Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

October 28, 2020

Highlights and Action Items

Program Management

- **UMRR has obligated over $32.9 million, or 99.26 percent, of its $33.17 million FY 20 funds to-date.** The program achieved an execution rate above 98 percent for the third consecutive year, despite a number of challenges including an extended government shutdown, record flooding, and the global COVID pandemic.

- District staff are planning for UMRR in FY 21 at a $33.17 million funding scenario, with internal allocations anticipated to be as follows:
  - Regional Administration and Program Efforts – $1,250,000
  - Regional Science and Monitoring – $10,400,000
    - 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 – $275,000
  - Habitat Restoration – $21,520,000
    - Rock Island District – $7,020,000
    - St. Louis District – $7,125,000
    - St. Paul District – $7,275,000
    - Model certification – $100,000

- In its WRDA 2020 measure, the House includes an increase to UMRR's annual appropriation authorization for HREPs from $22.75 million to $40 million and for LTRM from $10.42 million to $15 million. **If enacted, FY 23 would be the first opportunity for the Corps to prepare a budget scenario at the increased authorized appropriation level. That would likely necessitate a strategic planning effort to determine how to make use of additional resources.**

- The UMRR Coordinating Committee is reviewing the revised statements of significance following a September 29, 2020 call. **UMRBA's Board will review the statements over the winter. The UMRR Coordinating Committee will then consider the Board's feedback and prepare a revised version for consideration of endorsement at its February 24, 2021 meeting.**

- At its August 12, 2020 quarterly meeting, the UMRR Coordinating Committee called for additional review of the UMRR HREP selection process guiding documents. Ultimately, the Committee added i) a description of the non-federal sponsors' roles and responsibilities to the goals, roles, and responsibilities document and ii) an action to inform non-federal sponsors and the public of future HREP project development activities in the process diagram. **Following the revisions, Coordinating Committee members submitted their endorsement of the final documents via email.**

- **A survey regarding the 2015-2025 UMRR Strategic and Operational Plan will be distributed to UMRR partners in the near future. The survey will seek input regarding progress achieved since 2015, priorities for the next five years, and the issue areas to include in the 2022 Report to Congress.**

- At an October 22, 2020 meeting, the A-Team discussed modifications to its roles and responsibilities outlined in the UMRR Advisory Group Charter. **The A-Team plans to submit recommended revisions to the UMRR Coordinating Committee this winter.**

- On September 29, 2020, the UMRR Coordinating Committee held a virtual meeting to discuss development of the 2022 Report to Congress. The Committee discussed the purpose of the RTCs and how the report might be used (including targeting specific audiences) as well as a preliminary report development schedule and content. **An *ad hoc* team is scheduled to meet on November 3, 2020 to further develop the scope and schedule as well as refine the ideas for content and organization. Members of the *ad hoc* team include:**

Jeff Houser	Karen Hagerty	Brian Markert
Matt Vitello	Marshall Plumley	Andrew Stephenson
Sabrina Chandler	Jill Bathke	Kirsten Wallace

- Rachel Perrine and Jill Bathke are co-leading the UMRR communications team. The team convened a meeting on August 27, 2020 to recap past successes and identify priorities and inventory existing materials. **The team's first activity is to draft a UMRR flyer, with a goal for seeking the UMRR Coordinating Committee's approval in summer 2021. The flyer will highlight the historic, cultural, ecological, and economic benefits of the UMRR in the context of water, wildlife, and way of life.**

- **The House's FY 2021 consolidated appropriations measure includes direction to USEPA to develop a Mississippi River Restoration and Resiliency Strategy with the Corps, Departments of Agriculture and the Interior, FEMA, and NOAA as well as state, local, and tribal governments, and business and nonprofit stakeholders. The language was submitted by Rep. Betty McCollum (MN).** Sabrina Chandler and Kirsten Wallace explained that, while the language has drawn confusion, it has created opportunity to discuss UMRR.

<u>UMRR Showcase Presentations</u>

- FY 20 HREP accomplishments include the following:
  - — Construction contracts were awarded for Bass Ponds and the first half of McGregor Lake.
  - — McGregor Lake and Lower Pool 10 will be utilizing dredged material from the 9-foot navigation channel. The beneficial use of the material for McGregor Lake resulted in significant cost savings for the O&M program by avoiding double-handling placement costs.
  - — MVP is placing additional signage at its HREPs during construction and is increasing UMRR-related social media posts to conduct outreach.
  - — The Steamboat Island feasibility plan was submitted to MVD for review.
  - — A multi-agency workshop was convened for the Lower Pool 13 habitat project and a kick-off meeting was held for the Green Island habitat project.

- MVR awarded six contracts for the U.S. Forest Service under a blanket purchase agreement for forestry work and timber stand improvement. The Corps plans to continue this arrangement in the future.
- An open house presentation video on Steamboat Island and a video showing rip rap placement at Beaver Island were well-received by the public.
- Oakwood Bottoms habitat project report was prepared for public comment.
- A multi-agency virtual project kick-off meeting was convened for Yorkinut Slough.
- Crains Island is the first open river project to reach construction.
- All three districts are finalizing the newly selected HREP fact sheets.

- Kristen Bouska summarized the findings of a recently published manuscript on evidence of regime shifts in the LTRM fisheries data. Three alternate fish regimes have been described in the UMR: 1) diverse native fish community, 2) common carp dominant, and 3) silver and bighead carp dominant. Under resilience theory, stable functional biomass indicates high resilience, and shifting functional biomass suggests low resilience or regime shift. Once in a regime, conditions are maintained by reinforcing mechanisms that keep it from shifting to another regime. Biomass of common carp has declined in five of the six study reaches, and bighead and silver carp have increased in the three lower reaches. Most study reaches started as a common carp dominant state, though it is uncertain if they were stable in that state. Evidence suggests that Pool 8 and Pool 4 are now in high resilience diverse native fish community and Pool 13 is transitioning in that direction. La Grange and Pool 26 have moved toward silver carp dominance. Invasive fish dominant communities would require management actions to reduce biomass to a threshold adequate for a regime shift to desired native fish communities.

Long Term Resource Monitoring and Science

- Accomplishments of the fourth quarter of FY 20 include publication of the following manuscripts and completion report:
  - Regime change in a large-floodplain river ecosystem: patterns in body-size and functional biomass indicate a shift in fish communities
  - Integrating perspectives to understand lake ice dynamics in a changing world
  - Smallmouth buffalo (Ictiobus bubalus) growth across a 1,200-km human use and ecological disturbance gradient in the Upper Mississippi River System

- The 2020 systemic UMRS aerial survey was completed August 11-26, 2020, marking the fourth decadal imagery collection. Natural color and near-infrared spectral imagery will produce land use/ land cover dataset for use by resource managers and researchers. Larry Robinson is retiring in January 2021. Benjamin Finley will assume management of the land cover data.

- **A draft of the UMRR Status and Trends Report 3rd Edition was submitted to the A-Team for review.** The report provides a detailed quantitative assessment of the long-term trends and current status of the UMRS based on 40 indicators of ecosystem health and resilience.

- If UMRR continues to receive its full authorized funding level, UMRR's FY 21 LTRM allocation would be $6.3 million ($5.0 million for base monitoring and $1.3 million for analysis under base). Approximately $132,000 is anticipated in carry-over funds from UMESC and the states. An additional $2.5 million will be available for science in support of restoration and management. Five items schedule to be funded include the final year of IWW monitoring, reimbursing state costs

incurred from implementing COVID protocols, adjusting FY 20 proposal costs for state rate changes, graphical assistance on the Status and Trends report from Jason Rohweder, and covering exceedance in FY 20 LTRM costs of approximately $130,000.

- There will not be a request for research proposals in FY 21 given the amount of ongoing work. Potential items for remaining funds include the "stable states" proposal, funding two years of land cover/land use processing, or other efforts regarding landscape patterns, resilience, or ecohydrology. Funding ideas will be discussed with the A-Team and UMRR Coordinating Committee at a future meeting.

- The A-Team met via webinar on October 22, 2020. Topics discussed included continued impacts of COVID-19 on agency policies and work during the 2020 field/work season, macroinvertebrate declines, progress on the Status and Trends 3rd Edition, and potential modifications to the roles and responsibilities of the A-Team outlined in the 2013 UMRR joint charter of consultative bodies. The A-Team's winter meeting will be held virtually but has not yet been scheduled.

