Upper Mississippi River Restoration Program Coordinating Committee Quarterly Meeting

November 18, 2015

Highlights and Action Items

UMRR Branding and Imaging

- In an effort to successfully advance Goal 3 of the 2015-2025 UMRR Strategic and Operational Plan, **USACE is currently establishing the composition for an interagency UMRR external communications committee and recently awarded a contract to the Gulf South Research Corporation and Schneider Communications for the development of branding and imaging for UMRR**. The contracting team includes Ann Guissinger of Gulf South Research Corporation, Kim Schneider of Schneider Communications, and Bill Wittland of VoxStrategic.
- The UMRR branding contracting team facilitated a small-group exercise to brainstorm how UMRR relates to, or would be communicated in, a variety of contexts. In addition, the team is also currently in the process of doing personal interviews with various individuals who participate in the program's policy and budget management as well as implementation. The questionnaire includes detailed questions about UMRR's various audiences' connections to the river and the program and how audiences should be thinking and feeling about the program. **The contracting team plans to host a web-based conference call in January 2016 to solicit partners' input on an array of branding and imaging concepts and then to present refined draft versions to the UMRR Coordinating Committee at its February 24, 2016 meeting.**

Program Management

- On September 30, 2015, Congress enacted a continuing resolution authority (CRA) for FY 2016 that is set to expire on December 11, 2015. **UMRR is executing based on the President's FY 2016 request for UMRR, which is $19.787 million.**
- The program's internal allocations under the $19.787 million scenario are as follows:
  - Regional Administration and Programmatic Efforts – $741,000
  - 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 – $12,479,000
    - Regional project sequencing – $100,000
    - MVP – $3,425,000
    - MVR – $4,745,000
    - MVS – $4,209,000

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

- USACE and OMB are currently developing the President's FY 2017 budget. It is anticipated that the FY 2017 budget request will be publically released in February 2016.
- **On August 24, 2015, UMRBA and UMRR Coordinating Committee state members jointly sent a letter to OMB and ASA(CW) articulating the need for UMRR to be funded at $33.17 million in FY 2017 and at $28.6 million in FY 2016, requiring an additional allocation to the program of $8.813 million. DNR Directors from Illinois, Minnesota, and Wisconsin also sent letters directly to the Administration seeking $33.17 million for UMRR in FY 2017.**
- **Dru Buntin and Gretchen Benjamin met with UMR Congressional delegation members, OMB staff, and the ASA(CW) Jo-Ellen Darcy with Let Mon Lee (Deputy Assistant Secretary for policy and Legislation) in Representative Ron Kind's Office on December 3-4, 2015 regarding UMRR funding in FY 2016 and FY 2017.** Buntin said he thinks the meetings were valuable in highlighting the value of UMRR to the nation and underscoring the importance of funding the program at optimal levels.
- **Gretchen Benjamin and Olivia Dorothy worked with UMRR's nonprofit partners and interested public through the Mississippi River Network to send over 10 organization letters to the Administration expressing their interest in UMRR and the value it provides to the region and nation. In addition, 112 "River Citizens" submitted funding requests to the Administration via the One Mississippi online action center.**
- **Col. Craig Baumgartner said that, in recent visits, Congressional members have asked the Corps several questions about UMRR's historical context, its implementation over its lifetime, and its strategic direction. While answering questions about "were we [UMRR] are going" is challenging, Col. Baumgartner stressed the need to frame UMRR's budget in a long-term, strategic context, rather than solely on single-year execution capabilities, and defining implementation priorities on that visionary context. This will be especially important as UMRR and other ecosystem restoration programs face increased scrutiny in the current lean budget climate. Col. Baumgartner also advised partners to consider the ecological risk of a "no action" alternative and communicate where we are going and why in the context of avoiding such risk.**
- The 2015-2025 UMRR strategic operational planning team has finalized draft operational plan and plans to convene a partnership web-based conference call to roll out the draft plan and facilitate dialogue regarding plan implementation. **The draft operational plan "roll out" call will likely be convened in late December or early January. Subsequently, the team will consider any input received and present a revised draft operational plan to the UMRR Coordinating Committee at its February 24, 2016 meeting for consideration of endorsement.**
- Kirsten Mickelsen is currently working with partners in developing the draft 2016 UMRR Report to Congress. The first draft was distributed to partners on September 11, 2016 for a month-long review. Seven individuals provided comments, which Mickelsen overviewed for the UMRR Coordinating Committee's consideration. **A revised draft will be distributed to the UMRR partnership in late December.** Although Headquarters staff are receiving the draft RTC distributions and thus can review the document at any time, a formal review request will be sent to Headquarters in spring 2016, prior to incorporation of professional graphics.

<u>Habitat Rehabilitation and Enhancement Projects</u>

- **Tim Eagan (USACE), Sara Schmuecker (USFWS), and Nate De Jager (USGS) will serve as tri-chairs of an interagency team to develop the Habitat Needs Assessment II (HNA II). The tri-chair team will ask the UMRR Coordinating Committee to name individuals to participate on the team at the Committee's February 24, 2016 quarterly meeting. In response to a request from the UMRR Coordinating Committee, the tri-chairs agreed to send the**

Committee an email within a week with several background contextual questions (see below) to direct the draft HNA II SOW and budget that the tri-chairs plan to present at the Committee's February 26 meeting. [Subsequent to the quarterly meeting, the tri-chairs proposed to instead present a project management plan (PMP) to the UMRR Coordinating Committee for consideration at its February meeting that will include the questions proposed at the meeting as well as a plan for addressing them. The chairs believe that the PMP will supply enough context for UMRR Coordinating Committee members to name participants and frame the SOW, which would be developed with input from the HNA II team members.]

- To provide background context, Bob Clevenstine summarized the development process and content of the HNA 2000, Tim Fox explained the 2000 HNA query tool and developments in the query tools since then, and Nate De Jager discussed several important analytical capabilities and tools that UMRR has developed since 2000 that will enhance analyses and outcomes generated in the HNA II. De Jager also proposed several foundational questions that the UMRR Coordinating Committee will need to consider in order to direct the HNA II team's effort. These questions include:
  1) Does the UMRR Coordinating Committee want an assessment of desired future conditions?
  2) Does the UMRR Coordinating Committee want to improve our definitions of aquatic habitats using bathymetry?
  3) Does the UMRR Coordinating Committee want to improve our species-habitat models?
  4) How does the UMRR Coordinating Committee want to make future projections?
  5) What does the UMRR Coordinating Committee want the products to be?
- North and Sturgeon Lakes is MVP's current planning priority. Contractors took advantage of favorable river level conditions throughout the summer completing nearly thirty percent of the construction on Harpers Slough. MVP staff are developing performance evaluation reports for Ambrough Slough, Island 42, Polander, Trempealeau, and Pool 8 Phase II.
- MVS staff expressed appreciation to non-federal sponsors involved in its UMRR habitat projects, underscoring their contributions in advancing projects and executing additional funds quickly. MVD has approved Rip Rap Landing's feasibility report, following greater clarity on project features and coordination with NRCS regarding an easement on the site. Clarence Cannon is MVS's primary design effort. Following prolonged high water that delayed construction on Ted Shanks this summer, MVS worked with Missouri Department of Conservation to extend the construction season into late summer and fall.
- MVR continues to employ an aggressive habitat project schedule, with eight stages of five projects in construction, two projects in design, and three in planning. The District is also evaluating the performance of Bay Island, Andalusia, and Brown's Lake.

Long Term Resource Monitoring Element

- Yao Yin presented on a "working hypothesis" of submersed aquatic vegetation (SAV) dynamics being observed in Pools 8 and 13 using UMRR's long term resource monitoring data. It shows that newly restored structures, such as islands, provide shelter from wind fetch allowing wild celery to establish and flourish. Wild celery slows river flows to levels that can support other SAV species, such as coontail, which then eventually outgrow and overshadow wild celery. An extensive, extended drought will eradicate the SAV communities (without water celery); and when followed by a flood, the remaining species will be washed away under high sheer stress. It can take up to ten years for a sizeable wild celery population to again support a steady SAV community.
- Shawn Giblin provided a report of the A-Team's October 29, 2015 joint meeting with the UMRCC's Water Quality Tech Section. The meeting included a series of presentations on recent scientific research, UMRR updates including its effort to define UMR ecological resilience, and

USFWS's Refuge inventory and monitoring effort to assess the success of completed restoration projects and define future restoration strategies. Giblin also reported on the same-day monitoring response to the November 7, 2015 train derailment at Alma, Wisconsin and the successful public volunteer attempt to eradicate newly-discovered invasive water lettuce in Lake Onalaska.

- Three manuscripts were published in the first quarter of FY 2016, including:
  1) Flood pulse effects on nitrification in a UMR floodplain forest impacted by herbivory, invasion, and restoration
  2) Flooding effects on ion exchange rates in a UMR floodplain forest impacted by herbivory, invasion, and restoration
  3) Spatial patterns of flood inundation and associated plan community distributions
- A small interagency group met on October 8, 2015 at UMESC to frame the development effort to define and apply concepts of ecological resilience on the UMRS, including what types of contextual questions will need to be considered and how to engage UMRR implementing partners. **The resilience group is scheduled to meet in-person on January 5-7, 2016 to draft a conceptual model(s) for partners' consideration and develop an initial framework for assessing the UMRS's ecological resilience.** Two external ecological resilience experts will facilitate the January meeting.
- **The 2016 biennial UMRR science meeting will likely be held in February 2016**. Staff are currently seeking schedule availability and are developing an agenda. Tentative objectives include 1) sharing results from resent research and discussing ideas and priorities for future research, and 2) considering draft UMRS ecological resilience conceptual models and an initial assessment framework.
- **Upcoming events this spring include a multivariate statistical workshop and a component field day to discuss the standardized methods**.
- **Two SOWs are being developed for UMRR science in FY 2016; a $4.15 million SOW for long term resource base monitoring and a $963,000 SOW for science in support of restoration – i.e., analysis under base. In addition, there is $312,774 in FY 2014 and FY 2015 carry-over due to unfilled vacancies, among other reasons. The total available funding for science in FY 2016 is $5.595 million. Based on partner-endorsed priorities, $28,386 of FY 2016 funding was allocated to Pool 12 adaptive management and $52,000 to defining and applying ecological resilience concepts to the UMRS. Hagerty anticipates presenting proposed allocations for FY 2016 science in support of restoration at the UMRR Coordinating Committee's February 24, 2016 meeting.**

Public Outreach and Engagement

- Ruth Nissan published an article in the October 2015 edition of the Wisconsin Natural Resources magazine describing swans' use of the UMRS in their migration journey from the tundra to their wintering grounds along the mid-Atlantic coast. USFWS received many inquires following the publication about the timing of the swans visit to Brownsville. USFWS held two public events this fall for swan observation at Brownsville, which includes displays highlighting UMRR's habitat restoration efforts.

