

Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

May 25, 2016

Highlights and Action Items

Program Management

- The program's FY 16 internal allocations under the \$21.174 million budget are as follows:
 - Regional Administration and Programmatic Efforts – \$891,000
 - Regional Science and Monitoring – \$6,567,000
 - Long term resource monitoring – \$4,500,000
 - Regional science in support of restoration – \$963,000
 - Regional science staff support – \$129,000
 - Habitat project evaluations – \$975,000
 - Habitat Restoration – \$13,716,000
 - Regional project sequencing – \$250,000
 - MVP – \$3,631,600
 - MVR – \$6,318,500
 - MVS – \$3,515,900

[Note: The District habitat restoration funds are not reflective of the historical split based on river mileage, and instead are reflective of the project priorities as identified in the budget process.]

- The President's FY 17 budget includes \$20 million for UMRR. **The House Appropriations Committee's FY 17 energy and water measure includes \$20 million for UMRR and \$25 million in additional funding for the Corps' ecosystem restoration or compliance programs and projects. The Senate's FY 17 energy and water measure includes \$20 million and \$40 million, respectively.** [Note: UMRR is eligible to receive the additional ecosystem restoration or compliance funding through a competitive process per the Corps' work plan allocations.]
- **UMRR's 30 years of service commemoration is scheduled for August 8, 2016 in late afternoon or early evening.** Holding the event later in the day helps to alleviate scheduling conflicts for Corps staff and agency leaders involved with the Mississippi River Commission's low water inspection tour, as well as to facilitate public participation in the event. An *ad hoc* interagency team is currently developing an agenda and key messages and securing logistics.
- A second partnership review of the 2016 UMRR Report to Congress (RTC) was employed between March 14 and April 16, and a request for a third, final review was emailed from Margie Daniels on May 16. **Comments from the May 16 review draft are due on June 10. Simultaneously, a formal Corps review is ongoing and comments are requested by June 30. Should any major comments be received, a partnership conference call will be convened in July. The anticipated publication schedule is to incorporate professional graphics from July to September 15, submit an electronic reviews draft to Corps leadership on September 15, and ground mail hard copies to MVR on November 1 for wider distribution.**

- **District staff published new, recalibrated maps of UMRR's completed habitat project boundaries as well as a white paper that provides mapping guidelines and methodologies for defining project boundaries.** The white paper and new, recalibrated maps are available at <http://www.mvr.usace.army.mil/Missions/EnvironmentalProtectionandRestoration/UpperMississippiRiverRestoration/HabitatRestoration/FindanHREPPProject.aspx>. **Two web-based conference calls are scheduled to facilitate an interactive review of the redefined boundaries and guidelines, and to ask questions regarding the boundary data and white paper. Marked-up PDFs and other comments can also be submitted to Marv Hubbell (marvin.e.hubbell@usace.army.mil) or Michael Dougherty (michael.p.dougherty@usace.mil.usace).** The webinar dates and call-in information is as follows:
 - **Dates: June 8 and 15 at 10 a.m.**
 - **Call-in details:**
 - **Web-connection:** <https://www.webmeeting.att.com>
Access code: 3926936
 - **Phone connection: 877-873-8018**
Access code: 3926936
Security code: 1111
- Graphics for the new UMRR logo are finalized with the slight modifications to the design as requested by the UMRR Coordinating Committee at its February 24, 2016 quarterly meeting. Angie Freyermuth sent a May 3 email request to the Coordinating Committee, A-Team, Field Station leads, and key Corps staff for high resolution images of the logo in various file formats as well as guidelines for using the logo. **It is requested that the new logo is used going forward on all UMRR-related publications and outreach material.**
- **Freyermuth requested that, by May 30, partners send her 1) any relevant, captivating pictures to include in an accomplishments book that would showcase UMRR's successes over its first 30 years, and 2) names of interested individuals to serve on the UMRR Communications Team.** In FY 17, ideas for improving UMRR's communications and outreach include redesigning and revamping UMRR presentations, updating signage at habitat project sites and field stations, establishing a virtual recreational trail(s) with informational material, and launching a UMRR quarterly newsletter.
- In light of the FY 17 budget discussions, there has been concern from some Corps leadership about how a celebration recognizing UMRR's existence for 30 years might be perceived. In response, the UMRR Coordinating Committee discussed the challenges in creating messages of importance and significance while maintaining a low profile. The sense of the Coordinating Committee is that there has been a lot of hard work, deliberation, and resources behind many of the accomplishments, and given the increasing competition for limited resources, UMRR will need to pursue a robust, integrated communications strategy in order to remain competitive.
- The Mississippi River Conference is scheduled to meet in the Quad Cities on October 13-14. A focus of the meeting will be on the metrics used in the America's Watershed Initiative's Raise the Grade Report Card. District staff plan to encourage the use of UMRR's tremendous amount of long term monitoring data and other information to develop key messages that more accurately reflect the current ecological state on the UMR and UMRR's role in "raising the grade."
- A May 13 dedication of Capoli Slough was attended by 40-50 local public, including a large school group. The event was publicized in *Dredging Today*.

Long Term Resource Monitoring

- Accomplishments of the second quarter of FY 2016 include:
 - Publication of 1) a fact sheet of UMRS landscape ecology and 2) a trend analysis methods development report.
 - Serving of all of the 2015 long term resource monitoring data on USGS's UMRR web site.
 - A statistics class held at UMESC on April 12-14, 2016, which was attended by 14 partners.
- Via email correspondence following its February 24, 2016 quarterly meeting, the UMRR Coordinating Committee endorsed a proposal by the LTRM Management Team to allocate the remaining \$33,130 FY 2015 carry-over money to Wisconsin DNR for evaluating biological shifts due to invasion by curly-leaf pondweed.
- The April 27, 2016 A-Team meeting included a series of connectivity-related presentations, including fish indicators of ecosystem health, hydraulic connectivity engineering and hydraulics perspectives, USFWS NWRS O&M for hydraulic connectivity, how hydraulic connectivity drives water quality and habitat outcomes from both a northern and southern perspective.
- Jeff Houser discussed USGS's work thus far to engage UMRR partners in defining conceptual models of lentic, lotic, and floodplain forest subsystems within the UMRS ecosystem. The models reflect the notion that the resilience of the UMRS ecosystem is dependent on individual and cumulative relationships among watershed and in-river drivers the valued ecological components that they influence. **Next steps include publishing the system assessment effort to-date and analyzing existing data to better quantify and understand the relationships identified in the conceptual models. Ultimately, the goal is to describe the impacts of UMRR's restoration and management of the ecosystem.**

Habitat Restoration

- MVP transferred \$1.5 million to MVR to advance Pool 12 Overwintering construction, and anticipates using the repayment next year for awarding North and Sturgeon Lakes. The District also anticipates completing Harper's Slough next year. The contractor indicates that construction should be completed in two years rather than the three years currently scheduled.
- MVR's FY 16 planning priorities are Keithsburg and Beaver Island. MVR will start planning for Delair in FY 17. Huron Island's design is nearly complete and the project will soon be advertised for a contract bid. Rice Lake was damaged in the summer 2015 flood and repairs should be completed by September 1.
- MVS is advancing planning on Piasa and Eagles Nest Islands and Harlow and Open River Islands. Evaluation reports for Stag Islands and Pharris Islands are nearly complete. MVS anticipates awarding a construction contract for Clarence Cannon in September 2016, and closing out construction on Pools 25 and 25 this fiscal year. Ted Shanks involved the primary construction effort for MVS in FY 16.
- Brian Markert described how Rip Rap Landing's features address important resource issues in the area. While the draft feasibility study is complete, the Corps and NRCS are still considering legal issues under the existing wetland reserve easement requirements.
- **An HREP workshop is scheduled for September 27-29, 2016 in Davenport.** Workshop objectives include building relationships and facilitating dialogue, discussing insights gained, and strengthening UMRR's restoration efforts.

- **The UMRR Coordinating Committee agreed to hold a conference call to determine a scope and schedule for exploring process improvements related to initial habitat project planning, evaluation of the existing ecological condition, plan formulation, and the draft environmental assessment report.**
- The Habitat Needs Assessment (HNA) 2.0 effort is slightly delayed to allow for the ecological resilience work to develop further. **The team's tri-chairs anticipate a first kick-off meeting to be held in-person in July.**
- Hubbell explained that the selection of next generation of projects will be informed by the ecological resilience conceptual frameworks, results of the HNA II, and many other reference documents such as the 2008 UMRS Status and Trends Report and UMRS Forest Stewardship Plan. The selection process will be guided by the 2003 HREP Planning and Sequencing Framework, which first considers the ecological merits of the projects and then sequences them based on administrative factors.

Other Business

- **Upcoming quarterly meetings are as follows:**
 - **August 2016 — La Crosse**
[Note: To accommodate Corps staff and agency leaders involved with the Mississippi River Commission's low water inspection tour, the UMRBA and Corps agreed to hold both quarterly meetings on the same day. The UMRR Coordinating Committee quarterly meeting will likely begin mid-afternoon.]
 - UMRBA quarterly meeting — August 9
 - **UMRR Coordinating Committee quarterly meeting — August 9**
 - **November 2016 — St. Paul**
 - UMRBA quarterly meeting — November 15
 - **UMRR Coordinating Committee quarterly meeting — November 16**
 - **February 2017 — Quad Cities**
 - UMRBA quarterly meeting — February 7
 - **UMRR Coordinating Committee quarterly meeting — February 8**

UMRR CC Quarterly Meeting May 25, 2016

Marvin E. Hubbell - MVR

UMRR Regional Program Manager

Mississippi Valley – Rock Island District (MVR)

Mississippi Valley – St. Louis District (MVS)

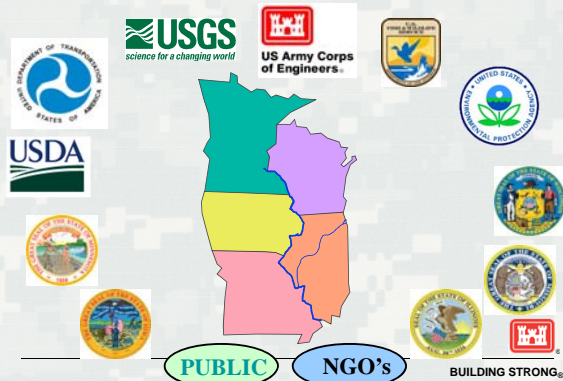
Mississippi Valley – St. Paul District (MVP)



US Army Corps of Engineers
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UMRR Program Partners



New Logo and Tagline



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FY 16

▪ President's Budget	\$ 19,787,000
▪ House	\$ 19,787,000
▪ Senate	\$ 19,787,000
▪ Appropriation	\$ 19,787,000
▪ FY16 Work plan	\$ 1,387,000
▪ FY16 Total	\$ 21,174,000