- The A-Team identified four issues to resolve in updating the charter. A small group (Karen Hagerty, Jennie Sauer, and Nick Schlesser) was tasked with drafting language for the A-Team's review at its winter meeting in early 2021. The four issues include the following:
  - Clearly define frequently used terms in the initial paragraph.
  - Retain references to website review.
  - Elaborate on the A-Team's roles in implementing "other activities identified in UMRR-CC strategic plan."
  - Better define public participation, including considering the use of "listening sessions."

Habitat Restoration

- MVP's planning priorities include Reno Bottoms and Lower Pool 10. Reno Bottoms is planning to evaluate alternatives using the forest succession model. Cost benefit analysis on alternatives is underway for Lower Pool 10, and TSP selection is anticipated in fall 2020. The district's design priority is addressing repairs on three islands and backwater areas at Harpers Slough, and supplemental funds were requested for construction. Construction at Conway Lake is approximately 80 percent complete. A virtual ground breaking ceremony for Bass Ponds is scheduled for November 6, 2020. A construction contract was awarded for McGregor Lake at the end of FY 20. Four of the five recently selected HREP fact sheets have been approved. The first project is anticipated to begin in FY 22 and will likely be Lower Pool 4 or Weaver Bottoms.

- MVR's planning priorities include Steamboat Island, Lower Pool 13, Green Island, and Pool 12 Forestry. Steamboat Island is at MVD awaiting final approval. The Pool 12 Forestry PDT is scheduling a kick off workshop in December 2020. MVR is working towards awarding a design contract for Keithsburg Island in FY 21. If plans for that project do not proceed as expected, the District will advance Steamboat Island Stage I. Tree planting is ongoing at Pool 12 Overwintering Stages II and III and is scheduled to occur on Huron Island Stage II in November 2020. ERDC staff planted aquatic vegetation at Huron Island Stage III. Dredging continues at Beaver Island. MVD approved the Quincy Bay fact sheet and provided comments on the fact sheets for the Lower Pool 11 and Pool 18 Forestry habitat projects.

- MVS's planning priorities include Oakwood Bottoms and Yorkinut Slough. The Oakwood Bottoms feasibility report is ready for public comment. Yorkinut Slough study alternatives formulation is underway. Planning for West Alton Islands is anticipated to kick off in early FY 21. A design

contract for Piasa and Eagles Nest was awarded in September 2020. Crains Island Phase II is in design. Plans and specs are finalized for Harlow Island for a future outyear award. Earth work and pile removal is underway at Crains Island and the District anticipates adding an $800,000 option to the contract. Pump station work and berm setback is anticipated to be completed in the near future. Reforestation and warranty work continue at Ted Shanks. Three fact sheets with USFWS as sponsor were sent to MVD for approval and other fact sheets will be submitted to MVD for approval following sponsor review.

Other Business

- Changes to the UMRR website URL have disrupted existing bookmarks, but the website is functional and the shortcut link still works. www.mvr.usace.army.mil/UMRR

Upcoming quarterly meetings are as follows:

- **February 2021 – Remote**
  - UMRBA quarterly meeting – February 23
  - **UMRR Coordinating Committee quarterly meeting – February 24**
- **May 2021 – TBD**
  - UMRBA quarterly meeting – May 25
  - **UMRR Coordinating Committee quarterly meeting – May 26**
- **August 2021 – TBD**
  - UMRBA quarterly meeting – August 10
  - **UMRR Coordinating Committee quarterly meeting – August 11**

UMRR COORDINATING COMMITTEE - REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

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

28 October 2020

Upper Mississippi River Restoration
Leading · Innovating · Partnering

US Army Corps of Engineers

REGIONAL MANAGEMENT AND PARTNERSHIP COLLABORATION

- FY 2020 Fiscal Update and FY 21 Outlook
- Statements of UMRR National Significance
- HREP Guidance Documents
- 2013 Advisory Groups Charter Review
- 2015-2025 Strategic and Operation Plan Review
- 2022 Report to Congress

USGS science for a changing world

US Army Corps of Engineers

USDA

PUBLIC

NGOs

UMRBA

FINANCIAL REPORTING

UMRR Quarterly Budget Report: St. Paul District
FY2020 Q4, Report Date: Mon Oct 26 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Bass Ponds, Marsh, and Wetland	-	$6,300,000	$6,300,000	-	$100,000	$100,000	$4,364,728
Conway Lake	-	$7,413,000	$7,413,000	-	$300,000	$300,000	$261,734
Harpers Slough	-	$13,675,000	$13,675,000	-	-	-	$93,320
Lower Pool 10 Island and Backwater Complex	-	$17,000,000	$17,000,000	$29,702	$450,000	$479,702	$517,010
McGregor Lake	-	$23,550,000	$23,550,000	$32,067	$5,950,000	$5,982,067	$7,184,690
Reno Bottoms	-	$10,000,000	$10,000,000	-	$300,000	$300,000	$534,032
Total	-	$77,938,000	$77,938,000	$61,769	$7,100,000	$7,161,769	$12,955,514

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$935,001
Total	-	-	-	$935,001

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	$349,143
Regional Program Management	-	-	-	-
Total	-	-	-	$349,143

	Carry In	Allocation	Funds Available	Actual Obligations
St. Paul Total	$61,769	$7,100,000	$7,161,769	$14,239,658

FINANCIAL REPORTING

UMRR Quarterly Budget Report: Rock Island District
FY2020 Q4, Report Date: Mon Oct 26 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Beaver Island	-	$25,288,000	$25,288,000	-	$2,433,000	$2,433,000	$2,591,752
Green Island, IA	-	$16,600,000	$16,600,000	$46,200	$450,000	$496,200	$375,098
Huron Island	-	$13,773,000	$13,773,000	-	$100,000	$100,000	$341,087
Keithsburg Division	-	$29,643,000	$29,643,000	$83,658	$2,550,000	$2,633,658	$674,439
Lower Pool 13	-	$25,288,000	$25,288,000	$45,522	$425,000	$470,522	$434,435
Pool 12 (Forestry)	-	-	-	-	$400,000	$400,000	$262,750
Pool 12 Overwintering	-	$20,876,822	$20,876,822	-	$50,000	$50,000	-$49,267
Rice Lake, IL	$7,280,000	$13,439,763	$20,739,763	-	-	-	$340,163
Steamboat Island	-	$41,877,000	$41,877,000	-	$230,000	$230,000	$467,299
Total	$7,280,000	$188,899,585	$196,179,585	$175,180	$7,280,000	$7,455,180	$5,437,838

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$526,090
Total	-	-	-	$526,090

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Adaptive Management	-	$200,000	$200,000	$43,499
Habitat Eval/Monitoring	-	$1,125,000	$1,125,000	$286,096
Model Certification/Regional HREP	-	$100,000	$100,000	$31,798
Public Outreach	-	$50,000	$50,000	$9,627
Regional Program Management	-	$1,200,000	$1,200,000	$1,145,234
Regional Project Sequencing	-	$375,000	$375,000	$62,687
Total	-	$3,050,000	$3,050,000	$1,578,841

Regional Science and Monitoring

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Long Term Resource Monitoring	-	$5,000,000	$5,000,000	$373,742
Science in Support of Restoration/Management	-	$3,800,000	$3,800,000	$2,421,238
Total	-	$8,800,000	$8,800,000	$2,794,980

	Carry In	Allocation	Funds Available	Actual Obligations
Rock Island Total	$175,180	$19,130,000	$19,305,180	$11,335,769

FINANCIAL REPORTING

UMRR Quarterly Budget Report: St. Louis District
FY2020 Q4, Report Date: Mon Oct 26 2020

Habitat Projects

Project Name	Cost Estimates			FY2020 Financials			
	Non-Federal	Federal	Total	Carry In	Allocation	Funds Available	Actual Obligations
Clarence Cannon	-	$29,800,000	$29,800,000	$4,325	$1,300,000	$1,304,325	$722,971
Crains Island	-	$36,562,000	$36,562,000	-	$3,330,000	$3,330,000	$3,791,083
Harlow Island	-	$37,971,000	$37,971,000	-	$425,000	$425,000	$238,203
Oakwood Bottoms	-	$29,000,000	$29,000,000	$38,103	$310,000	$348,103	$825,507
Piasa - Eagle's Nest Islands	-	$26,746,000	$26,746,000	-	$335,000	$335,000	$798,831
Rip Rap Landing	$2,848,000	$6,464,000	$9,312,000	-	$75,000	$75,000	$34,548
Ted Shanks	-	$29,506,000	$29,506,000	-	$300,000	$300,000	$159,765
Yorkinut Slough, IL	-	$8,500,000	$8,500,000	$749	$325,000	$325,749	$273,342
Total	$2,848,000	$214,049,000	$216,897,000	$46,872	$6,940,000	$6,986,872	$6,844,249

