Upper Mississippi River Basin Association

Resiliency in the Upper Mississippi River Basin

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(VIRTUAL) WISCONSIN WATERS CONFERENCE

APRIL 3, 2020

Today's Topics

About the Upper Mississippi River Basin (UMRBA)

UMRBA's role on the River

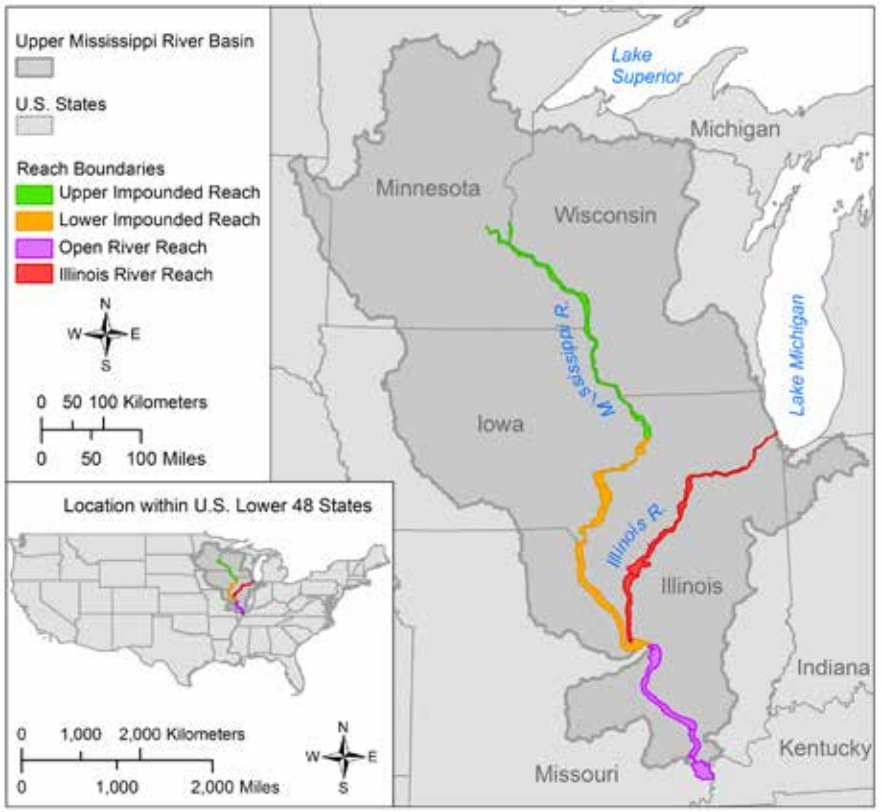
Resilience in practice

- A new vision for flood, sediment, and drought
- The UMRR program
- Water level management
- The UMR Water Quality Improvement Act