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FY16 Plan of Work

TOTAL FY16 Program	\$21,174,000
Regional Administration and Program Efforts	\$ 891,000
Regional Management	\$ 595,000
Program Database	\$ 95,000
Program Support Contract (UMRBA)	\$ 76,000
Public Outreach	\$ 60,000
2016 Report to Congress	\$ 65,000
Regional Science and Monitoring	\$ 6,567,000
LTRM (Base Monitoring)	\$ 4,500,000
UMRR Regional Science In Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	\$ 963,000
UMRR Regional (Integration, Adapt. Mgmt. model cert.)	\$ 129,000
Habitat Evaluation (split equally between MVS, MVR, MVP)	\$ 975,000
District Habitat Rehabilitation Efforts (Planning and Construction)	\$13,716,000
Rock Island District	\$ 6,318,500
St. Louis District	\$ 3,515,900
St. Paul District	\$ 3,631,600
HNA II	\$ 250,000



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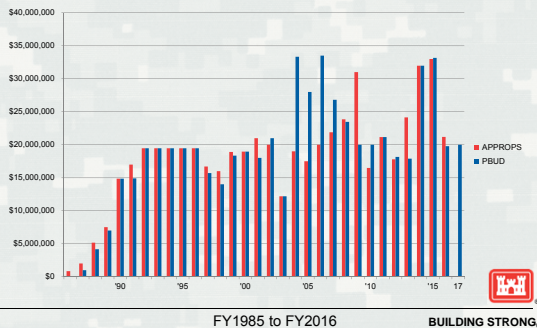
FY 17 PBUD

▪ President's Budget	\$20,000,000
▪ House	\$
▪ Senate	\$
▪ PBUD in Feb. 2016	



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UMRR Program Appropriation/Budget History



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Recognition 30 Years of Success

- When - August 8, 2016 (late afternoon)
- Where – Riverside Park in La Crosse, WI



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August Quarterly Meeting

- When - August 9, 2016 (afternoon)
- Moved to accommodate the Low Water Down Bound trip of the MRC on the MV Mississippi



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2016 Report to Congress

- 2016 Schedule
 - ▶ May 16 – Initiated 3rd Partnership review
 - ▶ May 19 – Initiated IPR for Official MVD and HQ review.
 - ▶ June 30 - Comments due
 - ▶ Sept. 15 – Final electronic copy due
 - ▶ Oct. 15 – Submit final RTC to MVD and HQ
 - ▶ Dec. 31 – Transmittal to Congress



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UMRR Database

- Michael Dougherty



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HREP Boundary Review

Purpose

- Ensure acreages in 2016 Report to Congress are reliable
- Use one mapping definition: Feasibility Study Area
- Align with highest resolution geospatial data
- Correct minor historic mapping inconsistencies
 - Between USACE districts
 - Early HREPs vs. recent HREPs



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Review Process

1. Small USACE district teams (2-3) perform detailed review of relevant HREP documents and geospatial data **(complete)**
2. Discuss inconsistencies with staff that worked on HREP **(complete)**
3. Distribute proposed revisions to wider group of USACE district staff familiar with HREPs for comment and adjustment **(complete)**
4. Distribute proposed revisions to partner agencies for comment and adjustment **(ongoing)**



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Datasets Consulted

1. Feasibility Report
 - a. Goals and Objectives
 - b. Maps and Diagrams
2. As-built drawings
3. Operations & Maintenance Manuals
4. Aerial photos (current and historic)
5. Real Estate boundaries (USACE, USFWS, state, etc.)
6. LiDAR derived terrain surfaces



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Findings

1. No major discrepancies discovered
2. Changes were limited to a small number of HREPs
3. Most changes were due to availability of higher resolution real estate data or LiDAR topography



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Review Documents

1. **Boundary Review White Paper** – Overview of definitions, issues, and process.
2. **MVP HREP Maps**
3. **MVR HREP Maps**
4. **MVS HREP Maps**
5. **Geodatabase** – GIS data for review and mapping.



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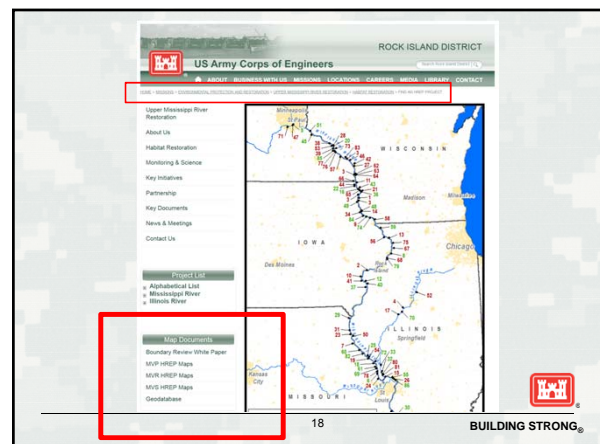
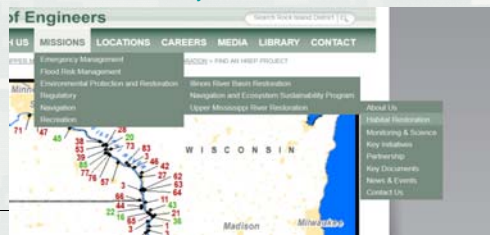
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Download

<http://www.mvr.usace.army.mil/Missions/EnvironmentalProtectionandRestoration/UpperMississippiRiverRestoration/HabitatRestoration/FindanHREPProject.aspx>

OR

<http://www.mvr.usace.army.mil>



Review Webinars

Goal

Provide partners an opportunity to interactively review HREP boundary data and ask questions.

1. 8 June 2016, 10:00 am
2. 15 June 2016, 10:00 am

Web Meeting Address: <https://www.webmeeting.att.com>
Meeting Numbers: (877) 873-8018
Access Code: 3926936



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Offline Review

1. Download review documents.
2. Markup PDFs or GIS data with review comments.
3. Email PDF maps or GIS data with your review comments.
4. Comments will be reviewed by USACE staff for possible inclusion in the boundary update.



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Send Review Comments:

Marvin Hubbell, UMR Program Manager
Marvin.E.Hubbell@usace.army.mil
309-794-5428

Michael Dougherty, Geographer
Michael.P.Dougherty@usace.army.mil
309-794-5491



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External Communications

- Angie Freyermuth



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Branding



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Choosing the Correct Format

It's important to choose the proper file format for each application. Logos are organized in folders to help you choose the correct file. When in doubt, consult with your service provider to determine which file format will produce the best results. When a "vector" file is requested, choose the .ai, .eps, or .pdf format. The UMR logo contains four colors when printing on a light background or five if white is required (as in embroidery applications on dark backgrounds). For this reason, printing in Pantone inks is not practical. All color applications should use CMYK process info.

PROFESSIONAL PRINTING: FULL COLOR, 4-COLOR PROCESS, CMYK
Print > CMYK Vector > .ai - eps - pdf

PROFESSIONAL PRINTING: GRAYSCALE, BLACK INK ONLY
Print > Black White Vector > .ai - eps - pdf

DESKTOP PRINTING: FULL COLOR
Print > CMYK Vector > .ai - eps - pdf

DESKTOP PRINTING: MICROSOFT WORD
Print > MS Word > .doc

SCREEN APPLICATIONS: WEB, EMAIL, POWERPOINT, TELEVISION

White Background
Screen RGB Raster > .jpg

Transparent Background
Screen RGB Raster > .png

EMBROIDERY & SCREEN PRINTING

Print > CMYK Vector > .ai - eps - pdf
(Each CMYK color is specified as a spot color for these applications.)

SIGNAGE, VEHICLE GRAPHICS & BILLBOARDS

Print > CMYK Vector > .ai - eps - pdf

	PRINT		SCREEN	
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	361	75/25/100/0	80/155/72	#509848
	7460	100/10/15/0	2/156/198	#0296d5
	16	0/30/100/0	253/184/18	#f8b102

Graphics/Content/Design/Branding/Logos/Logos - 12/16/16/2016



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FY16 Communication and Outreach items

- 30th Celebration Activities
 - Request went out to partners on 3 MAY 2016 for pictures of major accomplishments to include in an accomplishment book highlighting 30 years of success.
- Building the UMRR Communications Team
 - Request went out to partners on 3 MAY 2016 identify a person to sit on the communication team.
 - Once team members are identified; the team will start working through communication and outreach strategies.



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Communication & Outreach Ideas for FY17

- Redesign and Revamp of UMRR presentations
- HREP and Field Signage
- Establishment of Recreation Trail(s) with materials
- Launch of UMRR Update quarterly newsletter



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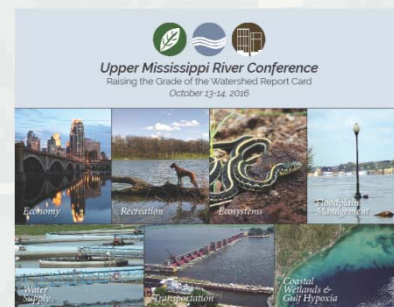
Raise the Grade

- Mississippi River Conference
- October 13-14
- Quad Cities



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Raise the Grade



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Public Communications and Outreach



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UMRR Monitoring & Science for 2016

2 SOWs in FY16

- SOW for LTRM base monitoring
\$4.5M
- SOW for science in support (analysis under base)
\$.963M

Both SOWs together are equivalent to a fully funded UMRR LTRM element

\$5,463,000 (FY 2016 funding)



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UMRR Monitoring & Science for 2016

MN	\$511,768
WI	\$523,176
IA	\$453,463
IRBS	\$385,618
NGREC	\$364,886
BRWFS	\$379,786
States sub total	\$2,618,694
equip	\$184,163
field meetings	\$6,834
science meeting travel	\$4,791
added state travel	\$3,502
statistics workshop	\$5,941
STATES TOTAL	\$2,823,925

UMESC sub total	\$2,680,697
field meetings	\$815
added UMESC travel	\$5,791
statistics workshop	\$15,550
UMESC TOTAL	\$2,702,853

Corps tech reps	\$68,250
TOTAL FY16 LTRM BUDGET	\$5,595,028



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UMRR Science in Support of Restoration & Monitoring

Continuation of existing projects:

- Pool 12 AM \$28,386
- Resilience (Corps staff) \$52,000
- Spatial patterns of mussels (continuation) \$55,980
- Fish trajectory analysis (continuation) \$ 7,775

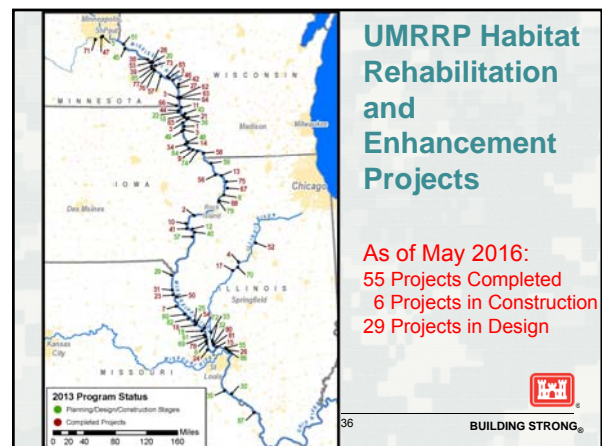
New project:

- Biological shifts due to invasion by curly-leaf pondweed \$33,103

TOTAL UMRR SCIENCE SUPPORT \$177,244



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ST. PAUL DISTRICT (MVP)

FY16 HREP Work Plan (25 May 2016)

PLANNING – in priority order.....