Habitat Rehabilitation

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
District Program Management	-	-	-	$388,737
Total	-	-	-	$388,737

Regional Program Administration

Subcategory	FY2020 Financials			
	Carry In	Allocation	Funds Available	Obligations
Habitat Eval/Monitoring	-	-	-	$115,523
Total	-	-	-	$115,523

	Carry In	Allocation	Funds Available	Actual Obligations
St. Louis Total	$46,872	$6,940,000	$6,986,872	$7,348,509

FY20 PLAN OF WORK

	Budget	Obligations FY 20
TOTAL FY20 Program	**$33,170,000**	**$32,923,936**
Regional Administration and Program Efforts	**$ 1,250,000**	**$ 1,152,851**
Regional Management	$ 1,000,000	
Program Database	$ 100,000	
Program Support Contract (UMRBA)	$ 100,000	
Public Outreach	$ 50,000	
Regional Science and Monitoring	**$10,500,000**	**$ 4,151,928**
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/Report to Congress	$ 375,000	
District Habitat Rehabilitation Efforts (Planning and Construction)	**$21,420,000**	**$27,619,157**
Rock Island District	$ 7,280,000	
St. Louis District	$ 6,940,000	
St. Paul District	$ 7,100,000	
Model Cert.	$ 100,000	

FY 2020 REFLECTIONS

UMRR Program

- Partnership
  - Statements of UMRS Significance
  - 2015-2025 Strategic and Operational Plan Review
  - 2022 Report to Congress
  - 2013 UMRR Joint Charter Review
    - ❑HREP Guidance Documents
    - ❑A-Team Roles and Responsibilities
- FY 20 represented the 6th out of the last seven years we have had full funding for the Program. For the 3rd consecutive year we have executed 98% or better. Despite 2019 flood, 2019 govt shutdown, COVID.

FY 2020 REFLECTIONS

HREP

- Completed feasibility for one project
- Initiated design on two projects
- Completed design on four projects
- Initiate construction on three projects
- Completed a construction stage on two projects
- Continue construction on eight projects
- These projects represent an additional 65,000 acres of habitat restoration potential over the next 10 years.
- Completion of the Identification and Selection of the Next Generation of HREP Projects. Utilizing the recently completed HNA II, that was co led by the USGS, US F&W Service and the Corps, the River Teams identified and developed 16 Projects

FY 2020 REFLECTIONS

LTRM

- Continued our baseline data collection and analysis of fisheries, aquatic vegetation and water quality resources across the system and made it publicly available. This occurred despite numerous challenges related to COVID.
- Completed the decadal Land Cover/Land Use imagery collection

FY 2020 REFLECTIONS

LTRM

- Furthered program integration through active participation of LTRM staff on HREP study teams as well as through broader participation of HREP practitioners in the bi-annual science meetings to identify and prioritize science proposals for FY 20.
- Draft of the 3rd Status and Trends Report which will provide invaluable insight to the Program, partners and the UMRS. Additionally, this document is foundational to the 2022 Report to Congress

FY 21 APPROPRIATIONS

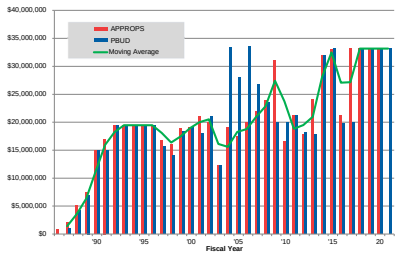
President's Budget	$ 33,170,000
House	33,170,000
Senate	Continuing Resolution

FINAL APPROPRIATION ?

FY21 DRAFT PLAN OF WORK

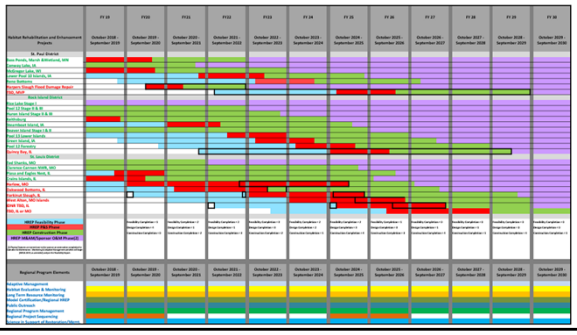
	Budget
TOTAL FY21 Program	**$33,170,000**
Regional Administration and Program Efforts	**$ 1,250,000**
Regional Management	$ 1,000,000
Program Database	$ 100,000
Program Support Contract (UMRBA)	$ 100,000
Public Outreach	$ 50,000
Regional Science and Monitoring	**$10,400,000**
LTRM (Base Monitoring)	$ 5,000,000
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
Report to Congress	$ 275,000
District Habitat Rehabilitation Efforts (Planning and Construction)	**$21,520,000**
Rock Island District	$ 7,020,000
St. Louis District	$ 7,125,000
St. Paul District	$ 7,275,000
Model Cert.	$ 100,000

UMRR PROGRAM APPROPRIATION/BUDGET HISTORY



FY1985 to FY2020

UMRR TEN YEAR OUTLOOK



POTENTIAL WRDA CHANGES TO UMRR

Senate version is neutral

House version contains

SEC. 308. UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM.
Section 1103(e) of the Water Resources Development Act of 1986 (33 U.S.C. 652(e)) is amended—
(1) in paragraph (3), by striking "$22,750,000" and inserting "$40,000,000"; and
(2) in paragraph (4), by striking "$10,420,000" and inserting "$15,000,000".

STATEMENTS OF SIGNIFICANCE

29 September Report to Congress Discussion

- Review suggested edits and finalize.
- Importance of the UMRS.
  - Natural resources, culture, recreation, navigation, other economic benefits
  - Partnership in management
- Future concerns – justification for continued investment.
- Origins and progress of UMRR.

HREP GUIDANCE DOCUMENTS

August UMRR CC Discussion & Revisions

- Changes included the addition of a description of the non-federal sponsors' roles and responsibilities to the goals, roles, and responsibilities document and the addition of an action to inform non-federal sponsors and the public of future HREP project development activities in the process diagram. Additionally, program management team was changed to district HREP managers on the process diagram.
- Final revised documents sent on 16 September 2020
- Consensus approval via e-mail completed 26 September 2020

2013 ADVISORY GROUP CHARTER REVIEW

Document Updates

- A-Team 22 October 2020 Meeting
- Pre-meet Survey
  - Current vs. Past Roles, Topics best/worst suited to address, New functions, Missed Opportunities, Stakeholder and public participation, Strategic plan contributions, Priority of A-team work, Different models, A-team relationship to programmatic needs

2013 ADVISORY GROUP CHARTER REVIEW

2013 ADVISORY GROUP CHARTER REVIEW

Document Updates

- A-Team 22 October 2020 Meeting
- Pre-meet Survey
  - Current vs. Past Roles, Topics best/worst suited to address, New functions, Missed Opportunities, Stakeholder and public participation, Strategic plan contributions, Priority of A-team work, Different models, A-team relationship to programmatic needs
- Draft language will be sent out prior to the February meeting with one other discussion possible

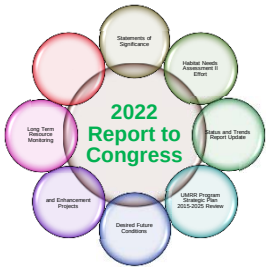
2022 REPORT TO CONGRESS

Completed
- Habitat Needs Assessment II

In Progress
- Statements of Significance (2020)
- Strategic Plan Review (2020)
- Status and Trends Report (2020)

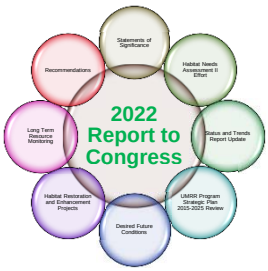
Future efforts
- Desired Future Condition (2021)
- Recommendations (early 2022)

Ongoing
- HREPs (early 2022)
- LTRM (early 2022)



2022 REPORT TO CONGRESS

- 29 September 2020 Discussion
  - Discuss the purpose of the RTC
  - Discuss the intended audience for the RTC
  - Review progress on UMRR initiatives supporting RTC
    - Finalize statements of UMRS significance
  - Identify tasks for scoping team
- US FWS Refuges & Ecological Services, USGS UMESC, MN, IA, IL, MO, WI, US EPA, USACE (MVD, MVP, MVR, MVS), UMRBA



2022 REPORT TO CONGRESS

Ad hoc Scoping Team 3 November 2020

- Jeff Houser
- Matt Vitello
- Sabrina Chandler
- Karen Hagerty
- Marshall Plumley
- Jill Bathke
- Brian Markert
- Andrew Stephenson
- Kirsten Wallace