Opportunities for collaboration

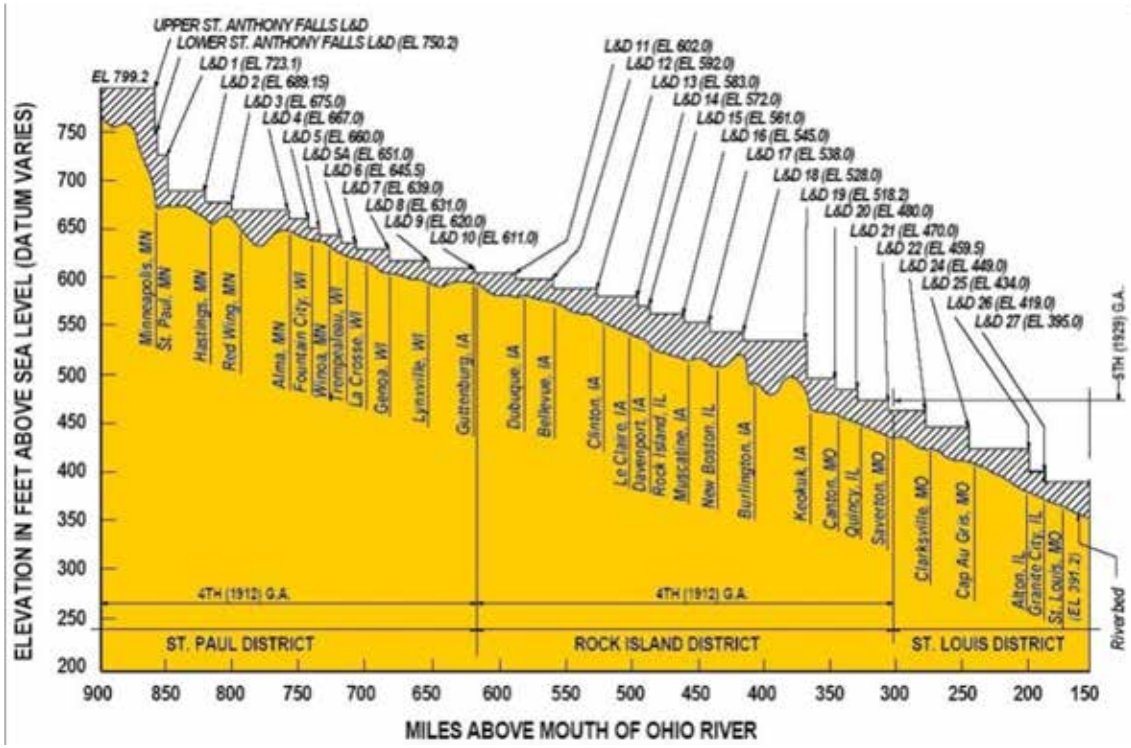
Q&A

Photo: MVS Flickr



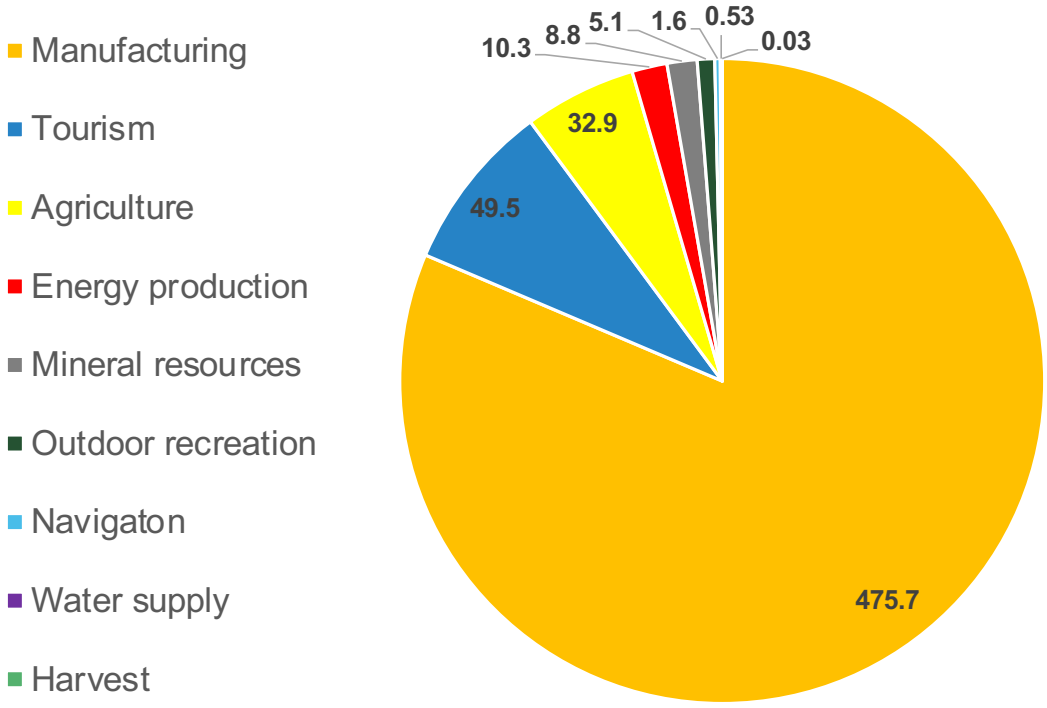
≈1,100 navigable miles

37 locks and dams



≈1,600 miles long

The Upper Mississippi River is a vital resource for regional economic prosperity.