Other Business

- **Upcoming quarterly meetings are as follows:**
  - **February 2016 — Rock Island**
    - UMRBA meeting — February 23
    - **UMRR Coordinating Committee — February 24**

- **May 2016 — St. Louis**
  - UMRBA meeting — May 24
  - **UMRR Coordinating Committee — May 25**
- **August 2016 — La Crosse**
  - UMRBA meeting — August 9
  - **UMRR Coordinating Committee — August 10**

UMRR CC Quarterly Meeting
November 18, 2015

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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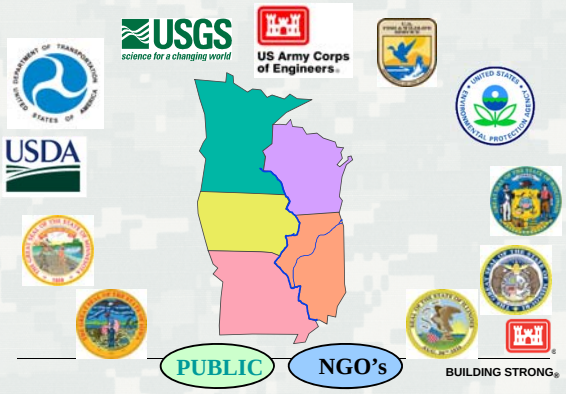
UMRR Program Partners



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Strategic and Operational Plan Goal 3

- Goal 3 - Engage and collaborate with other organizations and individuals to accomplish the UMRR vision.
- Initial Recommendations
  - ►Establish a Communication Committee
  - ►Develop Communications Plan

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Communication Team Staffing

- Kevin Bluhm
- Randy Hines
- Karla Sparks
- FWS
- Volunteers
- Contractor

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Communications Contract Activities

- Initiate Communications Committee –Sept
- Launch Questionnaire – Oct
  - ►Work thru results/build themes – Nov
  - ►Begin Development of Communication tools
- Progress Update – Nov UMRCC mtgs
  - ►Facilitated discussion of branding, logo, & process
- Refine messaging – Dec/Jan 2016
- ~~Initial results – Feb UMRCC mtgs~~

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Public Communications and Outreach

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FY15 Work Plan

TOTAL FY15 Program	**$33,170,000**
Regional Administration and Program Efforts	**$ 861,000**
Regional Management	$ 534,000
Program Database	$ 116,000
UMRR Program Strategic Plan	$ 25,000
Program Support Contract (UMRBA)	$ 76,000
Public Outreach*	$ 35,000*(+$50 -$60)
2016 Report to Congress	$ 75,000
Regional Science and Monitoring	**$ 8,126,000**
LTRM (Base Monitoring)	$ 5,495,000
UMRR Regional Science In Support Rehabilitation/Mgmt. (MIPR's, Contracts, and Labor)	$ 1,907,000
UMRR Regional Science Staff Support (Integration)	$ 69,000
Habitat Evaluation (Including PER's)	$ 655,000
District Habitat Rehabilitation Efforts (Planning and Construction)	**$24,183,000**
Rock Island District	$ 9,645,000
St. Louis District	$ 7,234,000
St. Paul District	$ 7,234,000
Regional Project Sequencing	$ 70,000

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FY15 Funds Obligated (end of FY)

- UMRR Program – 99.6%
  - ►Total team effort
  - * Adjustment in project objectives
  - * Bids below the IGE
  - * Cooperation between Districts and Division
  - * Always have contingency plans!

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FY 16 Budget Request (PBUD)

- President's Budget $19,787,000
- House $
- Senate $
- Presidents FY16 budget announced Feb.2
  - ►Reduction from FY15 - $13,383,000
- Developing FY16 Work plan

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FY16 Work Plan

TOTAL FY16 Program	**$19,787,000**
Regional Administration and Program Efforts	**$ 741,000**
Regional Management	$ 495,000
Program Database	$ 95,000
Program Support Contract (UMRBA)	$ 76,000
Public Outreach	$ 60,000
2016 Report to Congress	$ 15,000
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	$ 975,000
District Habitat Rehabilitation Efforts (Planning and Construction)	**$12,479,000**
Rock Island District	$ 4,745,000
St. Louis District	$ 4,209,000
St. Paul District	$ 3,425,000
HNA II	$ 100,000

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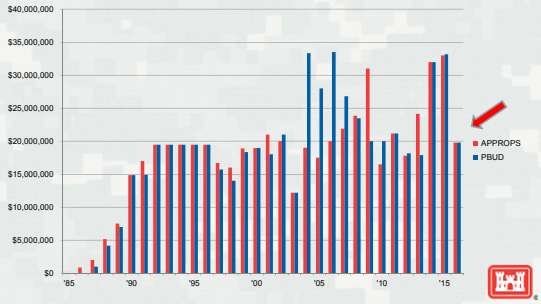
UMRR Program Appropriation/Budget History



FY1985 to FY2016

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FY 17 Budget Request

- President's Budget $
- House $
- Senate $
- FY17 budget request provided in Aug.
- OMB pass back in December
- PBUD in Feb. 2016
- Efficient Funding

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Draft Principles of Efficient Funding

Each Dist: 2-4 projects in feasibility, P&S, and construction at all times.

- Manage risk and continuous flow of work
- Feasibility Reports average 3 years
- P&S start right after feasibility and take 12 – 18 months
- Construction starts right after P&S
- Minimize or eliminate project phases or stages
- O&M Manuals take a maximum of 12 months

UMRR Program Strategic Plan
Key Points

- First formal Program Vision
- First formal Mission Statement
- Four Goal Statements
  - ►Enhance Habitat for Restoring and Maintaining a Healthier and More Resilient UMRS.
  - ►Advance Knowledge for Restoring and Maintaining a Healthier and More Resilient UMRS
  - ►Engage and Collaborate with Others
  - ►Utilize a Strong, Integrated Partnership

Operational Plan

- UMRR CC Adoption the Strategic Plan on Nov. 19, 2014
  - ►Amended the Plan by adding “an explicit intention to develop an implementation plan”.
- 11 member Committee was created and held it’s first meeting on Jan. 20-22, 2015
- Second meeting on April 9, 2015
- Anticipated completion Nov. 2015

Operational Plan

- Purpose
  - ►Make recommendations to the UMRR Program Coordinating Committee for implementing Strategic Plan.
  - ►Objectives:
    - Establish priorities
    - Identify key policy and technical issues
    - Integration of science and restoration efforts
    - Identifying challenges for implementation

Operational Plan

- Challenges
  - ►Level of detail
  - ►How to clearly link to the Strategic Plan and budget.
- Some key recommendations being considered:
  - ►Communication Plan
  - ►Habitat Team
  - ►Update HNA
  - ►Transparency

Habitat Team Recommendation

- First Step - Focus on the purpose and function
  - Identify and recommend projects
  - Effectively and efficiently integrate ecological goals and objectives
  - Answering scientific questions
  - Forum for scientists and restoration practitioners

Habitat Team Recommendation

- Major Concerns
  - Creating a new entity that would duplicate the work of existing committees and river teams.
  - Additional entity that would overtax existing staff resources

Habitat Team Recommendation

- Recommendations
  - Reviving the existing river teams
  - More detailed discussions of habitat rehabilitation efforts at quarterly meetings
  - Web based quarterly meetings so more could participate
  - Greater use of the UMRR Program Database
  - Initially use the HNA II Committee to work on issues
  - Bi-annual restoration/science meeting
  - Refinement of tools like
    - Fact sheets
    - Common understanding of AM

2016 Report to Congress

- 2015 Schedule
  - Feb. - Complete contract with UMRBA
  - **Feb. Quarterly Meeting**
    - **Initiate discussion on outline and identification of programmatic and policy issues (IIA issues)**
  - Feb. to Aug. - Prepare 1st Draft of RTC
  - Aug. - Submit 1st Draft RTC for review
    - Comments due 30 Oct
  - Dec. -Jan. – Submit 2nd Draft RTC for review

2016 Report to Congress

- 2016 Schedule
  - Feb. – Send final draft to Partners for final review.
  - March to May – Official MVD and HQ review
  - Sept. to Nov. – Design and graphics
  - Nov. 15 – Submit final RTC to MVD and HQ

2016 Report to Congress

- Outline
  - ►Forward
  - ►Executive Summary
  - ►Table of Contents
  - ►History and Background
  - ►Chapter 1 – Enhancing Habitat
  - ►Chapter 2 – Enhancing Knowledge
  - ►Chapter 3 – Interagency Partnership
  - ►Chapter 4 - Implementation Issues
  - ►Chapter 5 - Conclusions and Recommendations

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2016 Report to Congress

- Draft Policy Recommendation Statements
  (Pages B-7 to B-9)
  - ►Project Partnership Agreements (PPA)
  - ►UMRR-NESP Transition Plan

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UMRRP Habitat Rehabilitation and Enhancement Projects

As of October 2015:
58 Projects Completed
5 Projects in Construction
27 Projects in Design

28

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ST. PAUL DISTRICT (MVP)
FY16 HREP Work Plan (18 Nov 2015)

PLANNING – in priority order…..