2022 REPORT TO CONGRESS

UMRR Repor to Congress 2022			
Product	Start Date	Finish Date	Activity
Report to Congress		Nov 2018	*HNA II Complete***
	Jun 2020	Jun 2020	RTC Planning Mtg #1
	Jun 2020	Dec 2020	Additional RTC planning mtgs, report content agreed upon, themes, target audiences, section author(s) established, schedule coordinated with MVD, HQ, ASA(CW) States and Agencies, document management, logistics etc.
		Oct 2020	*Statements of Significance Complete* *2015-2025 Strategic Plan Review Complete*
		Dec 2020	*Draft Status & Trends Available*
		Apr 2021	*Desired Future Conditions Complete*
	Jan 2021	Jul 2021	Draft RTC Sections
	Aug 2021	Nov 2021	Draft RTC
	Dec 2021	Jan 2022	RTC Editing
		Feb 2022	Draft RTC Complete
	Mar 2022	Apr 2022	UMRR State & Agency Review
		Apr 2022	Letters of Support
	May 2022	Jun 2022	Mississippi Valley Division Review
	Jun 2022	July 2022	HQ/ASA(CW) Draft Report Review
		Aug 2022	Final Draft RTC Complete
	Aug 2022	Sep 2022	Mississippi Valley Division Review
	Oct 2022	Nov 2022	HQ/ASA (CW) Final Review & Approval
	Nov 20 2022	Nov 30 2022*	Final delivery of RTC

DISCUSSION

Communication Sub-Team Goal

Develop, organize , and implement accurate and compelling communication materials to support the success of the UMRR program

UMRR Communication Sub-Team Progress

- **August, September, October:** recapped past success and identified priorities and existing materials
- **October**: *Draft* Program Flyer completed and coordinated with MVP Visual Information Specialist
- **November**: COT review *draft* Program Flyer and discussion of UMRR storyline
- **2022**: Coordinate *final* Program Flyer for approval

PARKING LOT

- Revisit Communication and Outreach Plan
- Refine Lower Illinois River Pilot Project
- Organize Communication Materials

Current Flyers

UMRR Current Draft Program Factsheet

UMRR Example Flyer

UMRR LTRM 2pgr

Updates to UMRR Flyer

Audience: general public, including legislators

Highlight: historic, cultural, ecological, and economic benefits of the UMRR public values of the 3 W's → water, wildlife, and way of life

More: infographics and updated, diverse photos

Less: jargon, acronyms, and words

FISCAL YEAR 2020 HABITAT REHABILITATION AND ENHANCEMENT PROJECTS ACCOMPLISHMENTS

Angela Deen
Julie Millhollin
Brian Markert
St. Paul District
Rock Island District
St. Louis District

28 October 2020

Upper Mississippi River Restoration
Leading · Innovating · Partnering

US Army Corps of Engineers

USGS science for a changing world
US Army Corps of Engineers
USDA

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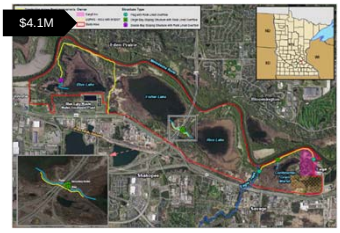
NGOs
UMRBA

ST. PAUL DISTRICT FY20 HIGHLIGHTS

Upper Mississippi River Restoration

AWARDED 2 CONSTRUCTION CONTRACTS

$4.1M



Bass Ponds HREP – Shakopee, MN

$8.8M

McGregor Lake HREP – Prairie du Chien, WI

BENEFICIAL USE OF DREDGED MATERIAL

McGregor Lake HREP

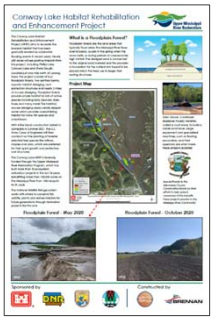
River to Reuse –
- 70,000 cy used
- $750,000 saved

BENEFICIAL USE - MCGREGOR LAKE HREP

BENEFICIAL USE – LOWER POOL 10 HREP

Feasibility Study
- Planning phase
- Coordinating with Operations

PUBLIC OUTREACH



NEXT GENERATION FACT SHEETS

- **Interagency development**
- **Multiple ranking approaches**
  - o Brainstormed ideas
  - o Discussed priorities by agency
  - o Utilized HNA-II Indicators
  - o Conducted Pairwise Comparisons
- **MVP Result: 5 Fact Sheets**
  - ✓ *Approved* - Black River Bottoms
  - ❑ *Pending* - Bank Stabilization and Natural Levee
  - ❑ *Pending* - Pool 8 Poolwide Floodplain Forest
  - ❑ *Pending* - Lower Pool 5, Weaver Bottoms
  - ❑ *Pending* - Lower Pool 4, Big Lake, Robinson Lake, and Tank Pond

ROCK ISLAND DISTRICT FY20 HIGHLIGHTS

ROCK ISLAND DISTRICT (MVR) ACCOMPLISHMENTS 2020

PLANNING –

Steamboat Island HREP – Pool 14, IA/IL
- Completed the feasibility

Lower Pool 13, HREP, Pool 13, IA/IL
- Completed multi-agency virtual workshop
- Advanced feasibility study

Green Island HREP, Pool 13, IA
- Completed kickoff workshop

DESIGN –

Keithsburg Division Stage II – Pool 18, IL
- Developed P&S for Phase II
- Awarded Contract Sep. 2021

CONSTRUCTION –

Pool 12 Overwintering, Pool 12 IL
- Stage II – Finished construction

Keithsburg Division Stage I, Pool 18, IL
- Started on the access road

Huron Island, Pool 18, IA
- Stage II – Completed construction
- Stage III – Completed aquatic plantings

Beaver Island Stage IB, Pool 14, IL
- Completed rock closure structure
- Completed Albany Island chevron

ROCK ISLAND DISTRICT

BPA (Blanket Purchase Agreement)

Forest Services

Awarded 6 contracts – Total Cost $1.1 million
- Pool 12 Tree Planting – 57AC (4,530 trees and Shrubs)
- Huron Island Tree Plantings– 22 AC (3,382 trees and shrubs)
- Huron Island Buffer plantings – 22 AC (6,000 seedlings and wetland plants)
- Huron Island Spring Plantings – 25 AC (7,500 seedlings and wetland plants)
- Beaver Island TSI – 120 AC (1978 trees and shrubs)
- ***Total AC – 246 (23,390 plants)***

Timber Inventory

Awarded 3 contracts - Total Cost $352K
- Northern Pool 12 – 2,052 AC
- Southern Pool 12 – 3,133 AC
- Lake Odessa – 2,039 AC
- ***Total AC – 7,224***

Pool 12 HREP

ROCK ISLAND DISTRICT

Huron Island HREP

Completed Work
Rock Closure Structure
Island Protection
Bank Protection
Locked logs
Planted Aquatic Plants

ROCK ISLAND DISTRICT

Beaver Island HREP

Completed Work
Rock Closure Structure
Albany Island Chevron

Dredged – ~23 AC (~400,000 CY)
Riprap placed – ~3,100 Linear Feet (23,000 TN)

https://youtu.be/PYBFlcpRUCg

ROCK ISLAND DISTRICT

UMRR Communications for FY20

Steamboat Island – Open House Presentation Video
- 410 views on You Tube
- 6th highest viewed video in the District this year
- Initial Facebook post announcing public comment period reach 3,776 users, had 42 likes, 15 comments and was shared 9 times
- Second Facebook post – 3,264 users, had 37 likes and was shared 18 times

Huron Island - Plantings
- Instagram
  - Sept 24 - reached 118 users and was liked 15 times
- Tweet
  - Sept 24 – had 1,457 impressions, 6 likes and 3 retweets
- Facebook
  - Jun 4 – reached 4,235 users, has 83 likes, 18 comments and was shared 11 times
  - Sept 24 –reached 4,039 users, has 58 likes, 4 comments and was shared 21 times

Beaver Island - Video
- Facebook
  - Oct 19 - reached 2,908 users, had 30 likes and was shared 15 times
- Twitter –
  - Oct 19 - 341 impressions, 56 views, 6 likes and 1 retweet

ST. LOUIS DISTRICT
FY20 HIGHLIGHTS

ST. LOUIS DISTRICT (MVS)
ACCOMPLISHMENTS 2020

PLANNING –

Oakwood Bottoms, IL, HREP (Open River)
- Advanced draft report to the point of being ready for public comment period
- Issue task order for geotechnical investigations