North & Sturgeon Lakes Islands and overwintering, Pool 3, MN – (\$250k)
 –reallocate \$1.5M to MVR

- Complete Feasibility Report
- Complete P&S/award base contract in FY17

Conway Lake Floodplain forest and overwintering, Pool 9, IA – (\$250k)

- Complete Draft Feasibility

McGregor Lake Islands, Pool 10, WI – (\$50k)

- Continue Draft Feasibility

Other studies in the planning queue with approved fact sheets...Pool 10 Islands, Lake Winneshiek, Weaver Bottoms & Clear Lake Bass Lake Ponds

CONSTRUCTION

Capoli Slough Islands, Pool 9, WI (\$20k)



- Earth Day tree plantings
- Project dedication on 13 May 2016 in Ferryville, Wisconsin.

Harpers Slough Islands, Pool 9, IA (\$300k)

- Stage 1 - Newt Marine – Remob in March.


EVALUATION

- Baseline & Post Project Monitoring
- Performance Evaluations Ambrough Slough, Island 42, Polander, Trempealeau & Pool 8 Phase II

ST. PAUL DISTRICT (MVP)


HARPERS SLOUGH CONSTRUCTION

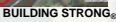


2015 – completed Islands L1, L3 and M5

2016 – island M2 almost complete. Accelerate schedule to complete all remaining features this year, Islands L6, W2/W3, rock mound L5, rock sills W1/W2 and emergent wetlands

2017 – final seeding, willows and project dedication





ST. LOUIS DISTRICT (MVS)

FY16 HREP Work Plan (May 2016)

PLANNING

Rip Rap Landing, IL \$10k

- Final Draft Feasibility complete –
- MVD additional coordination

Piasa & Eagles Nest Islands, IL \$325k

- Working to complete numeric H&H model to aid in alternative selection – continue feasibility and select recommended plan

Harlow & Open River Islands, IL & MO \$325k

- Continue feasibility and select recommended plan

Other studies in the Queue \$30k

- Open River fact sheet development

EVALUATION \$150k

Baseline Monitoring & Post Project Monitoring
 Performance Evaluation – Calhoun Point –Initial;
 Dresser –Final; Clarksville –Final

DESIGN

Clarence Cannon Refuge, MO \$775k

- Gravity Drain
- South Unit Water Control & Channels
- North Unit water Control & Berms
- Pump Station
- Setback Berm & Channel Meanders

Ted Shanks, MO \$250k

- Deadman Slough

CONSTRUCTION

Ted Shanks, MO \$975k*

- North Berm and Setback
- NS1, NS2, DS Water Control
- Pump Station – underway


Pools 25 & 26 Islands, MO \$50k

- Bollers Island \$50k


Batchtown, IL – Punchlist \$50k


Clarence Cannon Refuge, MO \$500

- Water Control Structure



Ted Shanks, MO HREP Pump Station





ROCK ISLAND DISTRICT (MVR)

FY16 HREP Work Plan (May 2016)

PLANNING

- Beaver Island, Pool 14, IA (\$260K)
- Delair, IL (\$173K)

DESIGN

- Huron Island Stage II, Pool 18, IA (\$284K)
- Pool 12 Overwintering Stage III, Pool 12 IL (\$255K)


CONSTRUCTION

- Lake Odessa Flood Recovery, IA Pools 17 and 18, IA3 (\$357k)
- Pool 12 Overwintering Stage I, Pool 12 IL (\$47k)
- Pool 12 Overwintering Stage II, Pool 12 IL (\$95K)
- Pool 12 Overwintering Stage III, Pool 12 IL (\$1-5M)
- Huron Island Stage I, Pool 18, IA (\$171K)
- Huron Island Stage II, Pool 18, IA (\$1-6M)
- Fox Island, Pool 20, MO (\$40K) CW450
- Rice Lake Stage I, IL LaGrange Pool (\$590K + \$1M) CW450

EVALUATION

- FWS (\$238K)
- Baseline Monitoring
- Post Project Monitoring
- Performance Evaluations (\$236K) Bay Island, Andalusia, Brown's Lake
- Adaptive Mgmt. Pool 12

Keithsburg Division, Pool 18, IL (\$228K)




HREP: Rice Lake


RM 132.0 through 138.0 of the Illinois Waterway (LaGrange Pool) Fulton County, Illinois

Stage I Contract awarded Sept 19, 2011 for \$8.64 million to S&F, Inc.

- Team has identified and coordinated with IL DNR a preferred alternative for electrical and pump repair.
- Service contract for pump repair- Award May 2, 2016
- OD staff is waiting on shipping address to transport the pumps to the manufacture for assessment of damages and repair
- Engineering is finalizing design of repair
- Punch list items to be completed by the Contractor the week of May 16th



Pumps pulled by OD staff and ready for transport 05 Apr 2016



HREP: Beaver Island

Mississippi River (Pool 14)
Clinton, Iowa

- ▶ The plan is to restore backwater aquatic habitat, island diversity, and forest diversity
- ▶ Feasibility phase underway
 - ▶ DQCR & Agency Review - Kick off meeting was 4 May 2016
 - ▶ ATR Review- Scheduled 29 Jun
 - ▶ Milestones:
 - ▶ CW150- Draft Public Review 17 Oct 16
 - ▶ CW 250- Public Review Start Period 01 Dec 16
 - ▶ CW160- Submit Feasibility Report 01 Feb 17



Mussel habitat feature is planned for this project



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HREP: Keithsburg Division

RM 431-428 of the Mississippi River (Pool 18), Keithsburg, IL

ENR - Keithsburg Division - Potential Features and EIS



Keithsburg Division is a 1,400 acre backwater within Port Louisa National Wildlife Refuge located immediately north of Keithsburg, IL. Problems in the area include; limited water management capability, reduced habitat due to sedimentation, limited forest diversity, blue-green algae blooms, abundance of duckweed, etc.

- ▶ Upcoming Milestones:
 - ▶ Preliminary project features have been identified
 - ▶ Engineering meeting with Sponsor to finalize project features – 6 May 2016
 - ▶ The Water Control Plan has been finalized
 - ▶ Bat survey - SOW was sent to CT, awaiting contractor response
 - ▶ Geotechnical (borings) survey – will be finalized once project features are finalized.



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Keithsburg Preliminary Project Features

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UMRR Workshop

- When - September 27-29
- Co-chairs - Kara Mitvalsky and Sharonne Baylor
- Where - Moline, IL
- Who – Planners, scientists, managers, all



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UMRR Workshop

- Topics
 - ▶ Broad agency rehabilitation/restoration priorities
 - ▶ HREP development process
 - ▶ Climate change analysis
 - ▶ Forestry
 - ▶ Sedimentation and Dredging
 - ▶ Construction issues
 - ▶ Hydraulic Connectivity
 - ▶ O & M
 - ▶ Monitoring and Adaptive Management



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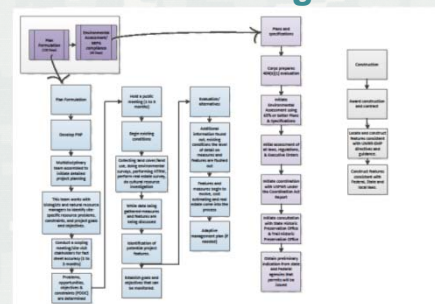
Lean Six Sigma

- Status
 - ▶ Complete review of an additional process
 - ▶ Detailed report in May



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Lean Six Sigma



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Habitat Needs Assessment II

Recommendations

- Build upon the 2000 HNA using:
 - New tools
 - Updated and new data
 - Knowledge and Lessons learned
- Create a partner based team to develop the HNA II
 - Utilize the 2003 Habitat Sequencing Policy
 - Integrate River Teams into the entire process
- Connect the HNA II to the Vision and Mission Statements and link directly to the resiliency work group
- Strike an appropriate balance between the use of new tools and data with policy and management



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HNA II

- Tim Eagan



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UMRR Road Map

Resilience

- Supports the new UMRR Vision
- Operationalize resiliency
- Development of indicators of ecosystem resiliency
- Refinement of indicators of ecosystem health
- Interagency working group (UMESC, IL NHS, FWS, UMRBA, Corps)
- Conceptual linkage of HNA II with the identification of the next generation of rehabilitation efforts



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UMRR Road Map

Habitat Needs Assessment (HNA II)

- Update of original HNA completed in 2000
- Involvement of River Teams (FWWG, FWIC, RRAT tech, IRWG)
- Tri-Chairs (FWS, Corps, FWS)
 - Partnership Working Group



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UMRR Road Map

Next Generation of Habitat Projects

- Link habitat needs to project identification and selection
- Project Planning and Sequencing Framework

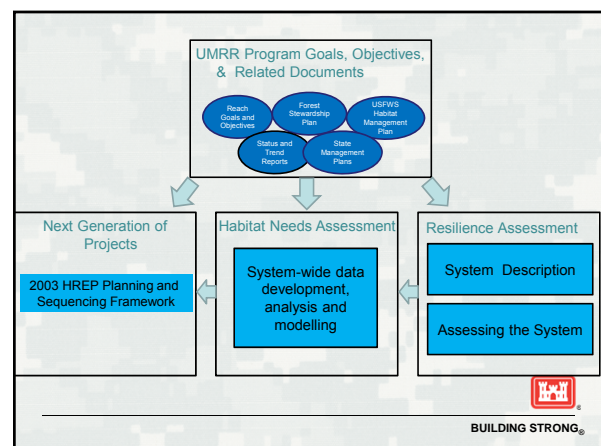
Formulation of future habitat projects

- Post construction evaluation of habitat projects

Program Evaluation



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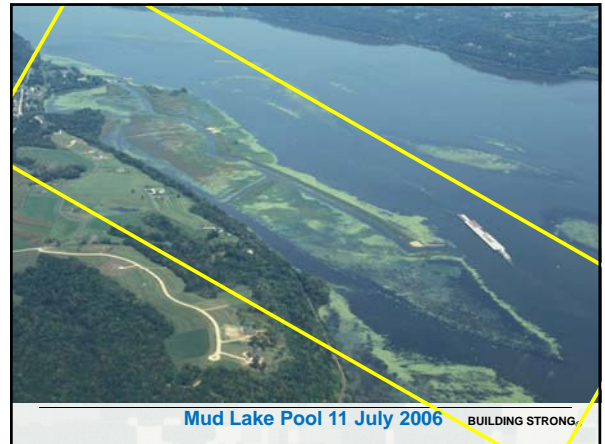


UMRR Road Map

- Next Generation of Habitat Projects
 - ▶ Link habitat needs to project identification and selection
 - ▶ Project Planning and Sequencing Framework
- Start 2nd or 3rd Quarter of FY17



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Mud Lake Pool 11 July 2006

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Upper Mississippi River Restoration 2016 Report to Congress

Kirsten Mickelsen
Upper Mississippi River Basin Association
May 25, 2016

Thank you!!