North & Sturgeon Lakes, Pool 3, MN – ($2.250M)
- ➢ Complete Feasibility
- ➢ Complete P&S
- ➢ Award contract

Conway Lake, Pool 9, IA – ($350k)
- ➢ Complete Feasibility

McGregor Lake, Pool 10, WI – ($150k)
- ➢ Continue Draft Feasibility

Other studies in the planning queue…
Pool 10 Islands, Lake Winneshiek (Pool 9)
Weaver Bottoms and Clear Lake (Pool 5)
Bass Lake Ponds (Mn Valley),

CONSTRUCTION

Capoli Slough Islands, Pool 9, WI ($20k)
- ➢ Turned over to USFWS - Project dedication in spring (Earth Day/Tree plantings)

Harpers Slough, Pool 9, IA ($300k)
- ➢ Stage 1 - Newt Marine – Completed 27% of contract. Shut down for winter.

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

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ST. LOUIS DISTRICT (MVS)
FY16 HREP Work Plan (NOV 2015)

PLANNING

Rip Rap Landing, IL *$10k*
- Final Draft Feasibility complete –
- MVD requested additional NRCS coordination

Piasa & Eagles Nest Islands, IL *$325k*
- 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;

Cuivre Island –Final; 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**
- HL1 Water Control
- CN & CS Water Control
- North Berm and Setback
- NS1,NS2, DS Water Control
- Pump Station - underway

Pools 25 & 26 Islands, MO
- Bolters Island *$50k*

Batchtown, IL – Punchlist *$50k*

Clarence Cannon Refuge , MO *$500*
- *Water Control Structure*

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Pools 25 & 26 Islands HREP
Fish Habitat Structure

Ted Shanks, MO HREP
Levee Setback

ROCK ISLAND DISTRICT (MVR)
FY16 HREP Work Plan (NOV 2015)

PLANNING
- Beaver Island, Pool 14, IA **($260K)**
- Boston Bay, Pool 18, IL **($173K)**
- Keithsburg Division, Pool 18, IL **($228K)**

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 **($154K)**
- Baseline Monitoring
- Post Project Monitoring
- Performance Evaluations **($236K)** Bay Island, Andalusia, Brown's Lake
- Adaptive Mgmt. Pool 12

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Fox Island Ribbon Cutting

November 13, 2015

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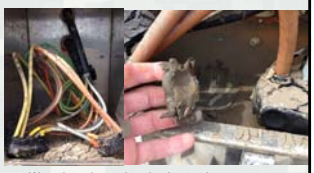
HREP: Rice Lake

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. Contract includes a reinforced concrete pump station, masonry pump station control building, discharge channel excavation, water control structures, overflow and natural spillway embankment, reinforced concrete outlet structure & mechanical dredging.

- Additional defect identified CT working with contractor to remedy
- Damage inspections show need for rip rap downstream of inlet structure and potential bulk head repair
- Awarded W912EK-15-P-0182 for 3,900 pounds of State Certified Seed for Rice Lake due to flood damages 18 Sept 15
- Water intrusion on pumps working with contractor to determine cause of defect



Water intrusion on junction box and pumps
17-Sep-15

Site	Project	Contract Amt.	% Earned	Start Complete
Rice Lake	Pump Station Spillway Transfer ditch Water control	$9,522,963	100%	Sept. 20, 2011 June 16, 2015

Pool 12 Sunfish Lake Reshaping

Huron Island

Huron Island

Keithsburg Division

Keithsburg Division

- Public Meeting July 28, 2015

Operational Plan

- Challenges
  - ►Level of detail
  - ►How to clearly link to the Strategic Plan and budget.
- Some key recommendations being considered:
  - ►Communication Plan
  - ►Habitat Team
  - ►Update HNA
  - ►Transparency

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Habitat Needs Assessment

- 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

- Recommend creation of the HNA II Work Group
  - ➢ Tri-Chairman to guide the effort
    - ➢ USACE
    - ➢ USGS
    - ➢ US FWS
  - ➢ Work Group Make-up
    - ➢ A representative from all interested Program partners
    - ➢ Will bring in others to help address special issues
  - ➢ Duration of effort 18 – 24 months
  - ➢ Tri-chairman will meet in Jan. to develop a detailed schedule and report back at the Feb. quarterly meeting

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HNA II

- Today's Agenda
  - ➢ Background of 2000 HNA
  - ➢ New tools available since 2000 HNA
  - ➢ Knowledge Advances since 2000
  - ➢ Partner discussion on needs of the HNA II

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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 <u>together</u> are equivalent to a fully funded UMRR LTRM element**

$5,463,000

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FY16 Budget Summary

MN	$511,766
WI	$523,176
IA	$453,463
IRBS	$385,618
NGREEC	$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 BUDGET	**$5,595,028**

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Funding

FY16 Funding	**$5,463,000**
Unspent funds from FY14 and FY15	
FY14 States (WI, IA, MO)	$ 53,560
FY15 States (WI, IA)	$ 188,701
FY15 UMESC	$ 70,513
Total	**$ 312,774**
Total Available	**$5,775,774**
Total FY16 Budget	$5,595,028
Remaining	**$ 180,745**

UMRR Science in Support of Restoration & Monitoring

Funded Proposals:

- **Pool 12 AM** **$28,386**
- **Resilience (Corps)** **$52,000**

HQ Priority:

- **HNA II** under development

UMRR Science in Support Proposals

Remaining for Consideration:

- **Spatial patterns of mussels (continuation) $55,980**
- **Fish trajectory analysis (continuation) $ 7,775**
- **Biological shifts due to invasion by curly-leaf pondweed $33,103**
- **Fish overwintering in La Grange Pool $31,008**

Process

- Finalize HNA II SOW, budget
- Review remaining proposals
- FY16 work plan funding??
- Funding availability and remaining proposal selection in Feb 2016

UMRR Crediting Guidance

- UMRR Program needs to be clearly recognized for all of the good work it accomplishes and supports

Applies to all of us

UMRR Crediting Guidance

Initial crediting guidance 2012

- Focus on UMRR-EMP LTRMP

Revised in September 2015

- Page E-13
- UMRR; no more EMP
- UMRR LTRM element; no more LTRMP

Mud Lake Pool 11 July 2006

Enhancing a Brand

UMRR
November 2015

The Power of Brand

What Your Brand is NOT

- not your name
- not your logo
- not the graphic presentation
- not a slogan or tag line
- not a newsletter or a report

What Your Brand IS

- your essence
- your promise
- an expectation
- a loyalty

- expressed as...

A Definition

Your brand is the convergence of your lived essence and the experience of that essence in and by the marketplace.

Does Brand Matter

The net worth of the Coca Cola corporation — **excluding** its brand value — is:

$50 Billion

Brand Matters

The net worth of the Coca Cola corporation — **including** its brand value — is:

$120 Billion

Brands are built on

Brand Impressions

UMRR — Your Brand

- understanding the essence
  - the research
  - the findings
- creating the impressions
  - name
  - visual form
  - behaviors
- assembling the tools

Some discussion to discover

If you were going to the grocery store to get the UMRR, in which aisle would you find it and why?

If the UMRR were an automobile brand, which would it be and why?

If the UMRR were a hotel brand, which would it be and why would you want to stay there?

In18 months from now, what would you want people saying about UMRR?

If you were going to the grocery store to get the UMRR, in which aisle would you find it and why?

If the UMRR were an automobile brand, which would it be and why?

If the UMRR were a hotel brand, which would it be and why would you want to stay there?

In18 months from now, what would you want people saying about UMRR?

Share your thinking

What We're Learning

- They want a brand; it's a "secret"; they want people to know
- Has to draw on heritage of river and heritage of success of project
- Success is partly a result of partnership
- We have to be really expansive in our targeting and outreach methods; range from funding sources and legislators to generations that'll be coming forward
- Water quality and the way it touches lifestyle is key

Next Steps

Be Brand Ambassadors

Upper Mississippi River Restoration 2016 Report to Congress

Kirsten Mickelsen
Upper Mississippi River Basin Association
September 29-30, 2015

Background

- Authorization says to….
  - Evaluate and describe accomplishments
  - Provide updates of systemic HNA
  - Identify any needed adjustments in authorization
- Mocks the 2015-2025 UMRR Strategic Plan
  - Features highlight unique, important accomplishments
- Vision: "A healthier and more resilient ecosystem that sustains the river's multiple uses"

Comments Received on 1st Draft

- 7 people from different organizations
- Major comments :
  - Resilience: What does it mean? Does it include climate change, or just watershed and instream stresses?
  - Definitions of partners – implementing partners, program partners, "just plain" partners
  - Historical depictions of UMRR's earliest habitat projects
  - Ability for NGOs to propose projects and participate in habitat project development. How will "non-traditional partners" be involved in next generation of projects?
  - Asian carps reference

Comments Received on 1st Draft

- Suggestions for recommendations to Congress:
  - Increase in UMRR's annual authorized funding level
  - Restart monitoring programs, including navigation traffic and macroinvertebrates

Schedule

- Mid to late December: 2nd draft to partners
- Mid to late January: Partner comments due
- Mid February: Final draft to partners; "formal" Headquarters' review
- June: Incorporate graphics design
- September: Graphics review to partners and USACE Headquarters
- November 15 : Distribute final report, hardcopies and CDs, and brochure