Yorkinut Slough, IL HREP (IL River)
- Completed multi-agency virtual project kick-off
- Advanced feasibility study

DESIGN –

Piasa & Eagles Nest, IL HREP (Pool 26)
- Execute Sponsor agreement for HREP
- Developed P&S for Phase I
- Awarded Contract Sept. 2020

Crains Island, IL HREP (Open River)
- Developed P&S for Phase I
- Awarded Contract Feb. 2020

CONSTRUCTION –

Crains Island, IL HREP (Open River)
- Initiated Earthwork & Pile Removal

Clarence Cannon Refuge, MO (Pool 25)
- Completed Water Control Structures and interior berms/channels excavation contracts
- Pump Station
- Exterior Berm Setback

Ted Shanks, MO HREP (Pool 24)
- Issued task order for Reforestation work
- Awarded purchase order for pump station warranty work

New Fact Sheets
- Completed fact sheet selection process for 6 new fact sheets. Submitted and received approval for 3 FWS projects
- Drafted 3 additional fact sheets for FY21 coordination

ST. LOUIS DISTRICT

Crains Island HREP

Harlow Island
Value Engineering Workshop

Yorkinut Slough HREP
Virtual Planning Charrette

Upper Mississippi River Restoration

ST. LOUIS DISTRICT

Clarence Cannon HREP
Water Control Structures, Interior Berms, Channel Excavation, Pump Station, & Berm Setback

22

USGS
science for a changing world

US Army Corps of Engineers

USDA

PUBLIC

NGOs

UMRBA

USGS science for a changing world

Upper Mississippi River Restoration
Leading. Innovating. Partnering.

Evidence of regime shifts in the LTRM fisheries data

Kristen Bouska
U.S. Geological Survey
Upper Midwest Environmental Sciences Center

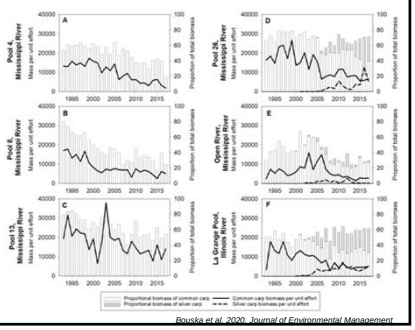
UMRR Resilience Assessment

- Provides insight into how resilience is created, maintained, or broken down within UMRS & how restoration projects and management actions might influence those processes
  - Indicators of resilience across the system
  - Use LTRM data to improve understanding of ecosystem dynamics
    - Regime shifts

USGS

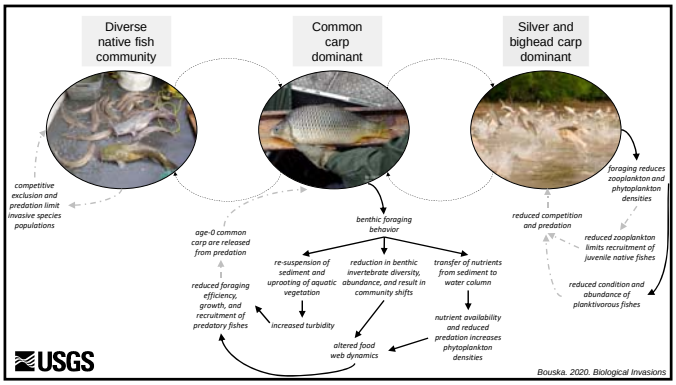
Changes in dominance

- Systemic decline in Common Carp
- Regional proliferation of Silver Carp and Bighead Carp



USGS

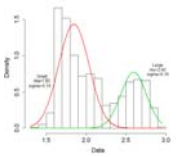
Bouska et al. 2020. Journal of Environmental Management



USGS

Bouska. 2020. Biological Invasions

Analytical approach	Resilience theory	
	Indicator of high resilience	Indicator of low resilience or regime shift
Discontinuity analysis	Body-size aggregations are stable over time due to consistent structuring processes governing resource availability	A shift in body-size aggregations suggests changes to structuring processes governing resource availability



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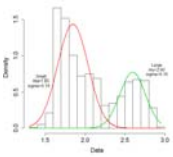

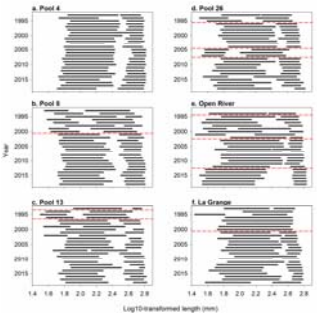

USGS

Bouska. 2020. Biological Invasions

Analytical approach	Resilience theory	
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Temporal trends in functional biomass	Functional biomass exhibits no net directional change over time due to response diversity and other compensatory processes	Net directional change in functional biomass indicate changes to resource template

USGS

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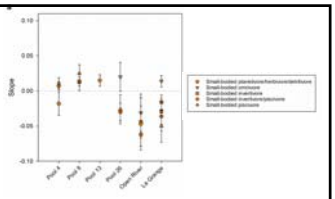

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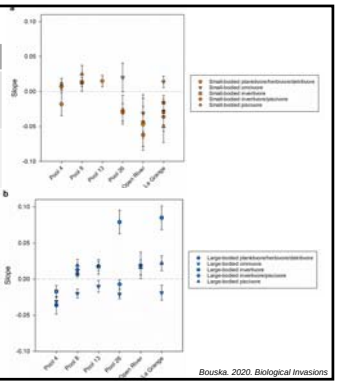
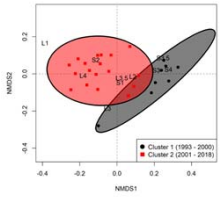


USGS

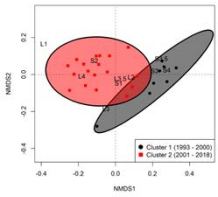
Bouska. 2020. Biological Invasions

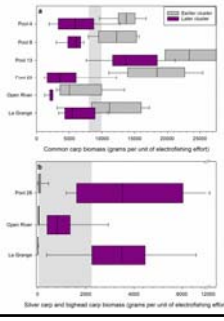
Correspondence between body-size shifts and functional trends

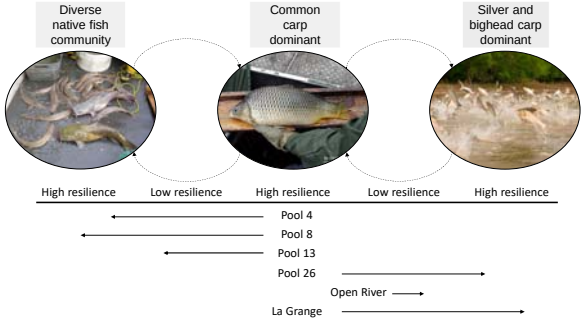


Correspondence between body-size shifts and functional trends

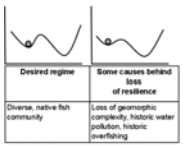
- Common Carp: 8,000-10,000 grams per unit effort
- Silver and Bighead Carp: pre- vs. post-invasion







Management implications



USGS

Bouska et al. 2020. Journal of Environmental Management

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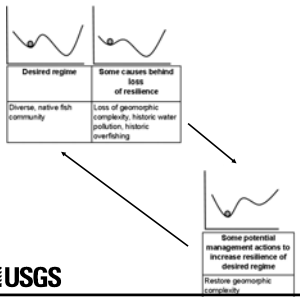

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Bouska et al. 2020. Journal of Environmental Management

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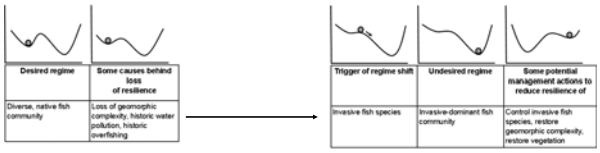


USGS

Bouska et al. 2020. Journal of Environmental Management

Conclusions

- Resilience concepts do apply to river systems
  - Fish communities in study reaches have undergone regime shifts, characterized by changing species dominance
  - Reinforcing feedbacks unique to the functional attributes of the dominant species occur at similar biomass levels
- Resilience concepts can inform management by identifying management actions that
  - weaken feedbacks of undesired fish communities &
  - strengthen feedbacks of desired fish communities

Acknowledgements

Resilience Working Group (past and present)

Kenn Barr (USACE)
Dave Bierman (IDNR)
Kristen Bouska (USGS)
Andy Casper (INHS)
Bob Clevenstine (FWS)
Mark Cornish (USACE)
Nate De Jager (USGS)
Shawn Giblin (WDNR)
Jon Hendrickson (USACE)
Dave Herzog (MDC)
Jeff Houser (USGS)
Marvin Hubbell (USACE)
Melinda Knutson (USFWS)
Ben Lubinski (INHS)
Matt Mangan (USFWS)
Nate Richards (USACE)
Sara Schmuecker (FWS)
Levi Solomon (INHS)
Kirsten Wallace (UMRBA)
Stephen Winter (FWS)

Contact Information: Kristen Bouska, kbouska@usgs.gov, 608-781-6344

Citation: Bouska, K. L. 2020. Regime change in a large-floodplain river ecosystem: patterns in body-size and functional biomass indicate a shift in fish communities. Biological Invasions 22: 3371-3389.