Since February

- Second review: March 14 – April 15
- Third review: May 16 – June 10
[Corps deadline: June 30]

Next Steps

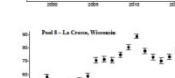
- Potential Committee call in July
- Graphics: August 30
- Final electronic: September 15
- Hard copies: November 1

Executive Summary

- Restoring F&W Habitat
- Ecosystem Resilience
- Ecosystem Monitoring and Evaluation
- Leveraging Partnerships
- Pioneering and Leading
- Efficiency and Effectiveness
- Future of the Upper Mississippi River

Figure 3.1 Trends in submerged aquatic vegetation from 1993 to 2015

The Upper Mississippi River watershed continues to change structurally and over time. USACE's long-term data provides us with the information to understand those changes within the context of baseline watershed conditions. The 2007 USACE Survey and Trends Report (S&T) described the state of submerged aquatic vegetation in the Upper Mississippi River Basin as "mixed good," but with a declining trend over time. Since the 2007 Report, USACE's data shows continuing trends that suggest the presence of submerged aquatic vegetation has been largely stable or even with an increasing trend in some condition that in 2004 showed aquatic resources (lower water by reducing sediment and providing improved habitat for many fish). Increasing numbers of desirable fish species is likely the result of the increased vegetation. [2006] The Upper Mississippi River is evaluated through monitoring of Ponds 4, 8, and 11.



Better understanding the factors influencing ecological resilience of the Upper Mississippi River will better equip management and restoration efforts to either augment resilience where the river is in a desired state or overcome resilience in areas where the river is in an undesirable state.





May 2016 Highlights


- *Nathan De Jager*. Landscape Ecology of the Upper Mississippi River System Fact Sheet
- *Brian Gray, Richard Erickson, and Eric Eager*. Trend analysis methods development report
- All 2015 LTRM data are online
- Statistics class @ UMESC April 2016
- UMRS resilience update

Fact Sheet

Landscape Ecology of the UMRS: Lessons learned, challenges and opportunities

Nathan De Jager

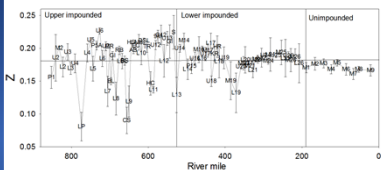
- Purpose:
 - Highlight the general objectives of landscape ecological research on the UMR:
 - Using landscape indicators to develop regional priorities for restoration
 - Connecting landscape patterns with ecological processes to predict likely effects of restoration projects.



<https://pubs.er.usgs.gov/publication/fs20163007>

Landscape Ecology of the UMRS: Lessons learned, challenges and opportunities

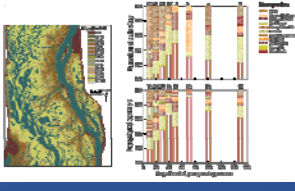
- Landscape pattern research on the UMRS is generating information about the spatial arrangement of various land cover and habitat types
 - ✓ E.g. diversity of aquatic areas



- Such landscape metrics could be used to develop a regional scale approach to restoration project identification and sequencing.

Landscape Ecology of the UMRS: Lessons learned, challenges and opportunities

- Landscape pattern research is developing information about the types of landscape patterns that are likely to produce local changes in ecological conditions.
- E.g., where flooding conditions could support various floodplain plant communities.

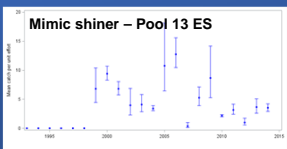


<https://pubs.er.usgs.gov/publication/fs20163007>

Methods of estimating trends in LTRM fish CPUE and vegetation percent frequency of occurrence statistics

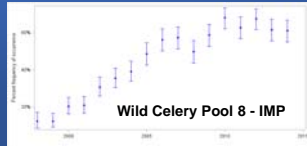
Brian Gray, Richard Erickson, and Eric Eager

- Long-term trend estimation is a goal of the UMRR LTRM.
- Estimation of trends in fish CPUE and vegetation occurrences is challenging
 - ✓ Correlation between years
 - ✓ Complex sampling design
 - ✓ Sample variability



Methods of estimating trends

- Can we improve our methods of estimating trends using state-space models to address these concerns?
- This report evaluates the applicability of state-space models for estimating multi-year temporal trends for LTRM fish (CPUE) and aquatic vegetation (occurrence).
- Relatively simple linear regression and state space random walk models performed best.



All 2015 Data on-line!

Special thanks go to field station staff for working on all aspects related to the delivery of quality data to the UMRR partnership.

Long Term Resource Monitoring
An element of the **Upper Mississippi River Restoration Program**

Conducting Research and Monitoring on the Upper Mississippi River System since 1986

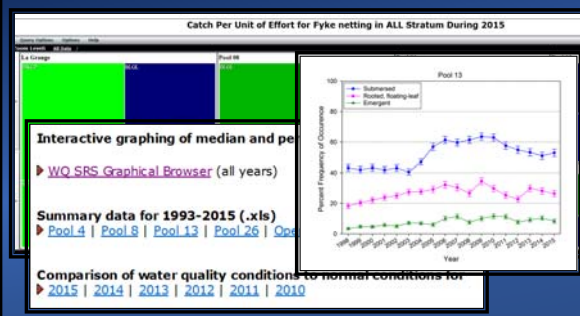
About LTRM
Mission and Goals
Background
Field Sites
Program Objectives
Components
Fish
Aquatic Vegetation
Water Quality
Macroinvertebrates
Land Cover
Bathymetry
GIS Data
Other Research

Quick Links
USGCR contacts
Water Field Stations
Field Station contacts
Alliance Contact
Reports and Publications
Data Visualizations
Sampling Design and Methodology
Strategic Plan 2010-2018
Status and Trends Report 2008

UMRR Science Director, U.S. Geological Survey: Jeff Howell
UMRR Regional Program Manager, U.S. Army Corps of Engineers: Dennis Haddad
UMRR LTRM Manager, U.S. Army Corps of Engineers: Karen Roberts

All 2015 Data on-line!

Data are served in a variety of raw and summarized formats



Class on Multivariate Statistics

April 12-14 at UMESC



[illegible]

**Fish Indicators of Ecosystem Health:
Upper Mississippi River System**

Alison Anderson
Andy Casper
Illinois River Biological Station

Going to conduct some additional analysis for the next meeting for review.

How Hydraulic Connectivity Drives Water Quality and Habitat Outcomes Session

Connectivity – why do we care?

Example: Lentic fish in winter

The diagram illustrates the concept of connectivity for lentic fish in winter. It shows three fish in separate pots, each with a speech bubble indicating its state:

- Low connectivity:** A fish in a small pot says "I can't breathe!!!".
- "Just-right" connectivity:** A fish in a larger pot.
- High connectivity:** A fish in a small pot says "I'm too cold!!!".

Backwater connectivity - types

Multiple-connection contiguous backwater lakes

Water exchange a function of:

Connectivity – surrogate planform metrics

Low

High

Size of inlets/outlets

Number of inlets/outlets

Arrangement of inlets/outlets

Total size

Shoreline complexity

Backwater connectivity - types

Multiple-connection contiguous backwater lakes

Water exchange a function of:

Connectivity – bathymetric surrogate metrics

The diagram illustrates three metrics for backwater connectivity, arranged in a 2x3 grid. A vertical arrow on the left points downwards, labeled 'Low' at the top and 'High' at the bottom, indicating that connectivity increases from top to bottom.

- Volume:** The top row shows a large, wide, semi-circular lake cross-section. The bottom row shows a much smaller, narrower, semi-circular lake cross-section.
- Presence of depression:** The top row shows a lake cross-section with a deep, irregular depression in the center. The bottom row shows a lake cross-section with a shallower, more uniform depression.
- Connection cross-section:** The top row shows a wide, shallow, semi-circular connection cross-section. The bottom row shows a much narrower, deeper, semi-circular connection cross-section.

Backwater connectivity – within lake considerations

Estimating water exchange using cost*distance

A simple sediment transport model

SAV in deeper locations.

No SAV in deeper locations.

Modeled connectivity (cost*distance)

Low

High

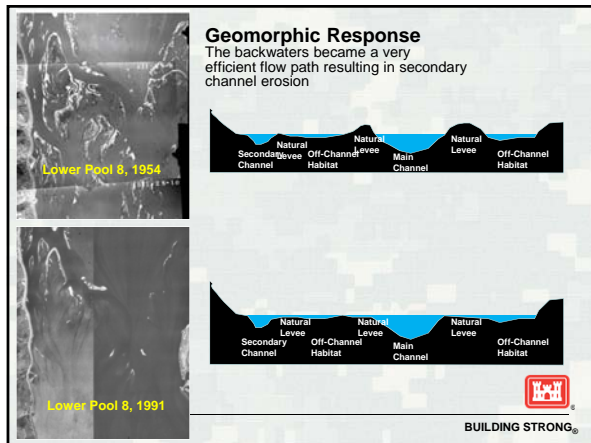
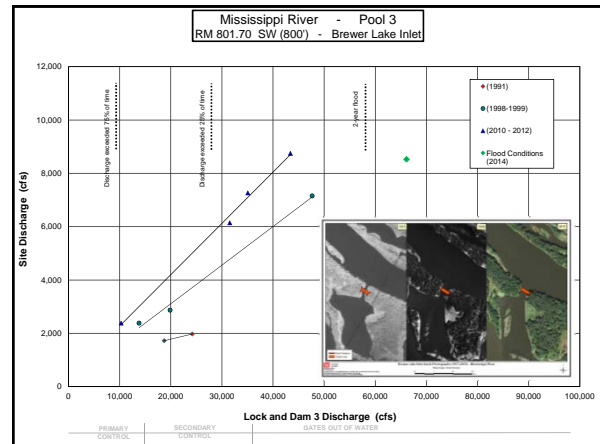
HYDRAULIC CONNECTIVITY (HC) ENGINEERING & HYDRAULICS PERSPECTIVES

Presented at the UMRR Analysis-Team Meeting,
April 27, 2016

Jon Hendrickson
Regional Technical Specialist, Eco-Hydraulics
USACE, Mississippi Valley Division, St. Paul District
April 27, 2016



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Summary

- Hydraulic connectivity between channels and off-channel areas is high throughout the St. Paul District and appeared to be increasing in the 1980s.
- Because of this UMRR projects are designed to reduce HC.
- Recent measurements suggest that flow into backwaters has been stable or is decreasing.