Habitat Needs Assessment I

- Conceptual and Administrative Background
- Bob Clevenstine

HNA I

- Partnership had previously considered some type of ecoregional (UMR) assessment
- Action 10.6 in the 1994 Report of the IFMRC
- WRDA 1999 Title V

HNA I

- WRDA 99, Title V, Section 509
  - Timeframe NLT Sept 2000
  - Funding $ 1 M - COE
- COE & FWS Initiated PMP
  - SOW Drafted with an interagency team
  - Cost estimated at $935,000

HNA I

- SOW developed for
  - Individual work plans for specific tasks

  1 Model development

  2 Forecast future conditions

  3 Public expectations

  4 Identify desired future conditions & habitat needs
  - Creating a website

HNA 1

- Issues at the time
  - Time, timing, and $
  - Coincided with the Navigation Study
  - Data and information from the Nav Study not universally accepted
  - Approach to public engagement challenged

HNA 1

- Query tool essentially completed in August 1999
- Next 12 months used for testing and assessment
  - Technical Team
  - Public

HNA 1

- Draft report completed September 2000
  - Approved at Division level following final comments by EMP-CC
- Final December 2000
- Initial distribution January 2001
  - Summary Report
  - Technical Report & Appendices
  - Public Information Report
  - Query Tool User's Manual

HNA 1

Lessons Learned

- Information needs – Lots!
  - 13 identified in the Summary Report
- Public involvement – More!
  - 12 open meetings and 10 focus group meetings

Habitat Needs Assessment Query Tool

Development Arc and Future Potential

Tim Fox

HNA Query Tool
Why?

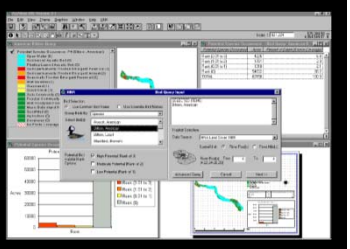
- Provide analytical support and content for the Habitat Needs Assessment for the Upper Mississippi River System Summary Report
- An application that would live beyond the conclusion of the HNA process
- A Decision Support System (DSS) that could help assess the habitat needs of federal, state, and other partners

HNA Query Tool
What?

- An ArcView 3.1 extension
- Habitat suitably models
- Bi-directional queries
  - Species ←→ Habitat
- Driven by suitability matrices
- Matrices expert opinion
- Base data
  - Landcover: *1989*, *1991*, 1994, 1998
  - Aquatic areas: *1989*, *1991*

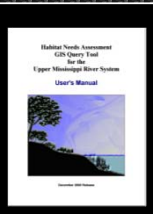
HNA Query Tool
What?

- HNA Query Tool output:
  - Tables, maps, charts, and layouts
  - Potential species occurrence
  - Potential species richness
  - Potential species habitat
- Zonal analysis by pool
- Suitability matrices:
  - Mammals
  - Birds
  - Herps
  - Fish
  - Mussels
  - Inverts



HNA Query Tool
Outcome

- Tool provided tables and figures included in the HNA report and appendices
- Was used for visualization purposes during the public outreach portion of HNA
- Used by various agencies to explore habitat needs and investigate alternative scenarios for restoration projects



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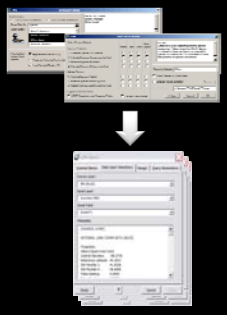
HNA Query Tool Evolved Into LINK

LINK is a set of ArcGIS tools that create maps, tables, and graphs of

- Potential Species Occurrence (PSO)
- Potential Species Richness (PSR)
- Simpson's Diversity Index (SDI)
- Zonal composition
- Sounds familiar…



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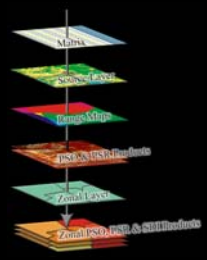
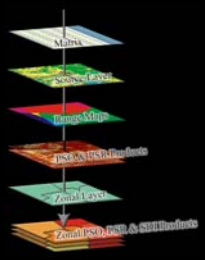
LINK



- Created for USFWS Region 3
- LINK is a framework – an amendable DSS
- Import wizards for user suppled data
- Raster based analysis, works over broader areas
- Looked at the distribution of habitats and the distribution of species that utilize those habitats
- The data from the original HNA Query Tool was loaded into LINK

USGS

LINK



- **Matrices** contain habitat suitability values
- **Source layers** define habitat types
- **Species Abundance maps** restrict and weight analysis
- **Zonal layers** provide spatial units for summarization and comparison

USGS

Example Query

Example Query's Objective:

To evaluate Minnesota counties for high priority, regularly breeding, bird habitat as identified within the BCR 23 matrix (20 species).

USGS

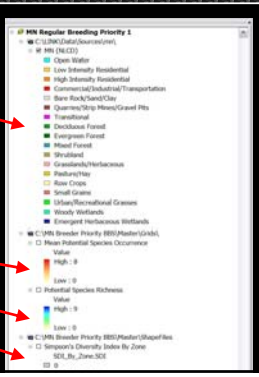
Example Query: Queried Items

Acadian Flycatcher	**Loggerhead Shrike**
Black Tern	**Long-eared Owl**
Black-billed Cuckoo	**Marbled Godwit**
Blue-winged Warbler	**Peregrine Falcon**
Bobolink	**Red-headed Woodpecker**
Cerulean Warbler	**Sedge Wren**
Common Tern	**Short-eared Owl**
Dickcissel	**Upland Sandpiper**
Golden-winged Warbler	**Wilson's Phalarope**
Henslow's Sparrow	**Wood Thrush**

USGS

Example Query: Output Products

- Source layer
- Output products for all queried species treated as a single group
  - Mean PSO
  - PSR
  - SDI

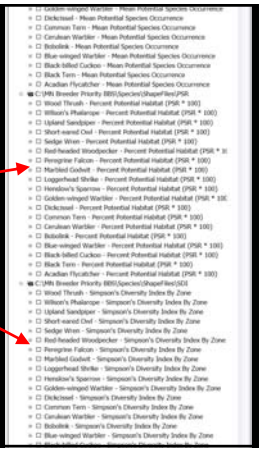


USGS

- Output products for the queried species as a group (continued)
  - PSR by zone
  - Mean PSO by zone
- Individual species output
  - PSO

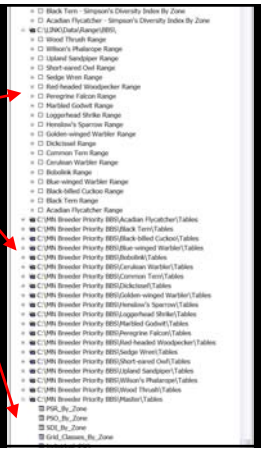
USGS

- Individual species output (continued)
  - PSR
  - SDI



USGS

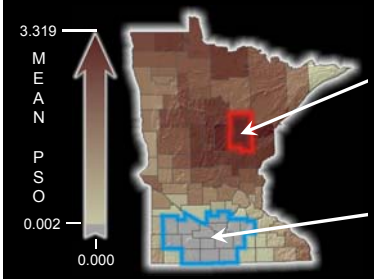
- Individual species output (continued)
  - range
  - tables
- Other tabular output
  - PSR
  - PSO
  - SDI
  - grid classes by zone
  - individual PSO
  - individual area-weighted mean PSO
  - matrix



USGS

Example Query: PSO by Zone

Objective: To evaluate Minnesota counties for high priority, regularly breeding, bird habitat as identified within the BCR 23 matrix.



- [MATRIX] BCR 23 Matrix
- [QUERIED ITEMS] Priority: '1' Breeding: 'Regular'
- [SOURCE LAYER] MN (NLCD)
- [ZONAL LAYER] Layer: Counties (MN)

USGS

Upper Midwest Environmental Sciences Center

HNA Query Tool and LINK

- HNA and LINK: both summarize habitat distribution
- HNA: bi-directional vs. LINK: unidirectional
- LINK: amendable, restricts by species range, and weights habitats by species abundance
- Both applications identify areas of conservation need/targeting resources, but they only superficially identify restoration need
- Both leverage generalized models for many species vs. specific models for a few species

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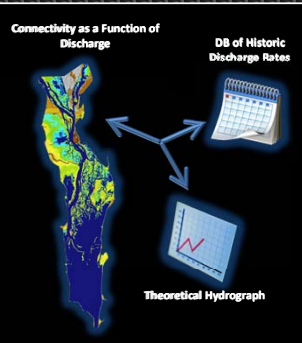
Recent Products Relevant to HNA II



- Connectivity and inundation
  - Database of discharge rates
  - User defined query
    - date range
    - model value range
  - Models summary conditions over a specified date range:
    - bathymetry
    - flow velocity
    - Connectivity
  - Open Framework
  - Relate species to conditions

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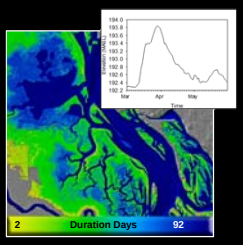
Upper Midwest Environmental Sciences Center

Recent Products Relevant to HNA II

- Example output:
  - Connectivity
  - Duration days
  - Spring 2010 (March 1st – May 31st)
  - Levee effects
- Output products
  - Duration days
  - Summary statistics
  - Start date
  - Event count

Main Channel Connectivity, Spring of 2010



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Upper Midwest Environmental Sciences Center

What do you (UMRR) want from a second Habitat Needs Assessment?

- Program:
  - Compare new data to old data to determine if projects are having an impact on 'habitat'.
  - Demonstrate that we are using new knowledge and data to improve the way we manage and study the river.
- Researchers:
  - Opportunity to develop/improve the way we examine and model geomorphic and landscape changes over time.
  - Improve species-habitat relationship modeling
- Managers:
  - Attain data layers useful for identifying areas for restoration actions.
  - Have a longer-term context for diagnosing 'problem areas'.
    - Re-evaluate earlier understanding of environmental problems.