LTRM Science Highlights

October 28, 2020
Virtual

Photo by Kristen Bouska

2020 Systemic UMRS Aerial Survey

August 11th to 26th, 2020

- Fourth decadal imagery collection
  - 1989, 2000, 2010/11, 2020
- 9,638 Individual images taken at 8-inch (Pools 1-13 and St. Croix) and 16-inch (Pools 14 to Open River, and Illinois River) resolution
- 11,377 Linear miles flown over 70 hours and 16 minutes
- Natural color and near-infrared spectral imagery will produce land use/land cover dataset for use by resource managers and researchers to make assessment and evaluation of current vegetation components and long-term vegetation trends within the UMRS

Regime change in a large-floodplain river ecosystem: patterns in body-size and functional biomass indicate a shift in fish communities

Kristen Bouska

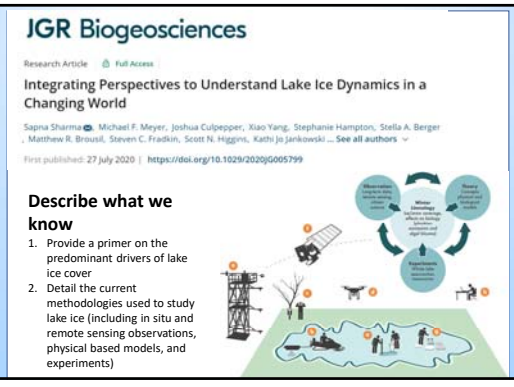
- LTRM fish community data exhibit signals of regime shifts associated with dominance by Common Carp, Silver Carp and Bighead Carp
  - All study reaches were Common Carp dominant in 1993
  - Pools 4 & 8 transitioned to a more diverse, native community in early 2000's
  - Pool 13 nearing similar transition
  - Pool 26 and La Grange Pool shifted to Silver & Bighead Carp dominant in early to mid-2000's
  - Open River has low evidence of regime behavior
- Strong support for Common Carp threshold
- Implications for management focus on thresholds and feedbacks
- UMRR Resilience Assessment publication

Bouska, K. 2020. Biological Invasions 22:3371-3389. https://doi.org/10.1007/s10530-020-02330-5

Smallmouth buffalo (Ictiobus bubalus) growth across a 1200km human use and ecological disturbance gradient in the Upper Mississippi River System

Brian Ickes

- 36-year time series of growth derived from otoliths
- Developed a model that parsed growth into age and year-of-growth effects to investigate environmental influences on growth
- Growth signatures indicate reach sexual maturity at age-6; will be confirmed by other work that investigated gonad condition directly
- No differences in annual growth histories were observed across 1200km of river representing a pronounced ecological and disturbance gradient.
- Conclusion: Growth operates independently of local ecological and disturbance circumstances



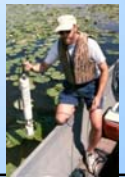
UMRR Status and Trends Report 3rd Edition

Upper Mississippi River Restoration Coordinating Commitee

28 October 2020

Acknowledgments

- Chapter Leads
  - Nathan De Jager; Jeff Houser; Brian Ickes; KathiJo Jankowski; Danelle Larson; Molly Van Appledorn
- Contributing Authors
  - Andy Bartels (WDNR), Kyle Bayles (IADNR), Mel Bowler (IADNR), Rob Burdis (MNDNR), Kristen Bouska (UMESC), Alicia Carhart (WDNR), Deanne Drake (WDNR), Shawn Giblin (WDNR), John Kalas (WDNR), Eric Lund (MNDNR), Kris Maxson (INHS), Jim Rogala (UMESC), Levi Solomon (INHS)
- Maps
  - Jason Rohweder (UMESC)
- All field station staff past and present
- UMRR Partnership
- Countless others who have contributed to UMRR LTRM over the last ~30 years



Development of UMRR Status and Trends, 3rd ed.

- UMRR LTRM Analysis Team Assessment of the 2nd Status and Trends
  - Ad Hoc Indicators Group Report (2013). "Indicators of Ecosystem Health for the Upper Mississippi River System"
- A decade of additional research using LTRM data (> 150 scientific publications and reports)
- Draft indicators provided to the Analysis Team for discussion and revision during the October 2019 Analysis Team meeting
  - List of indicators revised to incorporate Analysis Team recommendations
- Draft of entire report provided to Analysis Team for their review 13 October 2020.

Summary of Report Contents

- Chapter 1: Introduction
  - Significance of the UMRS
  - Overview of UMRR program (LTRM and HREPs)
  - Purpose and objectives of the report
  - *Brief* overview of basic history and ecology of the UMRS
  - Foundations of this report
- Chapters 2 – 7: Assessing Status and Trends of the UMRS 1993 – 2019
- Chapter 8: Using long-term data to understand the causes and consequences of long-term changes in water clarity and vegetation in the UMRS
- Chapter 9: How and why the UMRR LTRM played a key role during the bigheaded Asian carp invasion in North America
- Chapter 10: Summary and Synthesis

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Purpose

- Provide a broadly accessible and concise description of what we have learned about changes in the UMRS from three decades of monitoring and analysis
- Illustrate the fundamental role of long-term monitoring in the science and management of large floodplain river systems.

Photo credit: John Sullivan

Objectives

- Provide a concise description of the current status and long-term trends of selected indicators of ecosystem health for the UMRS
- Highlight the most important changes observed in the UMRS
- Discuss management and restoration implications of these changes,
- Where possible, assess implications of the reported findings for future changes in the river

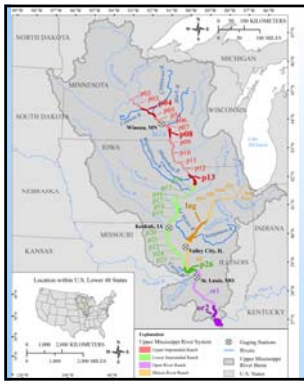
Jennie Sauer, USGS UMESC

Building on previous work

- ~30 years of long-term monitoring and research
  - Sample collection and analysis
  - Data analysis, modelling, and synthesis
  - Presentation and publication
- First UMRR (EMP) Status and Trends Report (1999)
- First UMRR (EMP) Habitat Needs Assessment (2000)
- Second UMRR (EMP) Status and Trends Report(2008)
- Second UMRR Habitat Needs Assessment
  - Indicators of Ecosystem Structure and Function (De Jager et al. 2018)
  - UMRR Habitat Needs Assessment 2nd ed. (McCain et al. 2018)
- UMRS Resilience Assessment
- Partnership discussions

Status and Trends Assessment

- Status
  - There are not yet consensus "desired future conditions" for the UMRS
  - There are no reasonable "reference systems" or consensus "reference conditions" for the UMRS
  - Assessment of Status in this report:
    - Externally developed criteria where they exist (water quality standards)
    - Internal spatial and temporal comparisons for everything else
      - E.g., Identifying reaches with the greatest/least prevalence of aquatic vegetation
- Trends
  - A variety of statistical methods to assess linear trends, and non-linear trends and other changes as appropriate



UMRS Status and Trends 1993 – 2019: Indicator Sections, Leads, and Data

- Hydrology (*Molly Van Appledorn*)
  - Four USGS gages
- Geomorphology (*Molly Van Appledorn and Jim Rogala*)
  - UMRR LTRM research results
- Land / water cover (*Nathan De Jager*)
  - UMRR LTRM Systemic Land Cover Data
- Long-term data from the UMRR LTRM Study Reaches
  - Water Quality (*KathiJo Jankowski*)
  - Aquatic vegetation (*Danelle Larson*)
  - Fisheries (*Brian Ickes*)

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Hydrologic Indicators

("Q" = discharge)

	Winona	Keokuk	St. Louis	Valley City (ILR)
Annual Max Q	No change	↑	No change	↑
Annual Mean Q	↑	↑	↑	↑
Annual Min Q	↑	↑	↑	↑
Duration of High Flows	No change	↑	↑	↑
Monthly Mean Q	↑	↑	↑	↑

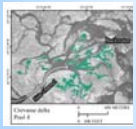
All hydrologic indicators had significantly increasing trends

- Greater discharge through time
- High flows conditions are lasting longer
- Seasonal shift in peak mean flows from April to May or June

Hydrologic change has implications for the river ecosystem

- Sediment dynamics: amount, location, and timing
- Hydraulic connectivity & backwater hypoxia
- Distributions of aquatic habitats
- Nutrient transport and cycling
- Floodplain forest mortality

Geomorphic Indicators



New Landform Surface Area Gains
(*Rogala, Fitzpatrick and Hendrickson 2020*)

- 718.5 ha gained, most in Upper Impounded Reach
- Similar gains occurred from 1989 to 2000 and from 2000 to 2010.

