**  
 SOW for LTRM base monitoring  
**\$5.0M**  
 SOW for science in support (analysis under base)  
**\$1.3M**

**Both SOWs together are equivalent to a fully funded UMRR LTRM element \$6.3M**



**Science in Support of Restoration & Management (research)**  
**\$2.5M**

**TOTAL BUDGET: \$8.8M**




2

## UMRR MONITORING & SCIENCE FY20



 

LTRM Base+Analysis Under Base	\$6,247,360
A. IWW monitoring (FY20)	\$ 127,289
B. Chloride monitoring (3 years)	\$ 166,196
C. Seamless wind fetch products	\$ 24,504
D. LTRM spatial data to web mapping services	\$ 24,930
E. Ecohydrology (2 Years)	\$ 389,419
<b>F. Funding for science proposals</b>	<b>\$1,942,000*</b>



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## UMRR MONITORING & SCIENCE FY20


 

**FY20 UMRR Science meeting**

Proposal development underway

Schedule:

- Draft Proposal / **Budget review** 28 Feb
- Proposals due 20 March
- Analysis Team ranking 22 April
- UMRR CC consideration 20 May



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