HNA I

- Habitat Needs = Desired Future Condition – Existing Condition
  - Desired Future Condition was identified by stakeholder groups (social undertaking).
  - Existing Condition was identified using a hybrid Land Cover/Aquatic Areas Coverage (1989) and assigning species preferences for different habitat classes (species-habitat matrix) using expert opinion.
    - A DSS (query tool) was developed to help extract information on current conditions.
  - Future Conditions (+50 years) were also examined using best professional judgment.
    - A simple forest succession model was also developed

Information Needs from HNA-I

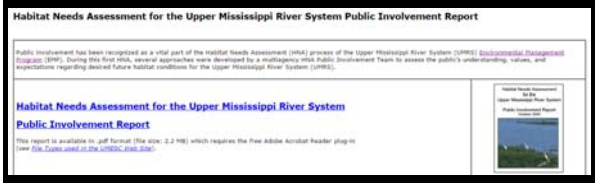
- More detailed information to characterize river habitats (We have this!)
- Better approach to modeling forest succession (We can do this!)

1. System-wide topographic data (Check)
2. System-wide bathymetric data (Check)
   - These two are being integrated to produce topobathy in FY 2016
3. Numerical Hydraulic models for all pools (No, but we have surrogates (connectivity))
4. Substrate Type Characterization (No, but we have surrogates (aquatic areas))
5. Habitat spatial structure metrics (check)
6. Floodplain inundation models (We can do this).
7. Floodplain geomorphic classification and study (Check)
8. Surveys of existing floodplain plant communities (Check).
9. Characterization of existing and pre-impoundment hydrologic regime (IHA ??)
10. Confirmation/Validation of Species using SRS (LTRM) data (fish)
11. Development of refined life history information (for some)
12. Development of refined species-habitat models (for some)
13. Analysis of seasonal habitat availability (e.g. overwintering areas for fish)

Five topics for today…

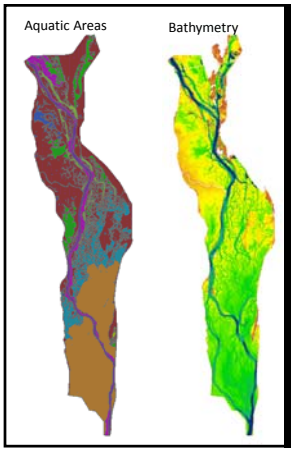
1. Desired Future Conditions
   - Do we want to do this and how?
2. Existing Conditions
   - Time series (1989, 2000, 2010)
   - Topobathy??
3. Species-habitat modeling
   - New methods or not?
4. Projected Future Conditions
   - State – transition vs process based approaches
5. DSS development and outputs

1. Desired Future Conditions: is this something we want and how?



2. Existing Conditions: System-wide data

- Land Cover:
  - 1989, 2000, 2010 completed by end of calendar 2015
  - Connection to resilience can be drawn by examining changes over this time period and into the future.
- Vegetation:
  - Land Cover
  - Forest Inventory Data
  - Forest Permanent Plot Data
- Aquatic Areas
  - 1989
  - Need these to be developed for 2000 and 2010.
    - Here is where we can utilize topobathy (FY 2016) and other 'connectivity' information identified in HNA I.



2. Aquatic Areas Example

- Aquatic Areas:
  - General habitat type
  - Sediment texture/organic matter
  - Use Bathymetry to add depth classes within AA's.
  - Might add 'connectivity' measures as well.

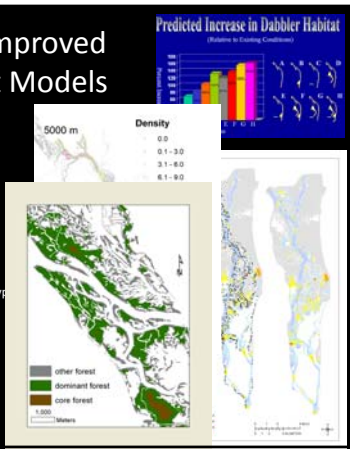
3. Species – Habitat Modeling

- Expert opinion (HNA I)
  - Invertebrates
  - Mussels
  - Fish
  - Herps
  - Birds
    - Waterfowl
    - other
  - Mammals
- Each species has a ranking by habitat type
  - Then summarized by guilds

- Yellow = Can these be improved?
- Red = Could be improved

3. Examples of improved Species - Habitat Models

- Dabbling duck model
  - Bathymetry
  - Wind fetch
  - Vegetation
- Fish (AHAG)
  - Linkage to aquatic habitat type
- Mussels
  - Poolwide data linked to habitat typ
- Birds
  - Kirsch data linked to forest and landscape features



4. Projected Future Conditions

4. Projected future conditions

A. Expert opinion
B. State-Transition Modeling (Markov Models)
   - Use changes in land cover and aquatic areas to forecast potential future conditions.
     - Issues with spatial registration
C. Process Based Models
   - Allow for alternative management and climate (what-if) scenarios
   - Bathymetry Model (how long before backwaters fill in?)
   - Aquatic Veg Model
   - Floodplain Forest Model (this was stated as a need HNA I)
- However this is done, it gives a broad-scale picture of what the distribution of habitats important to a broad array of species might be under different management or climate scenarios.
  – Connection to spatial/temporal resilience

5. Update query tool

- Have the additional option to compare species abundance data to mapped habitat data to show areas of conservation vs restoration.
- What do we want as outputs?

Questions that need to be answered

- Do we want an assessment of desired future conditions?
- Do we want to improve our definitions of aquatic habitats using bathymetry data?
- Do we want to improve our species-habitat models?
- How do we want to make future projections?
- What are the products going to be?

Next Steps

- Get Feedback from UMRR-CC and begin drafting a SOW and budget.
  – Present this at the next UMRR-CC??

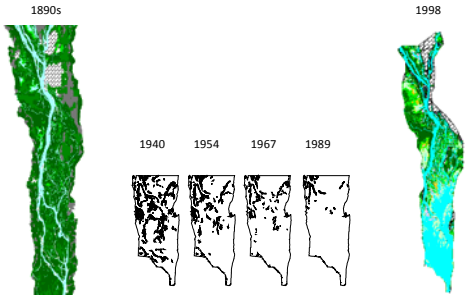
USGS

Pools 8 and 13 long term monitoring data and impounded UMR SAV dynamics: a working hypothesis

Yao Yin and Jim Rogala
US Geological Survey Upper Midwest Environmental Sciences Center, La Crosse, Wisconsin

Upper Mississippi River Restoration
USGS
Restoring and Monitoring the Upper Mississippi River System

Morphological changes in Pool 8



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"For several years after the locks and dams were put into operation, there was a tremendous response to impoundment, and extensive beds of aquatic vegetation developed. Once the pools became permanently established, however, the normal deterioration associated with stabilized water areas gradually began, although for over thirty years conditions remained excellent." - Dr. William E. Green, USFWS, 1984

USGS

REGULATED RIVERS: RESEARCH & MANAGEMENT, VOL. 11, 177–182 (1995)

DECLINES IN AQUATIC VEGETATION IN NAVIGATION POOL NO. 8, UPPER MISSISSIPPI RIVER BETWEEN 1975 AND 1991

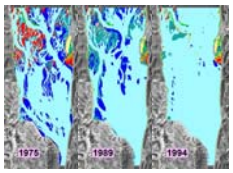
JAMES R. FISCHER* AND THOMAS O. CLAFLIN
River Studies Center, University of Wisconsin-La Crosse, La Crosse, WI 54601, USA

ABSTRACT

The biomass and frequency of occurrence of aquatic macrophytes observed during 1975 and 1991 in Navigation Pool No. 8 of the upper Mississippi River were compared. Samples were collected from contiguous backwater, isolated backwater and impounded habitat types. Overall declines were observed in both frequency and biomass between the two years. Changes in depth, water clarity and bed sediment texture were also observed. About 50% of the samples collected in 1991 had no vegetation, compared with 20% in 1975. The greatest reduction in frequency occurred among submergent taxa (77% in 1975 to 31% in 1991), whereas only slight declines were observed for emergent taxa. However, the mean biomass of both lifeforms decreased substantially (48 to 1 g/m² for submergent and 61 to 27 g/m² for emergent lifeforms). The swim total biomass declined from 114 g/m² in 1975 to 30 g/m² in 1991. Declines were most evident in the impounded habitat, where the frequency of occurrence of submergent taxa decreased from 83% in 1975 to 11% in 1991, and mean biomass decreased from 90 to 1 g/m². Similar but less extensive reductions in frequency and biomass of submergent taxa were observed in the contiguous backwater habitat. By contrast, both the frequency and biomass of floating-leaved macrophytes increased slightly in contiguous backwater habitats. Changes in frequency and biomass of macrophytes in isolated backwater habitats were negligible between 1975 and 1991. It is hypothesized that changes in the macrophyte community structure may be related to physical changes associated with 57 years of impoundment.