Economic sectors in the UMR and IWW corridors generate more than **$548 billion annually, supporting over 1.86 million jobs.**

$54.6 billion from tourism and recreation, supporting over 686,000 jobs.

http://www.umrba.org/umr-econ-profile.pdf

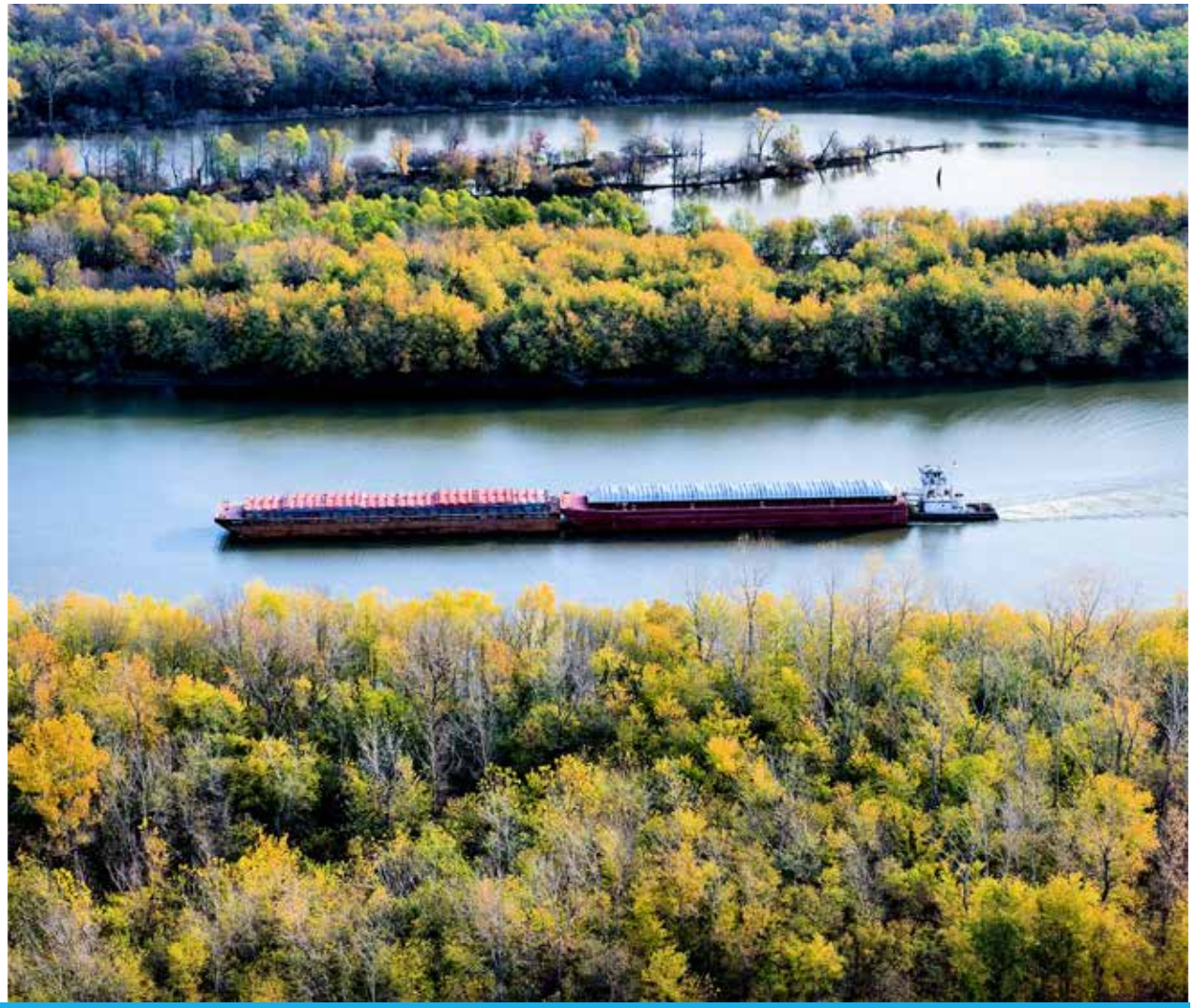
The UMR has ecological value too

127 species of fish - 30 species of freshwater mussels - 300 species of birds

Photos: USFWS Flicker

Multi-Purpose River Management

In 1986, Congress declared the Upper Mississippi River Basin a **"nationally significant ecosystem and nationally significant commercial navigation system."**