Backwater Bed Elevation Change
(*Rogala, Kalas, and Burdis 2020*)

- Overall increase in bed elevation at the pool-scale from 1997 - 2017
- Both sedimentation and erosion detected and varied within and among transects

Physical Implications

- Hydrologic connectivity changes
- Changes to flows within backwaters
- Reduced backwater lake volumes
- Reduced water surface area (terrestrial encroachment)
- Potential sediment storage on the floodplain

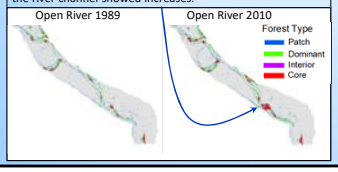
Ecological Implications

- New landforms can form sandy habitat ideal for shorebirds, waterbirds, and early-successional tree species (willows, cottonwood)
- Subsurface sedimentation and erosion processes change the amount and location of aquatic habitats

Land / Water Cover Indicators

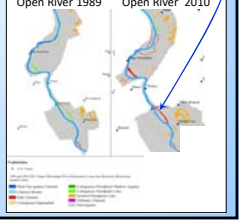
Leveed Areas: Relatively stable across the system = Persistently strong gradient in area behind levees across the system.

Forest Areas: Continued decline in forest area in all reaches except for the Unimpounded Reach, where some areas along the river channel showed increases.



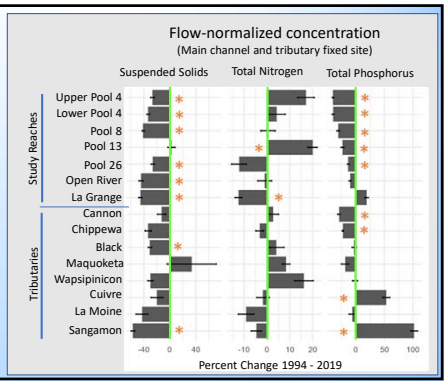
Aquatic Areas:

- Higher water levels:
  - Increased contiguous floodplain lake areas (Upper Impounded Reach)
  - Increased side channel areas (Unimpounded Reach).
- Basic structure of aquatic areas has not changed much since 1989.



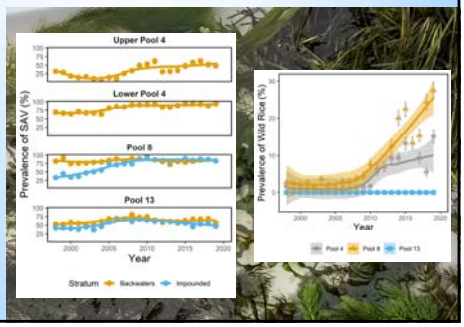
Water Quality Indicators

- Nutrients
  - Decline in TP
  - Little change in TN
  - Remain above WQ criteria
- Suspended solids
  - Decline in most study reaches
- Algae (Chl. *a*)
  - stable and high (eutrophic)
  - Declines in some areas of Pool 4, Pool 8 and La Grange
- Backwater hypoxia
  - More frequent in summer than winter
  - Mid-period peak in most reaches
  - Small long-term increase in Pool 4



Aquatic Vegetation Indicators

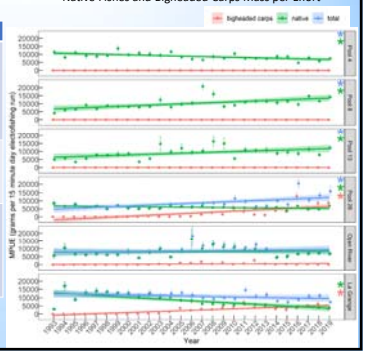
- SAV prevalence
  - increased in UP4, LP4, P8 and P13
  - > 80% in LP4 and P8 over last decade
  - "near desired conditions" in Upper Impounded Reach (McCain et al. 2018)
  - Possible recent decline in P13
  - SAV remains scarce in other reaches
- Emergent vegetation (esp. Wild Rice) has increased in P4 and P8, but not P13



Fisheries Indicators

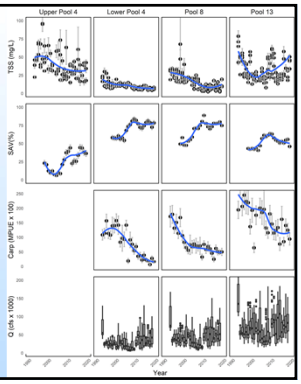
Indicator	Status	Trends
Native: nonnative	**P4, P8, P13**: No LTRM bigheaded carp detections **P26 and La Grange** ~ 50% of MPUE **Open River**: 20% MPUE	N/A Increasing bigheaded mass dominance Stable
Forage fishes	**Pools 4, 8 and 13**: Less abundant **Pool 26, Open River and La Grange**: More abundant	Pool 4 – decline Pools 8 and 13 – stable Significant declines
Lentic fishes	**Pools 4, 8 and 13**: 2000-7000 g/effort **Pool 26, Open River and La Grange**: 100-2500 g/effort	**Pool 4, Pool 8 and Open River**: Increasing **La Grange**: Decreasing Nearly an order of magnitude (~2500 g/effort to about ~400g/effort).

Native Fishes and Bigheaded Carps Mass per Effort



Long-term changes in water clarity and vegetation in the UMRS

- Long-term changes in the Upper Impounded Reach of the UMRS
  - Decline in suspended solids
  - Increase in submersed vegetation
  - Decline in Common Carp
  - Period of low discharge (2006,7, and 9)
  - Shifts in fish community composition
- Long term data from 3 study reaches provided important insights into the interactions among these changes



How and why the UMRR-LTRM played a key role during the bigheaded Asian carp invasion in North America

Image credit: Thad Cook, Illinois River Biological Station of the Illinois Natural History Survey, USACE Upper Mississippi River Restoration program, Havana, Illinois

- UMRR LTRM provides data at scales of time and space that permit unique insights into the bigheaded carp invasion.
- Contributions have included:
  - Influence on native filter feeding species
  - Influence on sport fishes
  - Influence on full native fish communities
  - Expertise provided to Asian carp coordinating and task committees
  - Research on potential control methods
  - Effects on local limnology (esp, Chl. *a*)
  - Effects on lower trophic levels (zooplankton abundance and size distribution)
  - Shifting ecological states
  - Evidence of non-random trajectories in functional fish community attributes.

Summary Table 1

Indicator	Upper Impounded	Lower Impounded	Unimpounded	Lower Illinois River
Hydrology	***Winona gage***	***Keokuk gage***	***St. Louis gage***	***Valley City gage***
Annual Discharge				
Minimum	↑	↑	↑	↑
Mean	↑	↑	↑	↑
Maximum	–	↑	–	↑
Duration of High Flows	–	↑	↑	↑
Monthly Discharge	↑	↑	↑	↑
Geomorphology				
New landform surface area gains	–	–		
Backwater bed elevation change	↑			
Landcover				
Aquatic areas				
Main Navigation Channel	–	–	–	↑
Channel Border	–	–	↑	↑
Side Channel	–	–	↑	–
Tributary Channel	↑	↑	↑	↑
Isolated Floodplain Lake	↑	↑	↑	↑
Contiguous Floodplain Lake	↑	↑	↓	–
Contiguous Floodplain Shallow Aquatic	–	↓	–	–
Contiguous Impounded	–	↑	–	–
Leveed Area	↑	–	–	–
Forest Cover				
Patch Forest	↓	↓	↑	↓
Dominant Forest	↓	↓	↑	↓
Interior Forest	↓	↓	↑	↓
Core Forest	↓	↓	↑	↑
Total Forest	↓	↓	↑	↓