Declines were most evident in the impounded habitat;
SAV frequency of occurrence decreased from 83% to 11%;
SAV mean biomass decreased from 90 to 1 g/m^2;

USGS



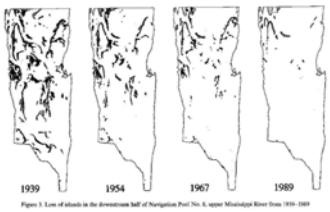
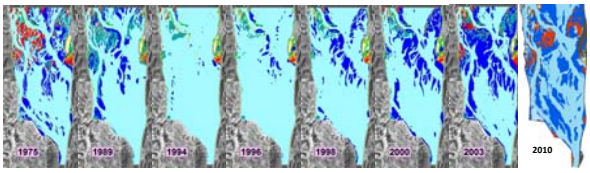


Figure 3. Loss of islands in the downstream half of Navigation Pool No. 8, upper Mississippi River from 1939–1989

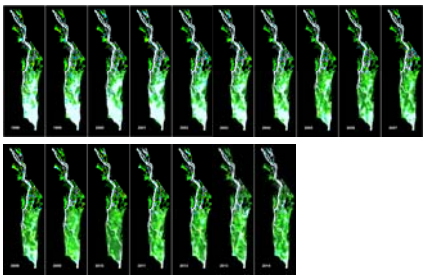
USGS

Vegetation distribution based on interpreted aerial photos



USGS

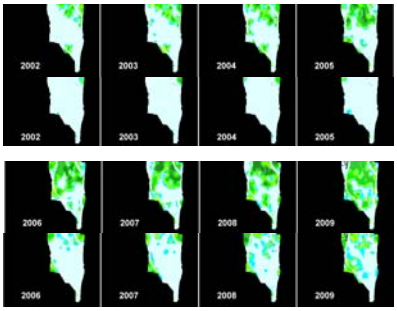
Pool 8 submersed aquatic vegetation (SAV) distribution maps



USGS

Wildcelery

Coontail



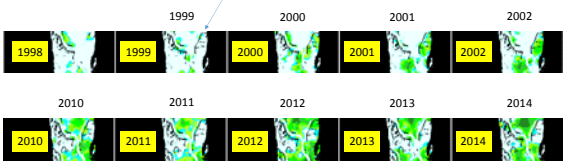
Wildcelery

Coontail

Distribution maps indicate recolonization of the lower section of Pool 8 was led by wildcelery. Coontail lags behind by about 4 years.

USGS

Newly constructed islands

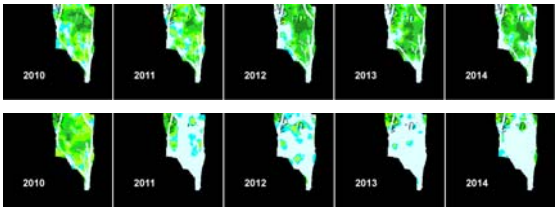


Wildcelery quickly colonized and dominated ~200 ha areas sheltered from river flow by newly constructed islands. It became a minor component after other species moved in and gradually established.

USGS

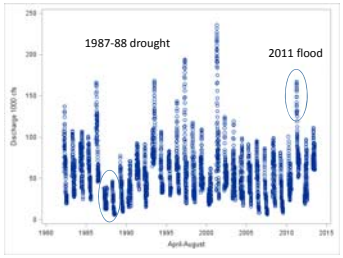
V. americana

C. demersum

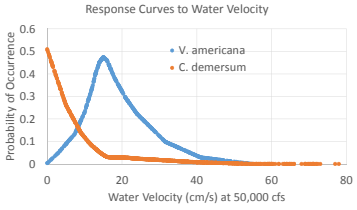


Once established wildcelery persisted in high sheer stress zone after a decadal-scale flood(2011) while other species like coontail was reduced (likely washed away).

USGS



USGS



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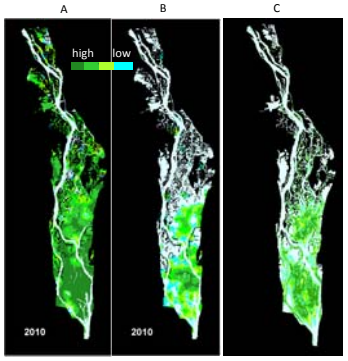
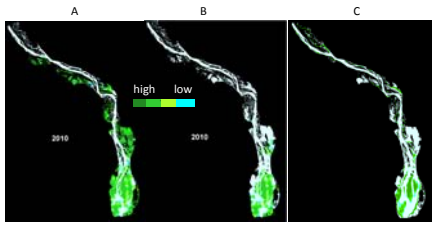


Panel A – SAV LTRM survey spatial interpolated;

Panel B – wildcelery LTRM survey spatial interpolated;

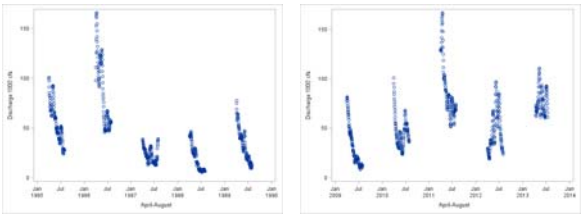
Panel C – wildcelery predicted by current velocity model.

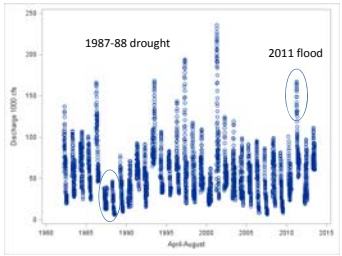


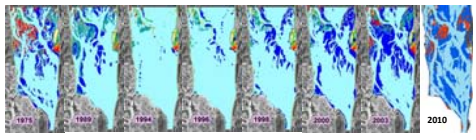
Panel A – SAV LTRM survey spatial interpolated;

Panel B – wildcelery LTRM survey spatial interpolated;

Panel C – wildcelery predicted by current velocity model of Pool 8.

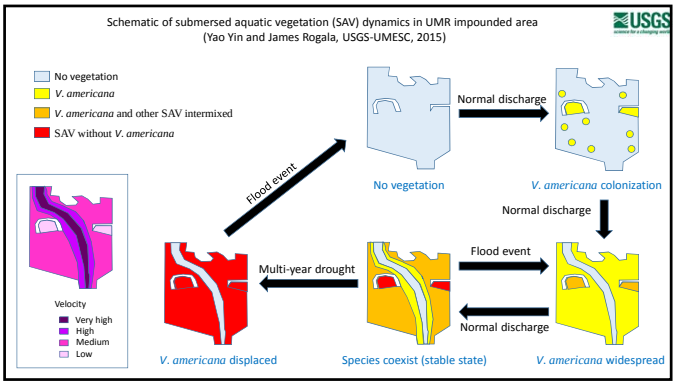


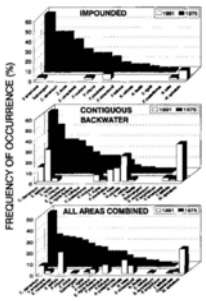


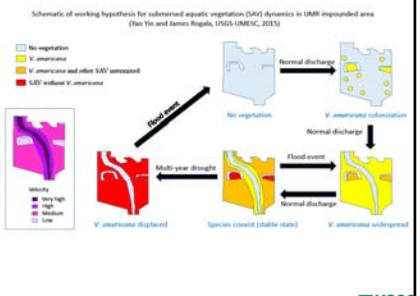


Impounded UMR SAV dynamics: a working hypothesis

Many of the navigation dams in the upper Mississippi River created a vast aquatic area that has a wide range of water depth and water velocity conditions. The deep and/or high energy zones would not support submersed aquatic vegetation (SAV) in the absence of American wildcelery (*Vallisneria americana*) , as this species can anchor firmly in sediments by roots and reach up high in the water column by elongated leaves for sunlight. The combination of good water clarity and moderate summer flow in the upper reach between Lake City, Minnesota and Bellevue, Iowa enables *V. Americana* to persist steadily in most years. Major changes in SAV community, such as the crash observed during 1989-1994, appear to be triggered by extended droughts more likely than by large floods. In the absence of moderate to sometime strong currents, *V. Americana* will be displaced by macrophytes like *Ceratophyllum demersum* and *Elodea Canadensis*, filamentous alga, and duckweeds. Shading is a likely mechanism for this displacement, although change in water chemistry and nutrient depletion are possible causes also. When flood events return after an extended drought, the SAV colonies without *V. americana* are washed away easily, leaving a void that can take up to ten years for sizable colonies of *V. americana* to develop to sustain a steady SAV community again.