About UMRBA

Regional interstate organization formed in 1981 by the **Governors of *Minnesota, Wisconsin, Illinois, Iowa, and Missouri***

Facilitate dialogue and cooperative action regarding water and related land resource issues on behalf of the five basin states

Photo credit: US FWS

UMRBA Issue Areas

- Ecosystem Health
- Commercial Navigation
- Clean Water
- Hazardous Spills
- Flooding
- Aquatic Nuisance Species

Photo credit: MVS Flickr

UMRBA Water Quality Groups

Water Quality Executive Committee and Water Quality Task Force

- Tier I:
  - Nutrient reduction strategies
  - Interstate water quality monitoring
- Tier II:
  - Harmful algal blooms
  - Emerging contaminants (e.g., PFAS)
  - Chloride

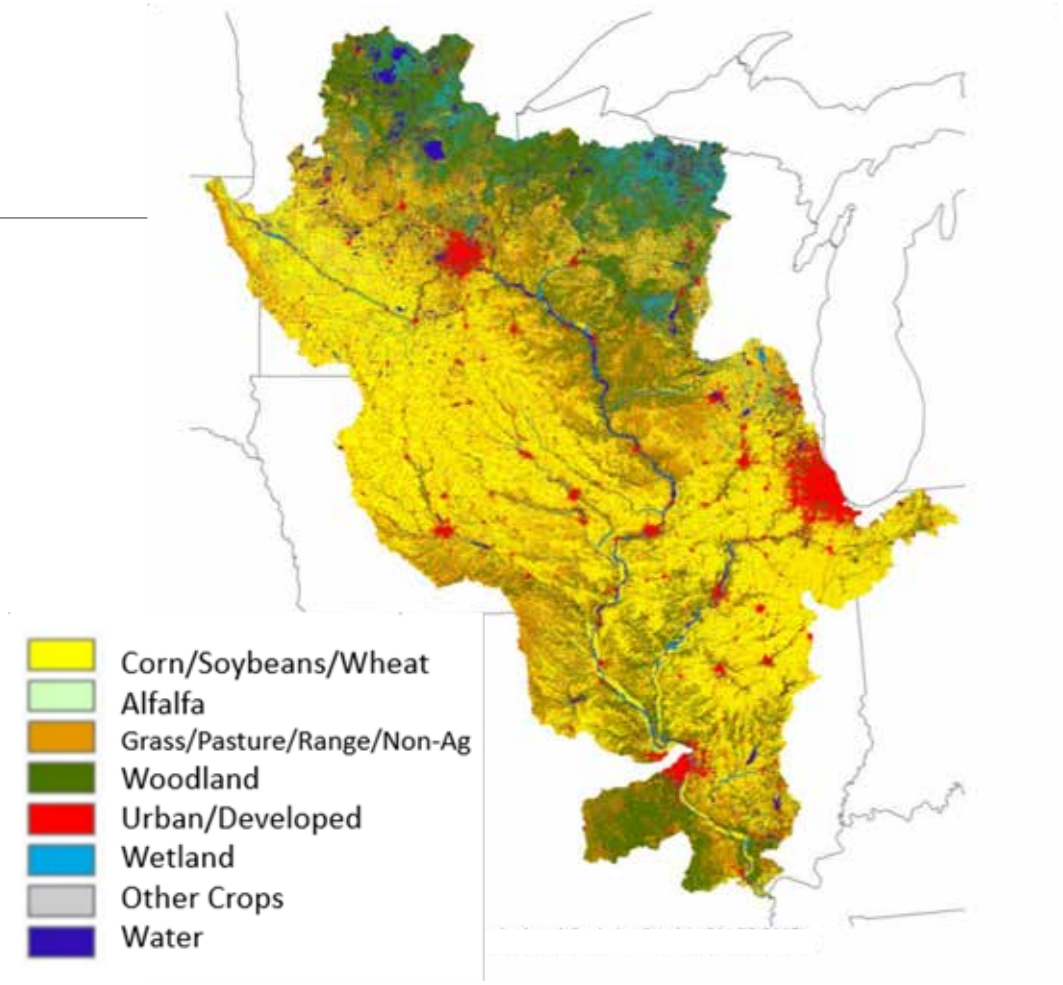
Photo: USFWS Refuge Flicker

The case for building resilience in the UMRB

Photos: Indiana Public Media and St. Paul Corps of Engineers

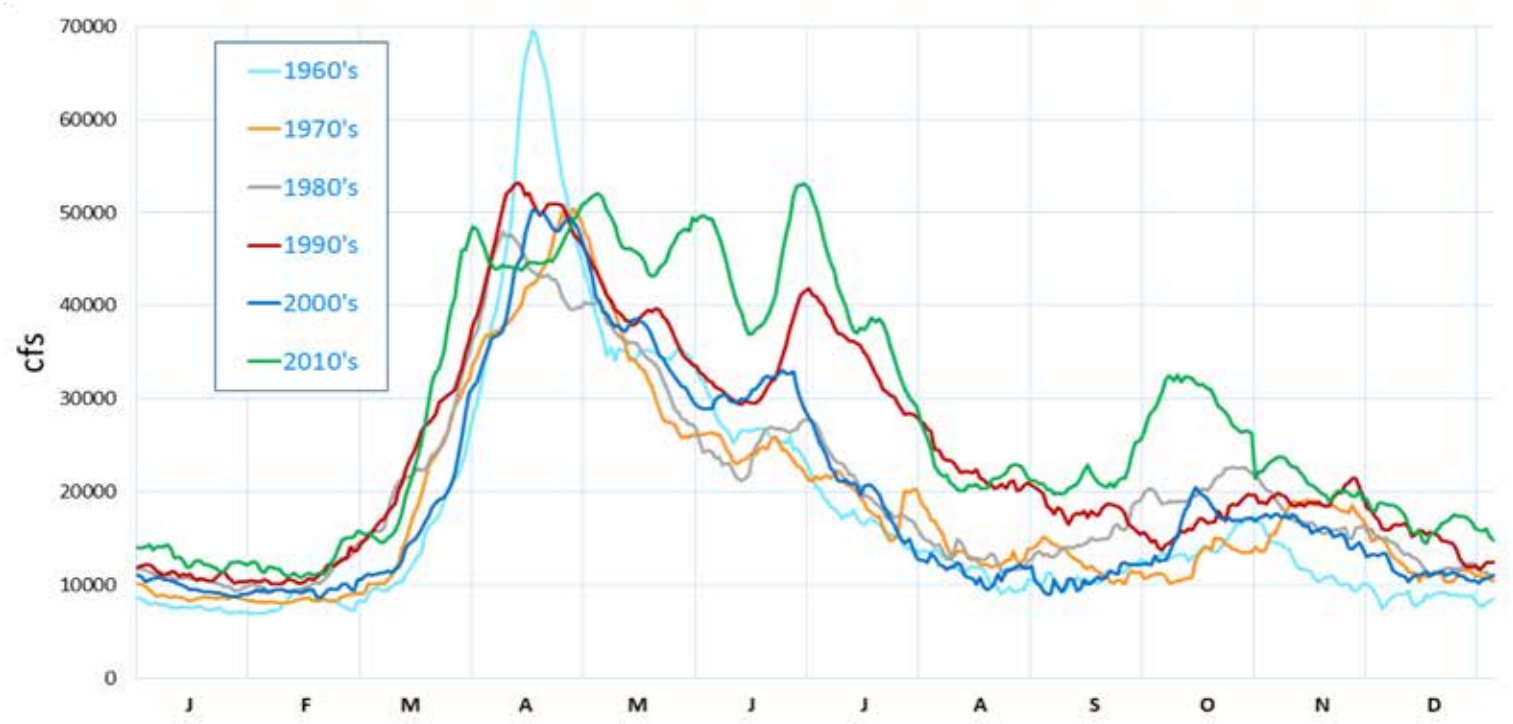
UMRB Land Use

Urban and agricultural uses have contributed to high levels of nutrients and suspended sediments



Source: National Agricultural Statistics Service (NASS 2007).