↑ Increase
↓ Decrease
– Stable

Summary Table 2

Indicator	Upper Impounded Reach Pool 4	Upper Impounded Reach Pool 8	Upper Impounded Reach Pool 13	Lower Impounded Pool 26	Unimpounded Open River	Lower Illinois R. La Grange
Water quality						
Suspended solids	↓	↓	–	↓	↓	↓
Nutrients						
Nitrogen	–	–	↑	–	–	↓
Phosphorus	↓	↓	↓	↓	–	–
Chlorphyll a (algae)						
Main channel	~	–	–	–	–	~
Backwater	~	↓	–	–	NA	–
Backwater hypoxia						
summer	~	~	~	~	NA	~
winter	↑	~	~	–	NA	–
Aquatic vegetation						
Submersed aquatic vegetation prevalence	↑	↑	~	–	NA	–
Invasive submersed species	↓	↓	↓	?	NA	?
Aquatic vegetation diversity	~	↑	~	–	NA	–
Free-floating plant dominance	↓	↓	↓	?	NA	?
Emergent vegetation	↑	↑	–	–	NA	–
Fisheries						
Fish community	–	–	–	–	–	–
Lentic fishes	↑	↑	–	–	↑	↓
Lotic fishes	–	–	–	–	–	–
Nonnative fishes (excl. Com. Carp)	–	–	–	↑	–	↑
Forage fishes	↓	–	–	↓	↓	↓
Recreationally valued native fishes	–	↑	↑	↓	–	↓
Commercially valued fishes						
native	–	↑	↑	–	–	↓
non-native	↓	↓	↓	↓	↓	↓

↑ Increase
↓ Decrease
~ Dynamic
– Stable
? No data
NA Not applic.

Closing remarks

- The UMRS is spatially complex and spatially dynamic river
- The river will continue to change as it continues to adapt to the altered hydrology caused by ongoing changes in land use, levee distribution, and navigation modifications to the river
- This report provides a detailed quantitative assessment of the long-term trends and current status of the UMRS based on 40 indicators of ecosystem health and resilience
- Combined with other recent and existing reports there exists sufficient groundwork for an effective discussion of “desired future conditions” for the UMRS

UMRR MONITORING AND SCIENCE UPDATE

Karen Hagerty
Rock Island District
28 October 2020

US Army Corps of Engineers

UMRR MONITORING & SCIENCE FY21

2 SOWs in FY21

SOW for LTRM base monitoring
$5.0M

SOW for science in support (analysis under base)
$1.3M

Both SOWs <u>together</u> are equivalent to a fully funded UMRR LTRM element $6.3M

Science in Support of Restoration & Management
$2.5M

TOTAL: $8.8M

UMRR MONITORING & SCIENCE FY2021

LTRM

	Budget (gross)
MN	$690,979
WI	$606,564
IA	$508,078
Great Rivers (IL)	$515,287
Big Rivers & Wetlands (MO)	$461,668
IRBS (IL)	$521,171
Component meeting travel	$ 10,347
Equipment	$100,863
STATES TOTAL*	$3,305,776*
UMESC TOTAL	$2,990,721
Corps tech reps	$ 73,500
TOTAL FY21 LTRM BUDGET	**$6,429,547***

UMRR MONITORING & SCIENCE FY21

A. IWW monitoring (FY21)	$ 172,576
B. COVID costs (FY20)	$ 36,626
C. FY20 proposal adjustments (IL rates)	$ 24,093*
D. Graphical assistance S&T	$ 12,248
E. LTRM balance	$ 129,547*
Subtotal	**$ 375,090***

UMRR MONITORING & SCIENCE FY21

Science in Support of Restoration and Management
Outstanding efforts for funding

- FY20 Stable States proposal (remainder)
- Landscape patterns
- Resilience
- Ecohydrology
- Land Cover / Land Use processing

HABITAT RESTORATION – DISTRICT REPORTS

Angela Deen
Julie Millhollin
Brian Markert
St. Paul District
Rock Island District
St. Louis District

28 October 2020

Upper Mississippi River Restoration
Leading · Innovating · Partnering

US Army Corps of Engineers

ST. PAUL DISTRICT

ST. PAUL DISTRICT (MVP)

PLANNING

- **Reno Bottoms HREP – Pool 9, MN/IA**
  - Evaluating measures & modeling
- **Lower Pool 10 HREP – Pool 10, IA**
  - Evaluating Alternatives
  - Preparing for TSP Milestone

DESIGN

- **Harpers Slough HREP – Pool 9, IA**
  - Flood Damage Repair, Letter Report
  - Complete P&S (Nov)
  - Advertise (Dec)

CONSTRUCTION

- **Conway Lake HREP – Pool 9, IA**
  - Construction 80% complete
- **Bass Ponds, Marsh & Wetland HREP – MN River**
  - Contract Awarded (18 June), NTP (1 July)
  - Pre-Construction Meeting (15 Sep)
  - Groundbreaking (6 Nov)
- **McGregor Lake HREP – Pool 9, WI**
  - Contract Awarded (28 Sep), NTP (6 Oct)
  - Pre-Construction Meeting (22 Oct)

New Fact Sheets

- Submitted 5 new fact sheets to MVD for approval.

ST. PAUL DISTRICT PHOTOS

Conway Lake HREP – Construction Progress

ST. PAUL DISTRICT PHOTOS

Bass Ponds, Marsh & Wetland HREP Drawdown

'Virtual' Groundbreaking

Friday, November 6 at 10:00 a.m.
www.facebook.com/usace.saintpaul

ROCK ISLAND DISTRICT

ROCK ISLAND DISTRICT (MVR)

PLANNING

- **Steamboat Island HREP – Pool 14, IA/IL**
  - Package is routing for signatures at MVD approval
- **Lower Pool 13 HREP – Pool 13, IA/IL**
  - PDT is drafting chapters 1-3 for the 35% review
  - PDT is working on the WLM/feature refinement
- **Green Island HREP – Pool 13, IA**
  - Virtual open house will be posted by October 30th
  - 35% review schedule to start by late November
- **Pool 12 Forestry – Pool 12, IA/IL**
  - PDT is working on scheduling the kick off workshop

DESIGN

- **Keithsburg Division Stage II – Pool 18, IL**
  - 100% review is schedule for early November
- **Steamboat Island Stage I – Pool 14, IA/IL**
  - PDT is working on scheduling the kickoff meeting

CONSTRUCTION

- **Pool 12 Overwintering, Pool 12, IL**
  - ***Stage II*** – BPA –Contractor is planting the trees
  - ***Stage III*** - BPA –Contractor is planting the trees
- **Keithsburg Division Stage I, Pool 18, IL**
  - Contractor has started excavation of the first 500 feet of the spillway and prepping it for rock
- **Huron Island, Pool 18, IA**
  - ***Stage II*** – Closing out the construction contract & BPA- Contractor to start planting trees in November
  - ***Stage III*** – EDRC planted on September 23rd
- **Beaver Island Stage IB, Pool 14, IL**
  - Contractor is on-site dredging and shaping

FACTSHEETS

- Quincy approved on October 13th
- Pool 11 and Pool 18 received comments from MVD

ROCK ISLAND DISTRICT

HURON ISLAND HREP
Aquatic Plantings

POOL 12 HREP
Tree Plantings

ROCK ISLAND DISTRICT

BEAVER ISLAND HREP

Albany Island Chevron

Lower Cut North & South Shaping

ST. LOUIS DISTRICT

ST. LOUIS DISTRICT (MVS)

PLANNING –

Oakwood Bottoms, IL, HREP (Open River)
- Submit Draft Feas Rprt for approval 1st Qtr FY21

Yorkinut Slough, IL HREP (IL River)
- Continue Feasibility Planning
- Habitat Evaluation Workshop

West Alton Islands, MO, HREP (Pool 26)
- Initiate Feasibility Report 1st Qtr FY21

DESIGN –

Piasa & Eagles Nest, IL HREP (Pool 26)
- Contract Award Sept. 2020
- NTP expected 2nd Qtr FY21
- Finalize Phase II P&S for future award

Crains Island, IL HREP (Open River)
- Finalize Phase II P&S for future award

Oakwood Bottoms, IL, HREP (Open River)
- Initiate P&S for future award

CONSTRUCTION –

Crains Island, IL HREP (Open River)
- Earthwork & Pile Removal

Clarence Cannon Refuge, MO (Pool 25)
- Pump Station
- Exterior Berm Setback

Ted Shanks, MO HREP (Pool 24)
- Reforestation
- Warranty Work
- Closeout 4th Qtr FY21

New Fact Sheets
- 3 FWS approved 4th Qtr FY20
- Finalize MDC, FS, & INDR/TNC new facts sheets
- Sponsor Review
- Submit to MVD for Approval

ST. LOUIS DISTRICT

Crains Island HREP
Earthwork

Clarence Cannon HREP
Pump Station