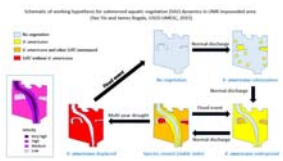


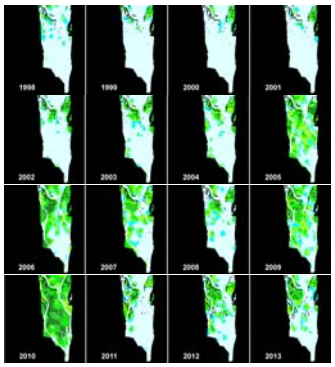




USGS

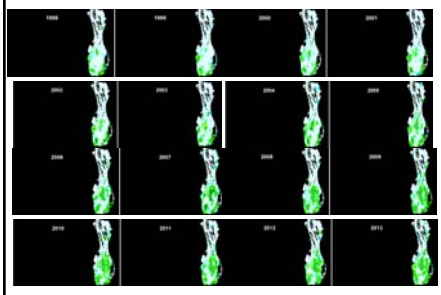
Pool 8 *Canadian waterweed*

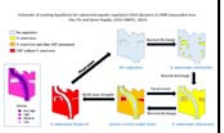




USGS

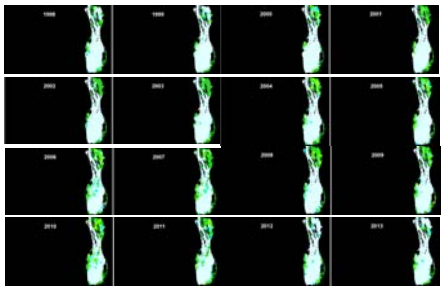
Pool 13 *Vallisneria americana*

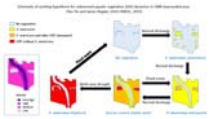




USGS

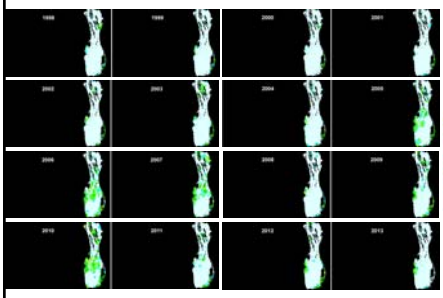
Pool 13 Coontail

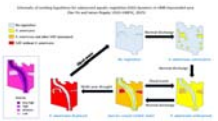




USGS

Pool 13 Canadian waterweed





USGS

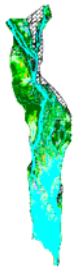
Morphological changes in Pool 8

1890s

Year	1940	1944	1964	1972
Pool elevation ft	627.5	629	629.5	630

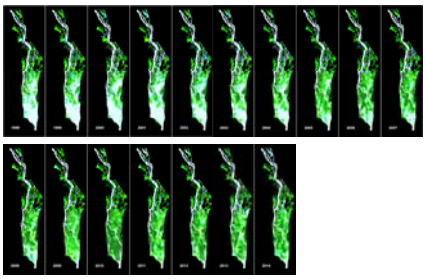
1940 1954 1967 1989

1998

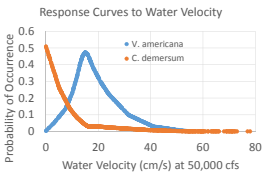


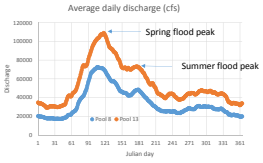
USGS

Pool 8 submersed aquatic vegetation (SAV) distribution maps



Management implications of the hypothesis





Artificial flood pulse during severe droughts?

Upper Mississippi River Restoration

Restoring and Monitoring the Upper Mississippi River System

A Team Update

October Meeting

UMRR Analysis Team Agenda October 29, 2015

Lucille A. Carver Mississippi Riverside Environmental Research Station, Fairport, IA

Chair: Shawn Giblin, Wisconsin Department of Natural Resources

Morning Science Presentations

- **10 AM-** Water quality studies at Rock Creek & Shricker Slough in Iowa. Dave Bierman, Iowa DNR/LTRMP, Bellevue
- **1025 AM-** Overwintering fisheries dynamics within Iowa backwaters. Scott Gritters, Iowa DNR, Bellevue
- **1050 AM-** What is your backwater doing at 3 in the morning? The use of continuous dissolved oxygen/temperature data to optimize connectivity within selected UMR backwaters (Pools 6-9). Shawn Giblin, Wisconsin DNR, La Crosse
- **1115-1130 AM-** Wrap up of UMRGC WQTech Section meeting.
- **1130-1200 PM-** Lunch- Pizza to be delivered to LAOMRERS (please bring $5 if you wish to eat).
- **1200-1210 PM-** Introductions and Roll Call (Shawn Giblin)
- **1210-1215 PM-** Time and Place for next meeting
- **1215-1225 PM-** UMRR update, Marv Hubbell, USACE
- **1225 -1230 PM-** Approval of the Minutes from July 28, 2015 meeting (Group)

Afternoon Science Presentations

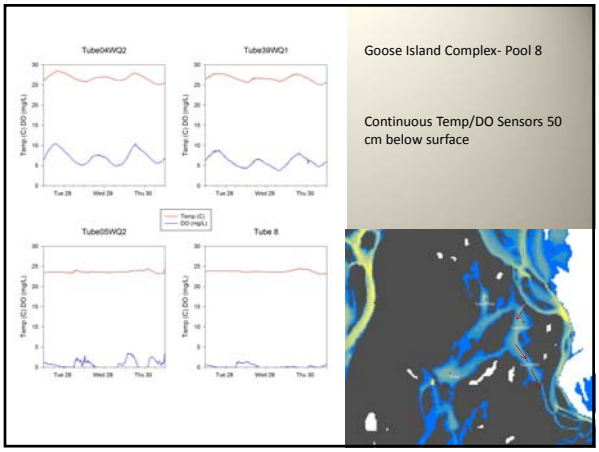
- **1230 PM-** Upper Miss Refuge Inventory and Monitoring: Assessment of Past Efforts and Planning for the Future. Steven Winter USFWS, Winona
- **1255 PM-** Ecosystem Resilience. Jeff Houser, USGS/UMESC, La Crosse

New Ideas Session

- **1325-1340 PM-** Let there be light: A data driven approach to siting habitat projects on the Upper Mississippi River, Shawn Giblin, WI DNR, La Crosse
- **1340-1355 PM-** Fish indicators project update, Andy Casper, IL
- **1355-1445 PM-** Agency Updates
- Adjourn

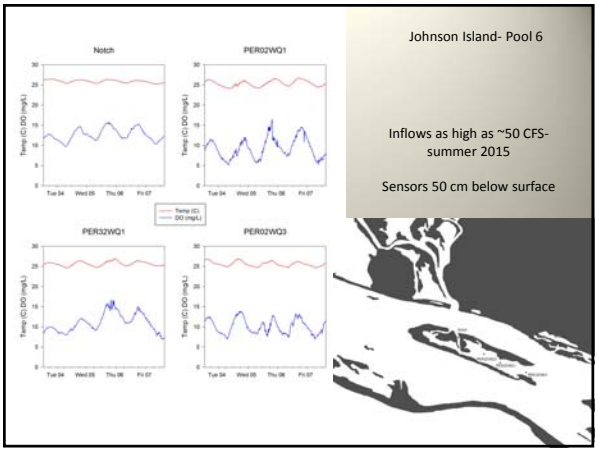
What is your backwater doing at 3 in the morning? The use of continuous dissolved oxygen/temperature data to optimize connectivity within selected UMR backwaters (Pools 6-9)

Shawn Giblin
Mississippi River Water Quality Specialist
Wisconsin Department of Natural Resources



Goose Island Complex- Pool 8

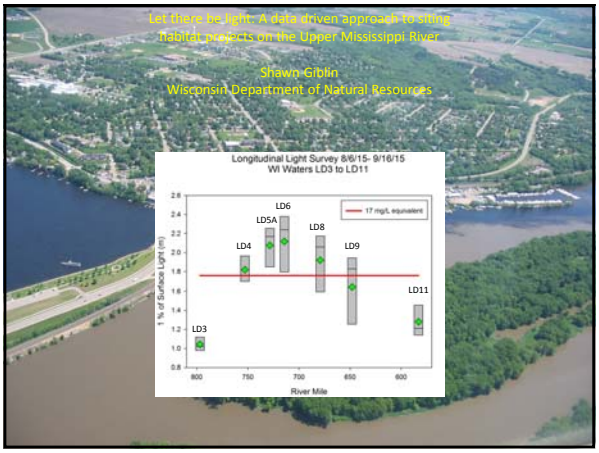
Continuous Temp/DO Sensors 50 cm below surface

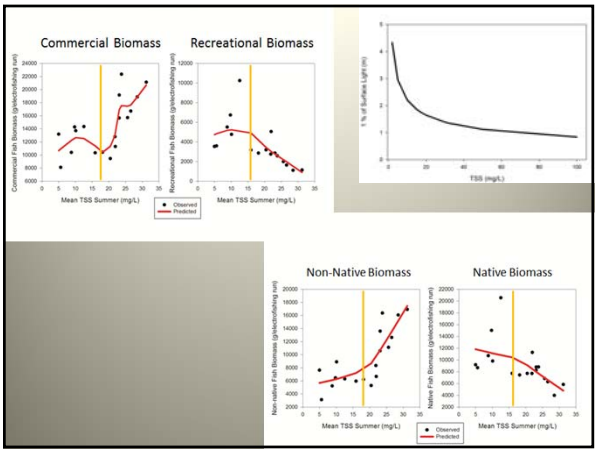


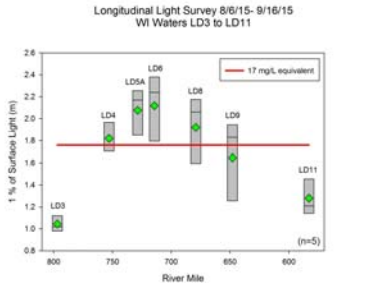
Johnson Island- Pool 6

Inflows as high as ~50 CFS- summer 2015

Sensors 50 cm below surface





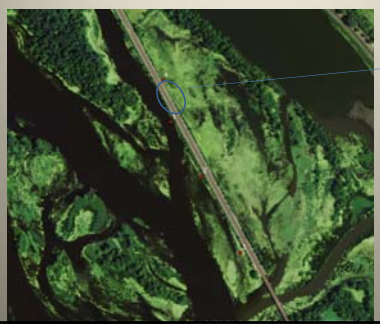


Implication for dredging depth (ex. Pool 6 vs 11)

Areas to improve light climate in WI Waters on UMR- Upstream of Lake Pepin and Pools 9-11.