The River is changing

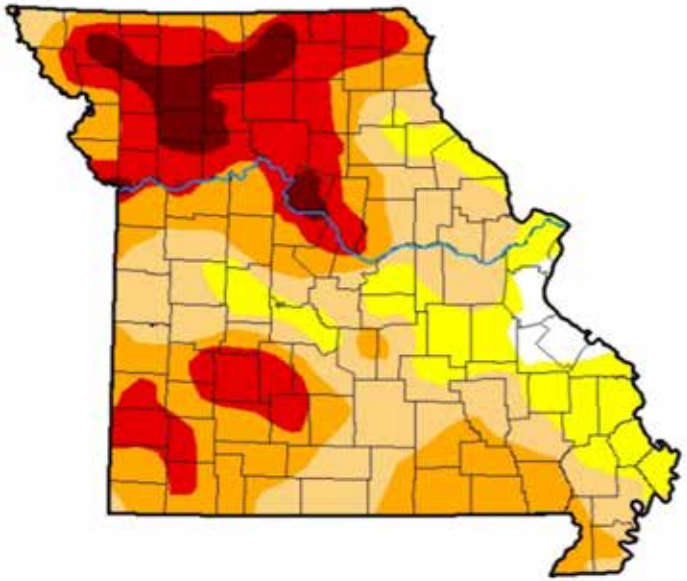


Mean daily discharge by decade (1960-2019) at L&D 3

Data: UMRR Program
Figure: Megan Moore, MNDNR

During summer 2019, the navigation channel was closed for **130 days.**

U.S. Drought Monitor
Missouri



August 14, 2018
(Released Thursday, Aug. 16, 2018)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.24	97.76	83.33	54.45	25.45	5.54
Last Week 08-07-2018	2.24	97.76	78.37	43.70	19.39	0.23
3 Months Ago 05-15-2018	47.55	52.45	15.25	0.00	0.00	0.00
Start of Calendar Year 01-02-2018	1.49	98.51	46.34	23.68	1.29	0.00
Start of Water Year 09-26-2017	35.49	64.51	8.80	0.00	0.00	0.00
One Year Ago 08-15-2017	82.31	17.69	4.69	0.00	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Heim
NCEI/NOAA