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US Fish and Wildlife Service

Upper Mississippi River National Wildlife and Fish Refuge

Upper Mississippi River Restoration Habitat Rehabilitation and Enhancement Projects





National Wildlife Refuge System Operation &
Maintenance for Hydraulic Connectivity

UMRR Analysis Team
April 27, 2016


Sharonne N. Baylor, P.E.
Environmental Engineer
Upper Mississippi River National Wildlife and Fish Refuge



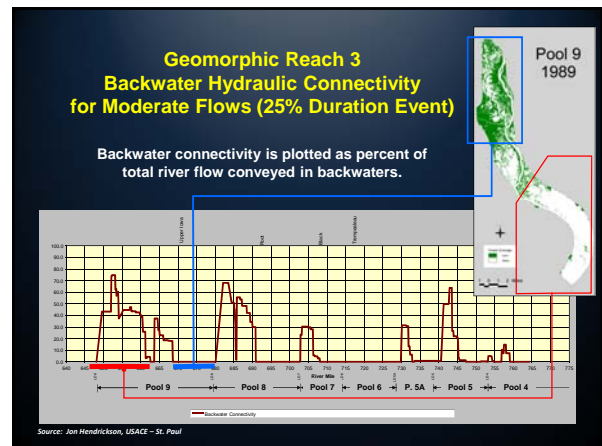
How Hydraulic Connectivity Drives Water Quality and Habitat Outcomes: Northern Perspective

Jeff Janvin
Mississippi River Habitat Specialist
Wisconsin DNR, - La Crosse



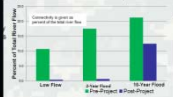

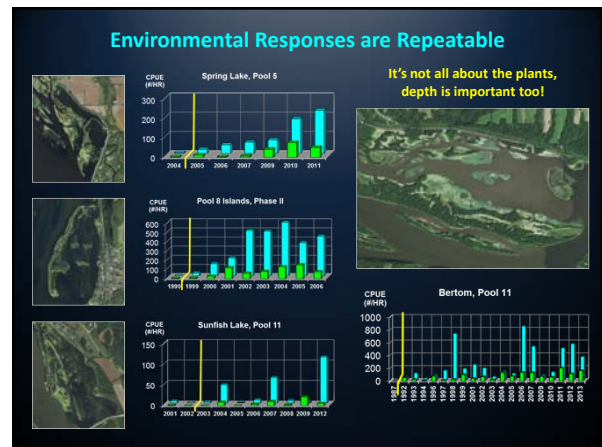
Capoli Slough HREP, Pool 9



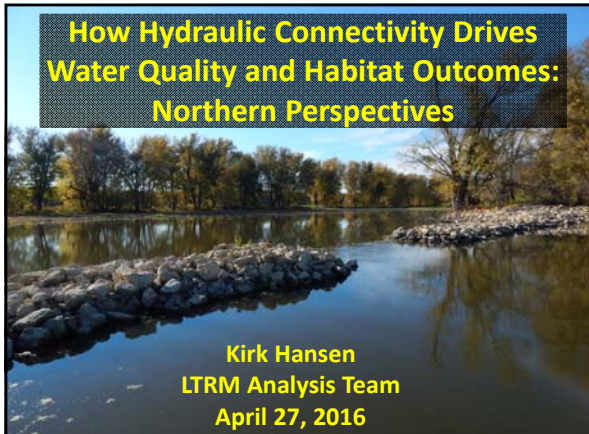
Criteria to Achieve Aquatic Vegetation Objectives

Source: Upper Mississippi River System Environmental Design Handbook
<http://www.mvr.usace.army.mil/EMP/designhandbook.htm>

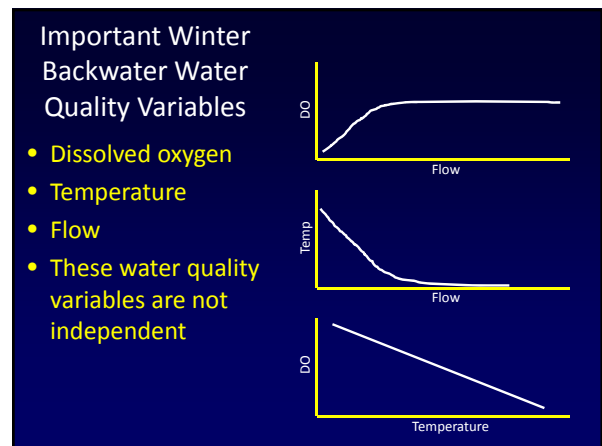
	Depth (feet)	Average Velocity (mps)	Water Clarity	Wind Fetch
Emergent Aquatics	0 - 2	< 0.03	Secchi* > 0.5 m or	Wind fetch/plant growth relationship isn't clear, but can look at critical shear stress for sediment resuspension:
Submersed Aquatics	1.3 - 5.2	< 0.15	Turbidity* < 20 ntu *To be met as average during May 15 to Sept. 15 growing season UMRCC Submersed Veg. WO Criteria	Water depth (ft) 1 2 3 4 Wind Fetch (ft) 1500 3500 6000 9000 Phase II Design
Floating Aquatics	.6 - 2.6	< 0.06		

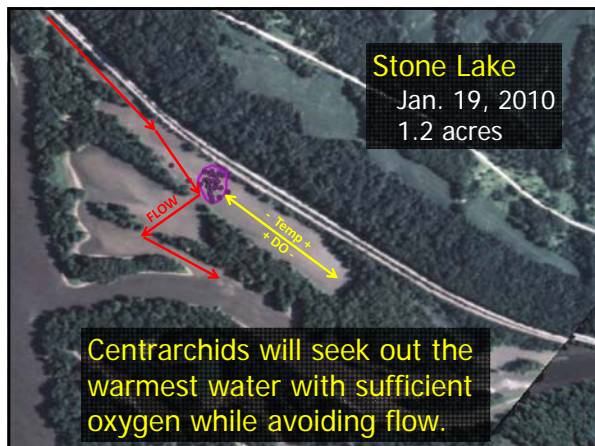




How Hydraulic Connectivity Drives Water Quality and Habitat Outcomes: Northern Perspectives



Kirk Hansen
LTRM Analysis Team
April 27, 2016



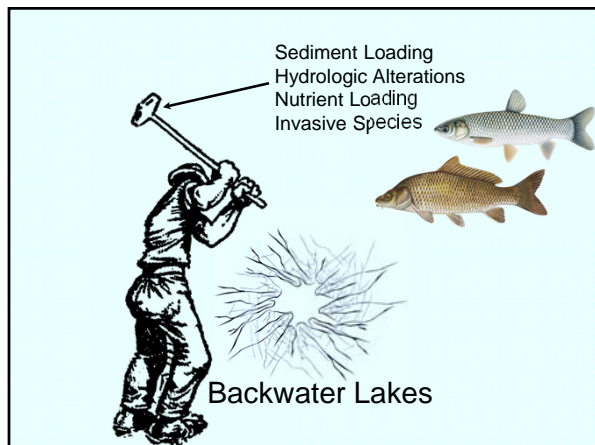


Lateral Connectivity Southern Perspective

John Chick

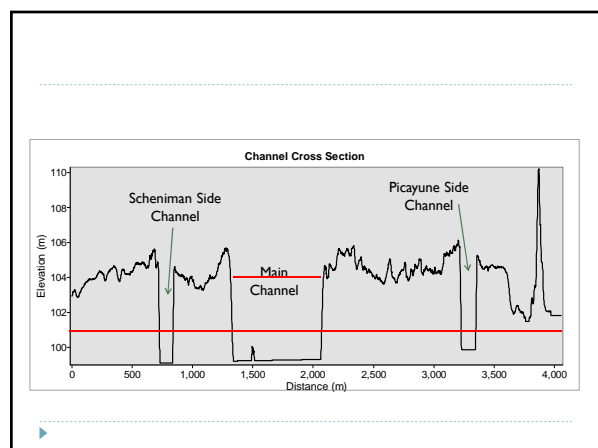
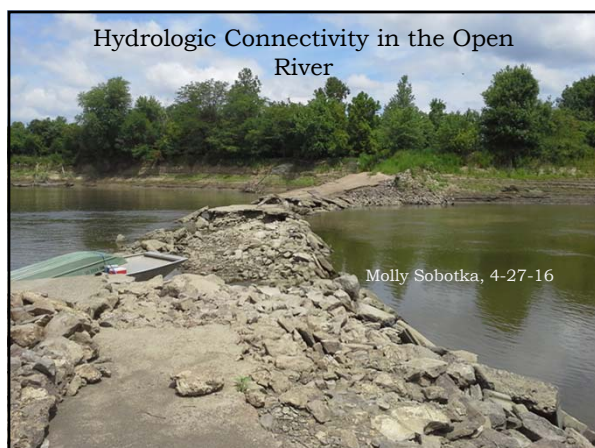
Relative to upper pooled reaches (Pool 1-19)

- Much greater sediment loading
- Much greater SS concentrations
- No aquatic vegetation
- HREPs focused on moist soil/water fowl have been successful
- HREPs attempting to improve fish habitat and maintain connectivity have not been able to overcome these issues

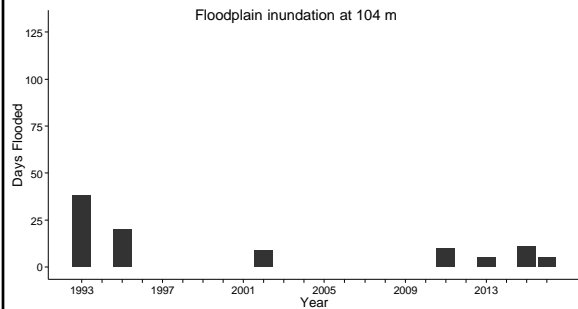


Connectivity and Backwaters

- Connectivity poses significant challenges in lower UMRS
- HREP success in upper UMRS – less sediments, Lake Pepin effect
- HREPs focused on moist soils and waterfowl are successful in lower UMRS
- HREPs attempting to maintain connectivity in lower UMRS do not achieve goals for SAV and fish
- Agency personnel turnover



Water on the floodplain

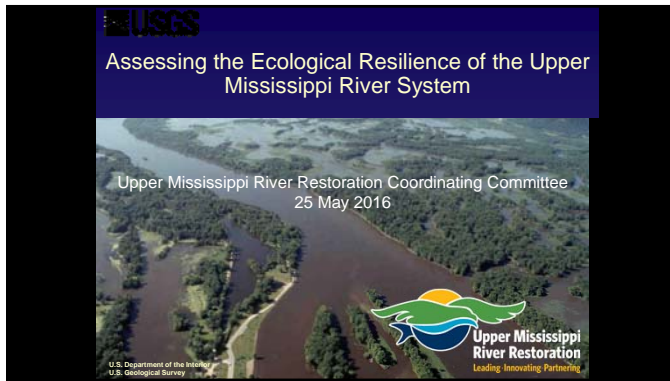


End points

- ▶ Overall loss of floodplain.
- ▶ Steep banks likely contribute to very high velocity during floods.
- ▶ High bank edges prevent connectivity to the remaining floodplain at most water levels.
- ▶ During times of floodplain connection productive habitat is created and used.