Alma Derailment Site
Draft Sampling Results 11/7- 11/8/15

Shawn Giblin, Mississippi River Water Quality Specialist,
Wisconsin Department of Natural Resources

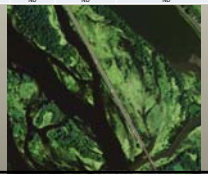


Field Data

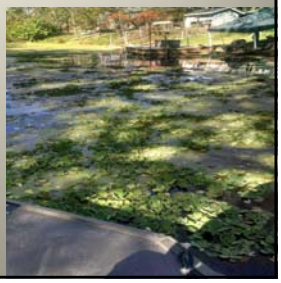
Site	Date	Time	x	y	SampleDepth(m)	Temp-C	DO (mg/L)	pH(su)	SpConductivity(uS/cm)
1	11/07/2015	1632	584668	4911552	0.2	9.23	9.71	7.52	248
2	11/07/2015	1646	584743	4911421	0.2	9.13	8.9	7.43	248
3	11/07/2015	1700	584837	4911236	0.2	10.12	8.91	7.51	246
4	11/08/2015	1353	584649	4911653	0.2	9.33	14.1	8.45	320

Lab Data

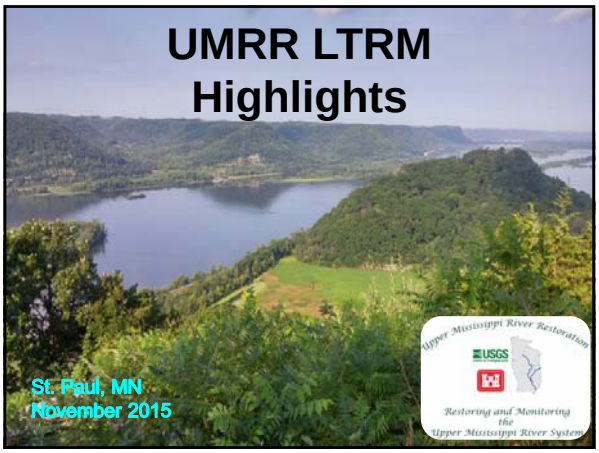
Site	Ethanol(mg/L)	1,2,4-Trimethylbenzene(ug/L)	Benzene(ug/L)	Ethylbenzene(ug/L)	Hexane, mixture of isomers(ug/L)	M/P-xylene(ug/L)	O-xylene(ug/L)	Toluene(ug/L)
1	<1.5	ND	ND	ND	ND	ND	ND	ND
2	12	ND	1.2	ND	7.1	0.93	ND	1.9
3	420	1.8	10	1.7	50	9.2	2.4	22
4	13	ND	ND	ND	ND	ND	ND	ND



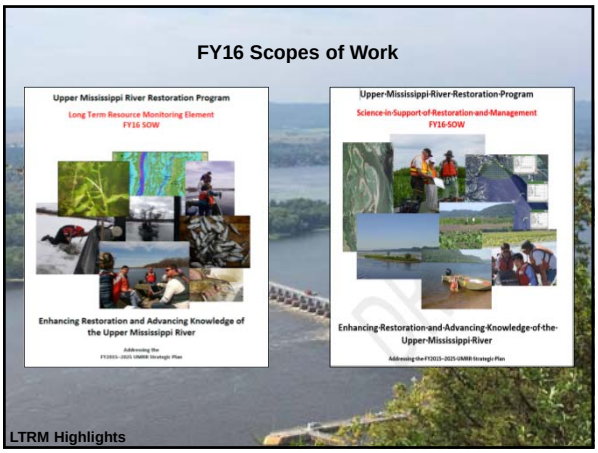
Water Lettuce/Water Hyacinth Outbreak Lake Onalaska- Pool 7



UMRR LTRM Highlights



FY16 Scopes of Work



LTRM Highlights

Flood pulse effects on nitrification in a floodplain forest impacted by herbivory, invasion, and restoration

Nathan De Jager, Whitney Swanson, Eric Strauss, Meredith Thomsen, & Yao Yin
Wetlands Ecol Manage 23:1067–1081 DOI 10.1007/s11273-015-9445-z

- Examined soil physiochemical measurements and nitrification along river-floodplains
- In all forest types, soil properties less favorable for nitrification as elevation increased.
- *Phalaris* maintained high soil organic matter and porosity as floodplain elevation increased.

LTRM Manuscripts

Flood pulse effects on nitrification in a floodplain forest impacted by herbivory, invasion, and restoration

- These results generally support the flood-pulse concept of river-floodplain connectivity--highest nitrification rates found in areas and during times immediately following inundation.
- Restoration of forest cover in areas invaded by *Phalaris* appears likely to restore flood-pulse effects on abiotic soil properties and nitrification dynamics.

Effects of Flooding on Ion Exchange Rates in an Upper Mississippi River Floodplain Forest Impacted by Herbivory, Invasion, and Restoration

Rebecca Kreiling, N. De Jager, W. Swanson, E. Strauss & M. Thomsen
Wetlands (2015) 35:1005–1012 DOI 10.1007/s13157-015-0675-x

- Examined effects on a broader-array of nutrients by deploying plant root simulation probes
- Time after flooding influenced the absorption rates
- Plant community type had a significant influence on a number of nutrients, with higher values typically in areas invaded by *Phalaris*.

Effects of Flooding on Ion Exchange Rates in an Upper Mississippi River Floodplain Forest Impacted by Herbivory, Invasion, and Restoration

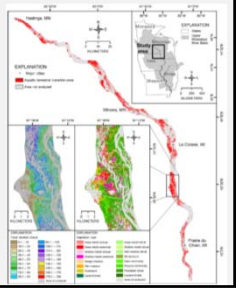
- Suggest that seasonal dynamics in floodplain nutrient availability are similarly driven by flood pulses in different plant community types.
- Invasion by *Phalaris* has the potential to increase the availability of some nutrients, while restoration of forest cover appears to promote recovery of nutrient availability to that observed in reference mature forests.

The Upper Mississippi River floodscape: spatial patterns of flood inundation and associated plant community distributions

Nathan R. De Jager, Jason J. Rohweder, Yao Yin, & Erin Hoy

Applied Vegetation Science **DOI: 10.1111/avsc.12189**

- How is the distribution of different plant communities associated with patterns of flood inundation across a large floodplain landscape?
- Used daily river stage data, high-resolution digital elevation models, and vegetation maps to examine spatial relationships between flood duration and the distribution of 16 different vegetation types



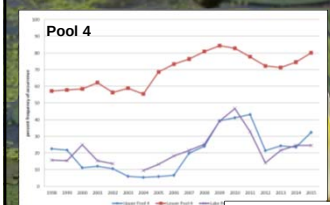
LTRM Manuscripts

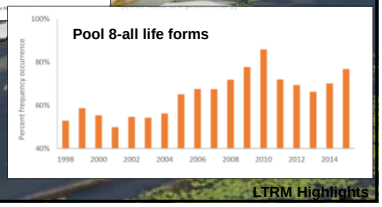
The Upper Mississippi River floodscape: spatial patterns of flood inundation and associated plant community distributions

- The mapping indicates that within the ATTZ, mean growing season flood duration is highly variable, ranging from near 0 d to nearly the entire growing season.
- Compared the distribution of 16 different vegetation types with the floodscape map to show that there is a strong correspondence between flooding and the diversity and distribution of different vegetation types.
- Planning efforts related to climate change adaptation and river restoration could use our results to better understand and quantify potential changes in hydrological regimes on vegetation distributions

LTRM Manuscripts

Preliminary 2015 Aquatic Vegetation Findings



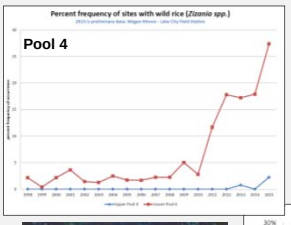


Cathy Henry-USFWS

LTRM Highlights

Preliminary 2015 Aquatic Vegetation Findings

Wild Rice



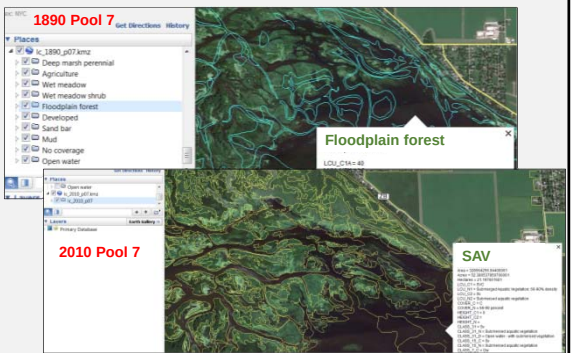
LTRM Highlights

Conversion of GIS data to KMZ (Google Earth) formats

http://www.umesc.usgs.gov/data_library/land_cover_use/2015_kmz_umesc.html

LTRM Highlights

Conversion of GIS data to KMZ (Google Earth) formats



http://www.umesc.usgs.gov/data_library/land_cover_use/2015_kmz_umesc.html

LTRM Highlights

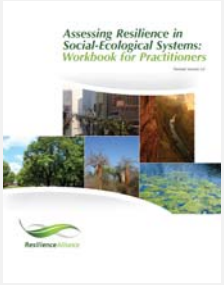
UMRS Resilience

- UMRR federal and state partners working group
- Purpose:
  - Conduit for information flow
  - Identify appropriate people with relevant expertise
  - Keep the project focused on topics and applications
- Reflects compromise between an effort to keep the process open and inclusive, but manageable

Current members: Kristen Bouska (UMESC); Andy Casper (INHS); Nate De Jager (UMESC); Jon Hendrickson (USACE); Jeff Houser (UMESC); Marvin Hubbell (USACE); Nathan Richards (USACE);Stephen Winter (USFWS)

UMRS Resilience Workshop Jan 5-7, 2016 in La Crosse, WI

- ~ 10 attendees from federal and state partner agencies.
- External facilitators
- Workshop objectives:
  - Draft conceptual model
  - Establish initial framework for assessing resilience of the UMRS
- Present workshop output to broader partnership for additional input, critique, and modification
- Questions or comments?
  - Jeff Houser (jhouser@usgs.gov)



http://www.resalliance.org/

Related note: UMRS Resilience presentation @ Combined River Teams Meeting 20 November.

UMRR Science Meeting

- February 2016 in La Crosse
- Multiple Doodle poll emails
- Agenda is under development
- Objectives (tentative):
  - Share and discuss results from recent research
  - Discuss ideas and priorities for future work
  - Presentation/discussion of output from UMRS resilience workshop

Upcoming Spring 2016 Events

- **Multivariate Statistical Workshop**
- **Component Field Day**

Teaser