Meeting Summary

- Good opportunity to get engineers and biologist into same room to discuss ideas.
- Good opportunity to synthesize what has been learned to date.
- Good opportunity to showcase progress that has been made in understanding effects of various levels of connectivity.
- Good opportunity to show how these concepts can and have been applied in project settings.



Brief history of current UMRS resilience assessment...

- Upper Mississippi River Restoration Program Strategic Plan 2015 - 2025
- Resilience Working Group -- Fall 2015.
 - USACE, USFWS, USGS
 - INHS, IDNR, WDNR, MDC, MDNR
 - UMRBA
- Kristen Bouska joins USGS UMESC -- Fall 2015
- Facilitated Workshop -- January 2016
 - Expanded work group (21 attendees)
 - Informal questionnaire (~15 responses)
 - Expert facilitators (Lance Gunderson and Allyson Quinlan)
 - Output:
 - Common understanding of basic principles of ecological resilience
 - Basic approach for resilience assessment
 - Initial ideas for conceptual models
- UMRR LTRM Science Meeting February 2016
 - Session focused on discussion, critique and improvement of draft conceptual models
 - Breakout groups:
 - Comments on use of three major subsystems
 - Comments on conceptual models so far: What is missing? What is extraneous?
 - Output: Revised conceptual models
- UMRCC Spring 2016 Meeting
 - Presentation and discussion.

Acknowledgements/Contributors



Resilience Working Group

- Dave Bierman (IDNR)
- Kristen Bouska (USGS)
- Andy Casper (INHS)
- Bob Clevensine (FWS)
- Sarah Schmucke (FWS)
- Nate De Jager (USGS)
- Shawn Giblin (WDNR)
- Jon Hendrickson (USACE)
- Dave Herzog (MDC)
- Jeff Houser (USGS)
- Marvin Hubbell (USACE)
- Kirsten Mickelsen (UMRBA)
- Nate Richards (USACE)
- Steve Winter (FWS)

Additional Workshop attendees



- Yao Yin (USGS)
- Brian Ickes (USGS)
- Jim Rogala (USGS)
- Melinda Knutson (FWS)
- Dru Buntin (UMRBA)
- Kevin Stauffer (MDNR)
- Lance Gunderson (Emory U.)
- Allyson Quinlan (Resilience Alliance)

- UMRR LTRM 2016 Science Meeting Participants
- Informal survey respondents



Resilience: a definition

• "...capacity of a system to **absorb disturbance** and reorganize while undergoing change so as to **still retain essentially the same function, structure, identity and feedbacks** (Holling 1973, Walker et al. 2004)"

Resilience: main concepts

- Thresholds -- small changes in controlling variables can lead to rapid changes in major ecosystem services when system is near a threshold
- Multiple possible states (vs. one global equilibrium that can always be returned to)
- Nonlinearity / hysteresis -- can't always return to where you started
- Controlling variables and other components of the ecosystem can interact resulting in positive or negative feedbacks
- Key role of slow variables

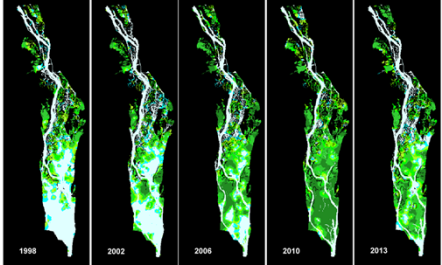
Aquatic vegetation as example of resilience, lack of resilience, and why resilience isn't always good.

Upper Reaches:


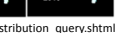
- Vegetation crash and return

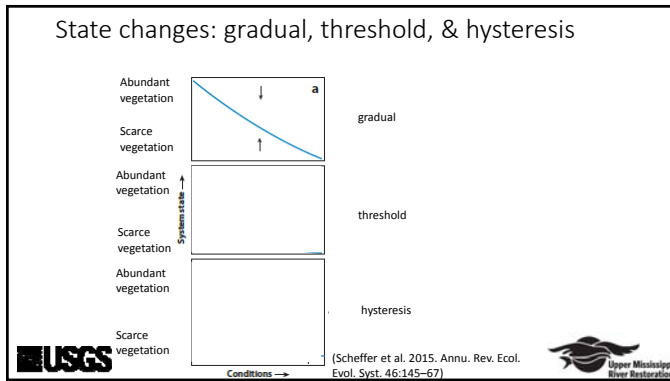
Lower reaches:

- No return
- Resilient, scarce veg. state?
 - Herbivory?
 - Lack of propagules?
 - Sediment characteristics?



http://www.umesc.usgs.gov/data_library/vegetation/graphical/distribution_query.shtml

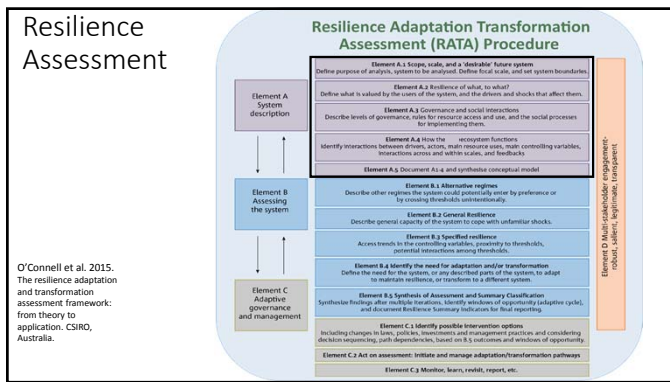





Resilience assessment

O'Connell et al. 2015. The resilience adaptation and transformation assessment framework: from theory to application. CSIRO, Australia

USGS Upper Mississippi River Restoration



Resilience Assessment: Element A – System Description

A.1 Scope and scale

1. Define purpose of assessment
2. Define system and its boundaries
3. Outline major issues affecting the system

USGS Upper Mississippi River Restoration

System Description

Define purpose of assessment

- Improve our understanding of:
 - Current resilience of the UMRS
 - Potential for management and restoration actions to affect the resilience of the UMRS
- Identify potential indicators of resilience
- Identify areas of uncertainty where additional study is needed to inform management and restoration.

USGS Upper Mississippi River Restoration

System Description

Define system to be analyzed

- System boundaries
 - River and floodplain
 - Larger scale processes included as “external drivers”
- Resolution (pt 1)
 - Upper Impounded Reach
 - Lower Impounded Reach
 - Unimpounded Reach
 - Illinois River Reach

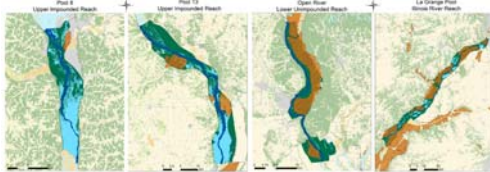
Adapted from Theiling and Nestler 2010

USGS Upper Mississippi River Restoration

System Description: Define system to be analyzed

Resolution (pt 2)

- Distill complicated system into simple models. Three subsystems:
 - Lentic: backwater lakes and impounded areas
 - Lotic: channels (main and side channels)
 - Floodplain (emphasis on forest)



System description

- Major issues affecting the system?
- Sources of info:
 - Resilience Working Group
 - Questionnaire
 - Mid-December
 - Sent to 30-40 people within the UMRR partnership
 - 15 completed
 - Workshop January 2016
 - LTRM Science Meeting discussions
 - Existing reports



System description: Major issues affecting system

Informal survey, workshop, & subsequent feedback
Habitat loss and deterioration
Aquatic vegetation abundance, diversity and distribution
Altered hydrograph
Backwater sedimentation
Threatened/endangered species
Impaired recreational access
Altered floodplain succession and dynamics
Excessive duckweed, filamentous algae, and blue-green algae
Altered floodplain connectivity
Water quality (TSS, nutrients)
Effects of invasive spp.
Biodiversity

Resilience Assessment: System Description

A.2 Resilience of what, to what?

1. What are the critical ecological components of the system.
2. What are the likely shocks/disturbances the ecosystem will continue to experience?



System description: Resilience of what?

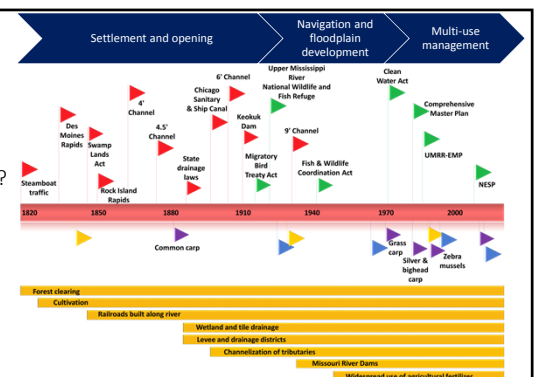
1. What is expected of the system?

Current uses and ecosystem services
Navigation
Hunting and trapping
Recreational and commercial fishing
Boating, swimming and camping
Birding
Aesthetics and photography
Water quality
Nutrient and sediment processing
Flood storage
Floodplain agriculture
Flood risk reduction
Cultural identity
Drainage

System

Description

What are past or potential shocks (disturbances)?



Resilience Assessment: Element A – System Description

A.3 How does the ecosystem function?

1. Identify main controlling variables and interactions among them.
2. Interactions across/within scales and feedbacks

A.4 Synthesize into conceptual model

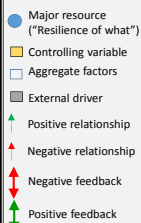


Describing ecosystem function: Context

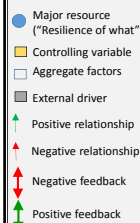
1. What are the expected uses of, or “services” provided by, the ecosystem?
2. What are the Big Resource Issues related to those services?
3. What are the Key Controlling Variables for these uses and “services”?
4. **What do we know about the relationships between components required to support expected uses and services and Key Controlling Variables? What do we need to learn?**
5. **What does this tell us about past and potential impacts of our management and restoration activities?**



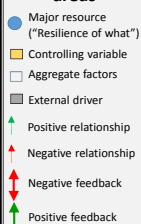
Lentic backwater lakes and impounded areas



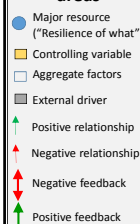
Lentic backwater lakes and impounded areas



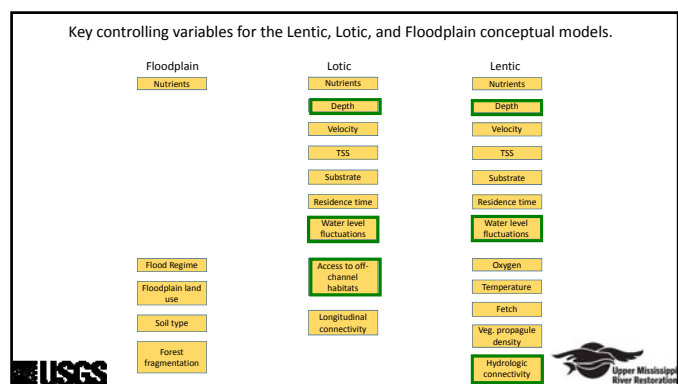
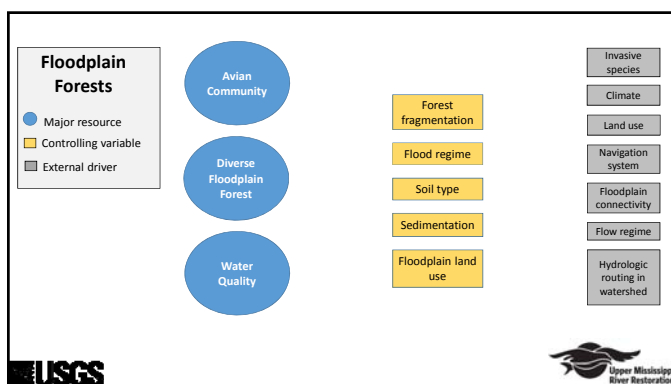
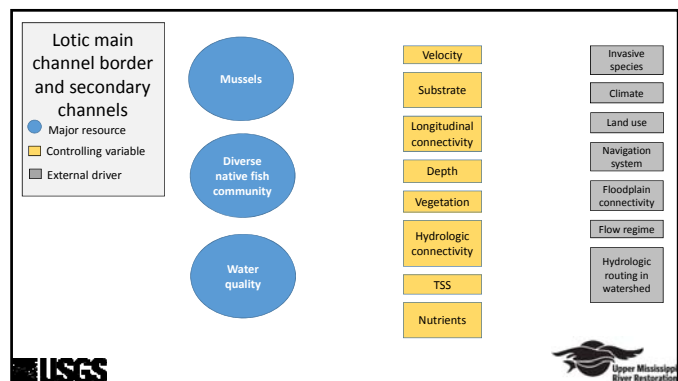
Lentic backwater lakes and impounded areas



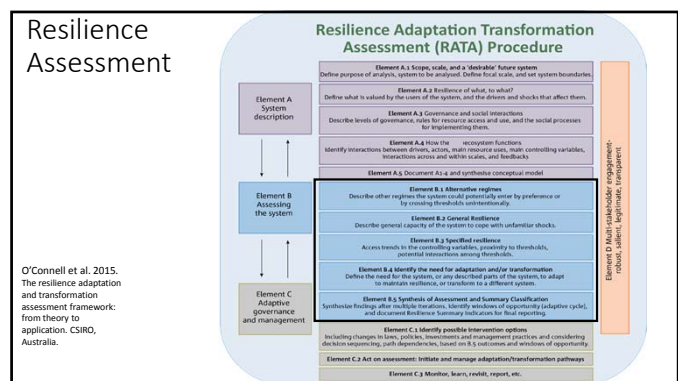
Lentic backwater lakes and impounded areas



Subsystem	Major resource	Key Controlling variable	Relationship	Data available for controlling variable	Citation
Lentic backwater lakes and impounded areas	Water quality (nutrients, TSS)	Hydrologic connectivity with main channel			Richardson et al. 2004, De Jager and Houser 2012
	Limnophilic mussels	Hydrologic connectivity with main channel			Tucker et al. 1996, Zigler et al. 2008
	Aquatic vegetation	Light availability (depth, total suspended solids)	Threshold (Depth at 1% of surface light, TSS < 30 mg/L)		Barko et al. 1986, Kreiling et al. 2007, Giblin et al. 2010, Giblin et al. 2014
		Velocity	Species specific response curves		Koch 2001, Madsen et al. 2001, Giblin et al. 2014, Yao and Rogala unpub.
		Sediment nutrients			
		Water level fluctuations			
		Propagule density			Clevenstine obs.



Subsystem	Key Controlling Variable	Major Resource	Potential system-wide geospatial data layers
Lentic backwater lakes and impounded areas	Hydrologic connectivity with main channel	Water quality Mussels	Connectivity metrics of backwater areas (percent perimeter that is channel, number of connections to channel) at different discharge conditions
	Residence time	Fish	
	Temperature	Fish	
	Velocity	Water quality Aquatic vegetation	
	Access to main channel	Fish	
	Sediment nutrients	Aquatic vegetation	
	Propagule density	Aquatic vegetation	
	Oxygen (winter)	Fish	Connectivity metrics + Bathymetry
Floodplain	Total suspended solids	Water quality Aquatic vegetation Fish	Examples... • Connectivity metrics of backwater areas for a range of discharge • Bathymetry (Depth) • Diversity/distribution of aquatic areas • Wind Fetch • Water level fluctuation (magnitude) by river mile. • Distribution of areas meeting select criteria (DO> criteria, Depth> criteria, etc.)
	Access to off-channel habitats	Fish	
	Longitudinal connectivity	Fish	
	Wind fetch	Aquatic vegetation	
	Soil type	Forests	
	Flood regime (inundation metrics)	Forests	
	Forest fragmentation	Forests	
	Floodplain land use	Water quality	Land cover data



Resilience Assessment: Element B – Assessing the System

1. Alternate regimes? Possible examples...
 1. Turbid / scarce aquatic veg. vs. abundant aquatic veg.
 2. Dominated by Asian carp vs. scarce Asian carp
 3. Homogenous/shallow OCA vs. diverse OCAs that include deepwater
 4. FP disconnected from the river vs. connected, active FP
 5. RCG dominated floodplain vs. floodplain forest.
2. Specific resilience: resilience of particular parts of a system to identified disturbances.
 1. *Conceptual models in previous section provide basis for this.*
3. General resilience: Describe general capacity of the system to cope with unfamiliar shocks and surprises.



General Resilience: Principles for Building Resilience¹

1. Maintain diversity and redundancy
2. Manage connectivity
3. Manage slow variables and feedbacks
4. Foster complex adaptive systems thinking
5. Encourage learning
6. Broaden participation
7. Promote polycentric governance

¹Biggs et al. (eds). 2015. Principles for Building Resilience. Cambridge University Press.

General Resilience¹

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- Lateral, geomorphic diversity and connectivity
- Biodiversity: fish, veg., mussels, waterfowl, etc

¹Biggs et al. (eds). 2015. Principles for Building Resilience. Cambridge University Press.

General Resilience¹

1. Maintain diversity and redundancy
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Longitudinal connectivity

¹Biggs et al. (eds). 2015. Principles for Building Resilience. Cambridge University Press.

General Resilience¹:

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(John Sullivan)

- Sediment and nutrient accumulation in off-channel areas
- Changes in the species composition & age structure of floodplain forests
- Vegetation propagule abundance/viability in off-channel sediments
- Spread of invasive species

¹Biggs et al. (eds). 2015. Principles for Building Resilience. Cambridge University Press.

Next steps:

- Complete written description of the System Description element of the assessment for review and revision by the RWG.
- Identify analyses that can be done with existing data to better quantify and understand relationships identified in conceptual models.
- Begin work on selected analyses identified above.

Ultimately:

- Describe what this indicates about past and potential impacts of our management and restoration activities on the resilience of the UMRS.



Expected Resilience Assessment outcomes

- Assess current state and resilience of system
 - Trends in controlling variables (where possible)
 - Proximity to thresholds of concern (where possible)
- Additional indicators of ecological resilience for the UMRS
 - Recent special issue of Journal of Applied Ecology: "Quantifying Resilience..."
- Where is system state "acceptable"
 - How do we build resilience to keep it there?
- Where is system state "unacceptable"
 - Can we reduce resilience to move it to an acceptable state?



ST. LOUIS DISTRICT (MVS) FY16 HREP Work Plan (May 2016)

PLANNING

Rip Rap Landing, IL \$10k

- Final Draft Feasibility complete –
- Additional coordination

Piasa & Eagles Nest Islands, IL \$300k

- Using numeric H&H model to test alternatives, June Partner Mtg – continue feasibility and select recommended plan

Harlow & Open River Islands, IL & MO \$300k

- Select recommended plan & continue feasibility

Other studies in the Queue \$30k

- Open River fact sheet development

EVALUATION \$150k

Baseline Monitoring & Post Project Monitoring (Stag & Pharris Post Construction 4th Qtr)

Performance Evaluation – Stag Island & Pharris Island final 1st Qtr FY17.

DESIGN

Clarence Cannon Refuge, MO \$775k

- Gravity Drain
- South Unit Water Control & Channels
- Pump Station
- North Unit water Control & Berms
- Setback Berm & Channel Meanders

Ted Shanks, MO \$100k

- Deadman Slough

CONSTRUCTION

Ted Shanks, MO \$975k*

- Completed North Berm Setback, NS1, NS2, DS Water Control
- Pump Station – underway


Pools 25 & 26 Islands, MO \$50k

Batchtown, IL – Punchlist \$150k

- Action complete, OMR&R Manual update, initiate closeout

Clarence Cannon Refuge, MO \$600

- Water Control Structure



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Ted Shanks Solutions

Benefits

- Improve water drainage, management, and supply
- Improve aquatic habitat
- Improve water drainage, management, and supply
- Increase in bottomland and floodplain forest
- Restore ecosystem functions by reconnecting the floodplain to the river through levee setbacks
- Increase habitat value over the 50-year project life



Prior to 1993 flood



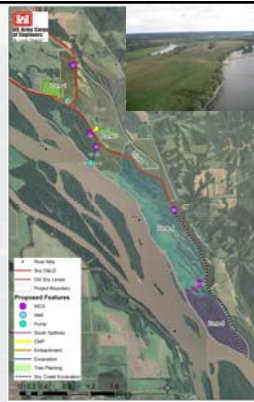
Tree mortality post flood



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Rip Rap Landing Timeline

- 2009 Initiate Feasibility
- 2011-2013, ITR, IPR, AFB, MVD / MVS comments & revisions, White Paper/HQ waiver
- 2014- ATR, MVD / MVS comment & revision
- Dec 2014-2015 - Report submittal, MVD / MVS comment & revisions
- August 2015: Submitted Revised Feasibility Report to MVD for approval
- November 2015 – April:
 - MVD noted level of concern with NRCS Compatible Use Authorizations (CUA). Issued for 5 years and Corps projects are designed for 50 years with project sponsors agreeing to long term O&M of the project
 - Concern that the CUA's contain a "revocable at will" clause
 - Discussions / conference calls discussing policy interpretation, NWD examples in Missouri / Omaha (Missouri River Recovery Program)
- Report approval – TBD
- PPA - TBD



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Comparison – Wetland Reserve Program

Purpose (from WRP Warranty Easement Deed):

- Purpose and Intent. The purpose of this Conservation Easement is to restore, protect, manage, maintain, and enhance the functional values of wetlands and other lands, and for the conservation of natural values including fish and wildlife habitat, water quality improvement, flood water retention, ground water recharge, open space, aesthetic values, and environmental education. It is the intent to give the Landowner the opportunity to participate in the restoration and management activities on the easement area...*

Rip Rap Landing HREP (from draft feasibility report)

- The goal of this HREP is to increase the quality and quantity of aquatic, non forested wetland, and forested wetland habitats;
 - Increase habitat available to fish...
 - Increase native plant species diversity and reduce number of acres impacted by invasive plant species by improving water level management...
 - Reduce impacts of headwater flooding and river-borne sedimentation...
 - Increase quantity and quality of bottomland hardwood forest...



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Real Estate Title & Path Forward

Can non-Federal sponsor acquire appropriate Real Estate Interest?


Options:

- Work with NRCS, IDNR to develop language that is acceptable to USACE regarding the Compatible Use Authorization (CUA)
 - MVD RE suggested modifications
 - In Lieu of 5 year term "perpetual easement to maintain HREP features"
 - In Lieu of "termination at will"...inspection and ample time to "cure" issues
- Request HQ Waiver
- Reformulate Feasibility Report

- Need to investigate MOA (or similar) that would provided necessary assurances to increase comfort levels – works with Option 1.

Other Benefits:

- History of partnership with NRCS in Illinois
- Strong sponsor support
- Public support, non controversial project
- Only 1/3 of site has conservation easement
- Reach out to other Districts / Divisions



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UMRR Habitat Rehabilitation and Enhancement Project RIP RAP LANDING CONSERVATION AREA

Brian Markert
St. Louis District
UMRR Program Manager

Illinois Department of Natural Resources – Project Sponsor

May 2016



St. Louis District U.S. Army Corps of Engineers

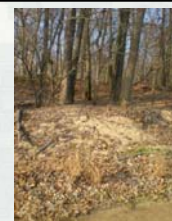
Provide engineering and water resource solutions that, improves safety and reduce risk, energize the economy, sustain the environment, and enhance the quality of life through expertise, innovation, and partnerships.



Needs and Opportunities

- Degraded Habitats
- Sedimentation and nutrients
- Altered Hydrology
- Major Flooding
- Floodplain connectivity and Levees
- Invasive species
- Lack of forest diversity and hard mast
- Limited Infrastructure & sized too small for site needs

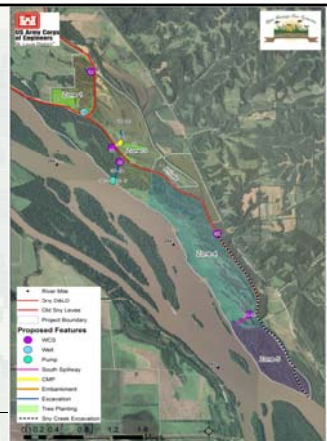
Mississippi flyway, fish spawning and rearing, many species of wildlife, ecological structure and function....



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Selected Plan

- ZONE 1 – Sny Island Area**
 - Water Control Structure
 - 2,500 gpm Well
 - Reforestation
 - Channel to Goose Pasture Lake
- ZONE 3 – Roadside Lake and Waverly Lake Wetland Management**
 - Channel to Waverly Lake
 - Water Control in Pump Station Channel
 - WCS in North Units
 - Pump Station
 - Pump Channel Widening
 - Pump Station Pipe and Concrete for Road Crossing
 - WCS Pipes Under Sand Levee
 - Reforestation
 - Roadside Lake Channel from Sny Creek
 - Water control structure for Roadside Lake
- ZONE 4 – Rust Land Company – WRP**
 - Sny Creek Excavation Roadside to Dog Island
 - River Ridge Scour Embankments
 - South Spillway
 - WCS South Spillway
 - Pump Station
 - Pump Channel Widening
 - Pump Station Pipe and Concrete for Road Crossing
 - WCS Pipes Under Road
- ZONE 5 – Sny Island**
 - Sny Creek Excavation @ Dog Island



Zone 1

- Features:
- Water Control Structure
 - 2,500 gpm Well
 - Reforestation
 - Channel to Goose Pasture Lake



Looking North Along Main Stem of Sny Levee at IDNR Land



Zone 2



Looking at Lane Leading North to Farm Field

Looking West at DNR Pump Station

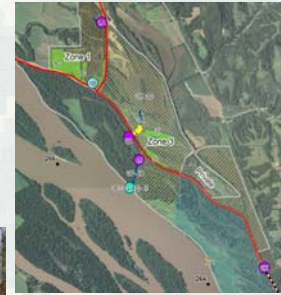


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Zone 3



Looking East



Looking South Along Road Leading to Sny Levee, Remnant of Old Sny Levee to Right



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Zone 4



Field Lane Leading South to WRP Land



WRP Conservation Easement
-Scouring channel in natural levee
-Berm and Control Structure
-Channel Excavation - Fisheries



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Zone 5



Dog Island Forest



Sny Creek Channel



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Cost, Real Estate & OMRR&R Discussion

Total Project Costs	\$9,006,000
•Dog Island (100% Fed)	-\$1,133,000
•Net Total Project (cost-shared)	=\$7,873,000
•35% State Responsibility	-\$2,756,000
•Net Federal Share for state owned lands	\$5,117,000
•Dog Island	+\$1,133,000
•Total Federal Share	=\$6,250,000

Value of State owned Lands (Corps Estimate)	\$2,886,000
•Land within Sny DLD - 169 acres	
•Land N of Rip Rap Landing Road - 393 acres	
•Land S of Rip Rap Landing Road (WRP 793 ac) - 1056 acres	
•Incremental and acquisition costs	

Operations, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R)

- Average annualized costs, \$62,098
- IDNR actual costs will be different



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Discussion – Wetland Reserve Program

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- **Purpose and Intent.** The purpose of this Conservation Easement is to restore, protect, manage, maintain, and enhance the functional values of wetlands and other lands, and for the conservation of natural values including fish and wildlife habitat, water quality improvement, flood water retention, ground water recharge, open space, aesthetic values, and environmental education. It is the intent to give the Landowner the opportunity to participate in the restoration and management activities on the easement area...

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 3. Reduce impacts of headwater flooding and river-borne sedimentation...
- Increase quantity and quality of bottomland hardwood forest...



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Discussion – Real Estate Interest

Does / can non-Federal sponsor acquire appropriate Real Estate Interest?

- Feasibility Report identifies non-Federal real estate needs
- LERRDS required prior to Construction (next phase)

ER405-1-12, Chapter 12, paragraph 12-9.

- ...non-Federal sponsor to provide, the minimum interest in real property...
- ...Fee Title. Generally, fee title is required for the following: dam sites; lock and dam sites; disposal and borrow areas required for future maintenance work; public access areas; recreation; and fish and wildlife mitigation lands, *ecosystem restoration*, and other environmental purposes. *However, a lesser, or easement estate, may be appropriate based on the extent of interest required for the operation or requirements of the project...*



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Discussion - NRCS

NRCS Viewpoint:

- NRCS requests detailed design in order to evaluate & issue a CUA
- USACE draft feasibility report does not provide level detail for desired by NRCS to make an informed decision
- NRCS issued a letter of support based on review of USACE draft feasibility report
- NRCS suggest continued involvement and development of P&S



- ▶ NRCS provided examples of completed projects with USACE and use of standard CUA clauses (time limited and revocable).



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Remaining Milestones
Items Remaining:

- Feasibility Approval
- Non-Fed Appraisal of RE
- PPA Execution
- Design
- Construction



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Real Estate Title & Path Forward

Three Possible Options -

1. Work with IL State level NRCS, IDNR to develop alternative language for Compatible Use Authorization (CUA)
 - MVD RE suggested modifications
 - In Lieu of 5 year term "perpetual easement to maintain HREP features"
 - In Lieu of "termination at will"...inspection and ample time to "cure" issues
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Upper Mississippi River Restoration Habitat Needs Assessment II



Tim Eagan

UMRR CC Quarterly Meeting
May 2016



US Army Corps of Engineers
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Updates



- Project Management Plan Draft Complete
- Establishment of HNA II Steering Committee & River Team Reps
 - Kickoff teleconference
- Review of HNA I Limitations
- The puzzle
 - Resiliency Project, HNA II, Next Generation of Projects



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HNA I Limitations



- System-Wide High Resolution Topographic Data
- System-Wide Bathymetric Data
- Numerical Hydraulic Models of all Navigation Pools
- Substrate Type Characterization
- Habitat Spatial Structure Metrics
- Floodplain Inundation Models
- Floodplain Geomorphic Classification and Survey
- Surveys of Existing Floodplain Plant Communities
- Characterization of Existing and Pre-Impoundment Hydrologic Regime
- Confirmation/Validation of Species: Habitat Models Using Stratified Random Sampling Data
- Development of Refined Life History Information
- Development of Refined Species: Habitat Models
- Analysis of Seasonal Habitat Availability



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Scope



- Historical changes to UMRS hydrology and habitats, assessment of previous restoration efforts, linkage of existing management objectives with resilience concepts.
- Development and use of an enhanced aquatic areas classification for the UMRS to evaluate current hydro-geomorphic and ecological conditions in aquatic areas.
- Projecting future distributions of aquatic areas and associated ecological conditions under alternative management and environmental scenarios.
- Development and use of a floodplain ecoregions classification for the UMRS to evaluate current hydro-geomorphic and ecological conditions in floodplain areas.
- Projecting future distributions of floodplain vegetation under alternative management and environmental scenarios.
- Current and projected future habitat needs for the UMRS



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Steering Committee



Name	Organization
Tom Novak	USACE
Bob Clevensline	USFWS
Mark Gaikowski	USGS
Kathy Kowal	USEPA
Martin Adkins	NRCS
Dan Dieterman	State of MN
Jeff Janvrin	State of WI
Kirk Hansen	State of IA
Levi Solomon	State of IL
Janet Sternberg	State of MO



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River Resource Team Reps



Name	Organization
Dan Dieterman, Jeff Janvrin	FWWG
Levi Solomon	FWIC
Kat McCain	RRAT



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Date	Meeting	Subject
24-Feb 2016	UMRR CC Quarterly	Select participants for HNA II Steering Committee
13-April 2016	C-G- Meeting	Meeting 1—Confirm team members for Technical Group, discuss schedule, meetings, roles, and review Project Management Plan.
June 2016	C.C. Meeting	Meeting 2 – Discuss HNA I limitations and data needs for HNA II. Review and discuss PMP Purpose & Scope. Identify date for Face-to-Face Meeting
July 2016	I.P. (2 Day)	Meeting 2 – Management Team and Technical Group <ul style="list-style-type: none"> • Discuss Program Initiatives and linkages to Resiliency and Next Generation of Projects • Identify data sets needed for HNA II • Identify similar efforts such as Reach Planning • Identify process for conducting Assessment <ul style="list-style-type: none"> ◦ Historic Conditions, Current Conditions, System Needs, Future Without, Desired Future • Identify key technical areas for development of the Working Group • Develop Communication Plan, which includes Public Outreach
Fall 2016	I.P. (1 Day)	Meeting 3 – Status Meeting to review progress and schedule to complete
Winter 2016	I.P.	Meeting 4 – 1 st Public Meeting, Presenting current status and path forward
TBD	TBD	TBD
Nov 2017	UMRR CC Quarterly	Final Review of Habitat Needs Assessment II



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Questions






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