http://droughtmonitor.unl.edu/

Source: UNL Drought Monitor

Resilience in Practice

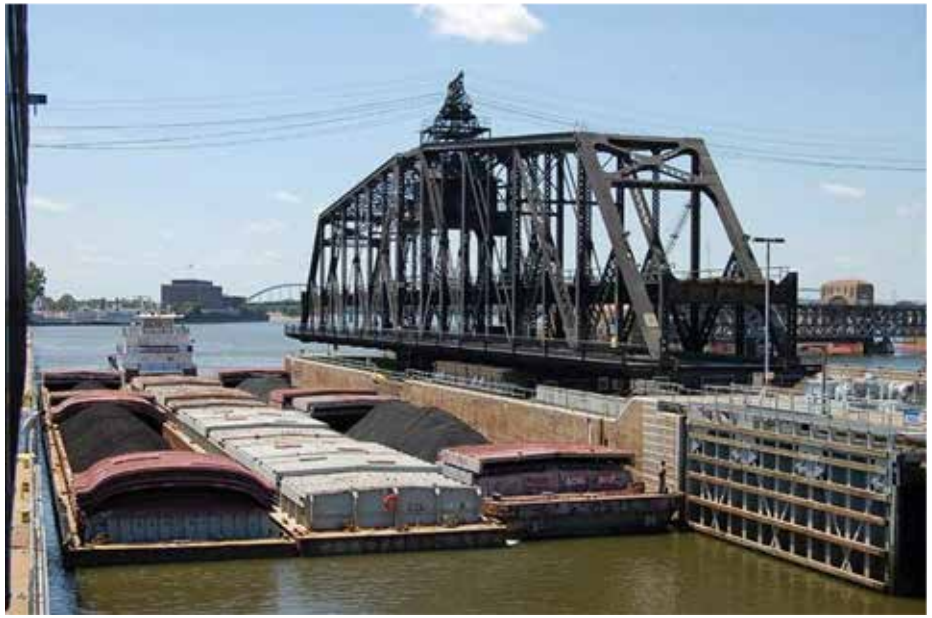


Photo: MVS Flickr; USFWS Flickr

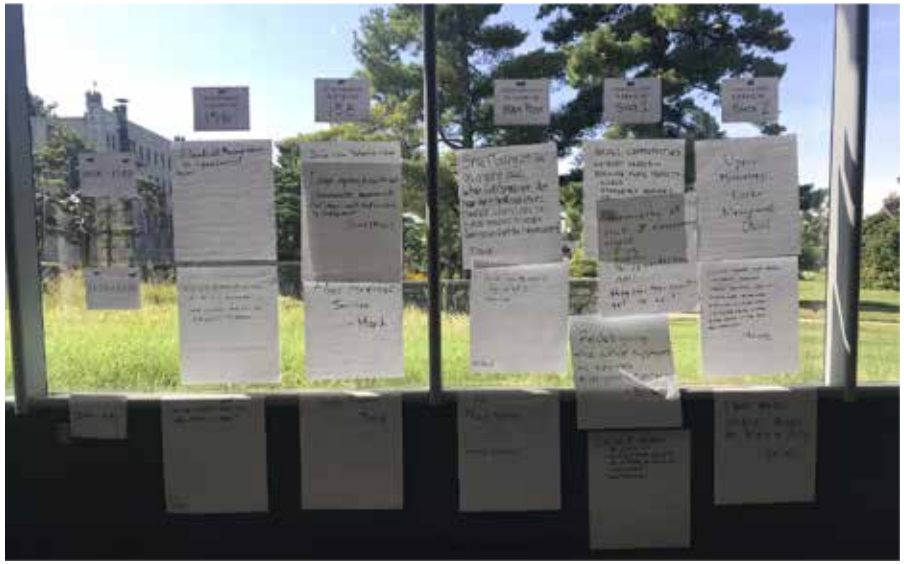
A new vision for the UMR floodplain

UMRBA and the U.S. Army Corps of Engineers will engage communities, river-reliant industries, and other organizations within the floodplain community **to create a commonly-held vision with goals, objectives, and an implementation strategy** for ensuring that the Upper Mississippi and Illinois Rivers are thriving and resilient.

Photo: The Nature Conservancy

Open Sessions

Six sessions across the watershed July to September 2019 led by participants



Photos: Lauren Salvato

“Keys to the River 2020” report

The report will offer two things:

- A suite of actions that can be pursued
  - Drought
  - Sediment/Channel Management
  - Flooding
- A detailed proposal for creating comprehensive, long-term strategies

Photo: USFWS Flicker

Example Actions

- **Flooding** – Develop HEC RAS models for the entirety of the UMRS
- **Drought** – Inventory critical infrastructure on the floodplain that would be negatively affected by drought
- **Sediment/Channel Management** – Develop opportunities to use dredged material as a resource material in beneficial ways

Photo: Stephen Brand

UMRR program

The first comprehensive program for ecosystem restoration, scientific research, and monitoring on a large river system in the Nation and the world

Two elements – Long Term Resource Monitoring (LTRM) and Habitat Restoration and Enhancement Project (HREPs)

Long Term Resource Monitoring

The LTRM element:

- Environmental monitoring
- Research
- Systemic data acquisition
- Modeling

https://umesc.usgs.gov/

Habitat Restoration and Enhancement Projects

Restoration projects to fight ecosystem stressors and degrading influences.

UMRR has improved critical fish and wildlife habitat on **106,000 acres through 56 projects.**

Building Islands

Photo: WIDNR

Photo: WIDNR

Floodplain Forest Induced Mortality Following the 1993 Flood

Species	Percent mortality (%)	Percent stressed (%)
Hackberry	95.6	0.7
Silver Maple	46.8	3.4
American Elm	42.0	2.3
Pin Oak	41.0	3.8
Eastern Cottonwood	33.3	1.9
Green Ash	30.8	3.8
Pecan	3.7	7.4


Audubon
MINNESOTA
mn.audubon.org/drawdowns

Water Level Management (WLM)

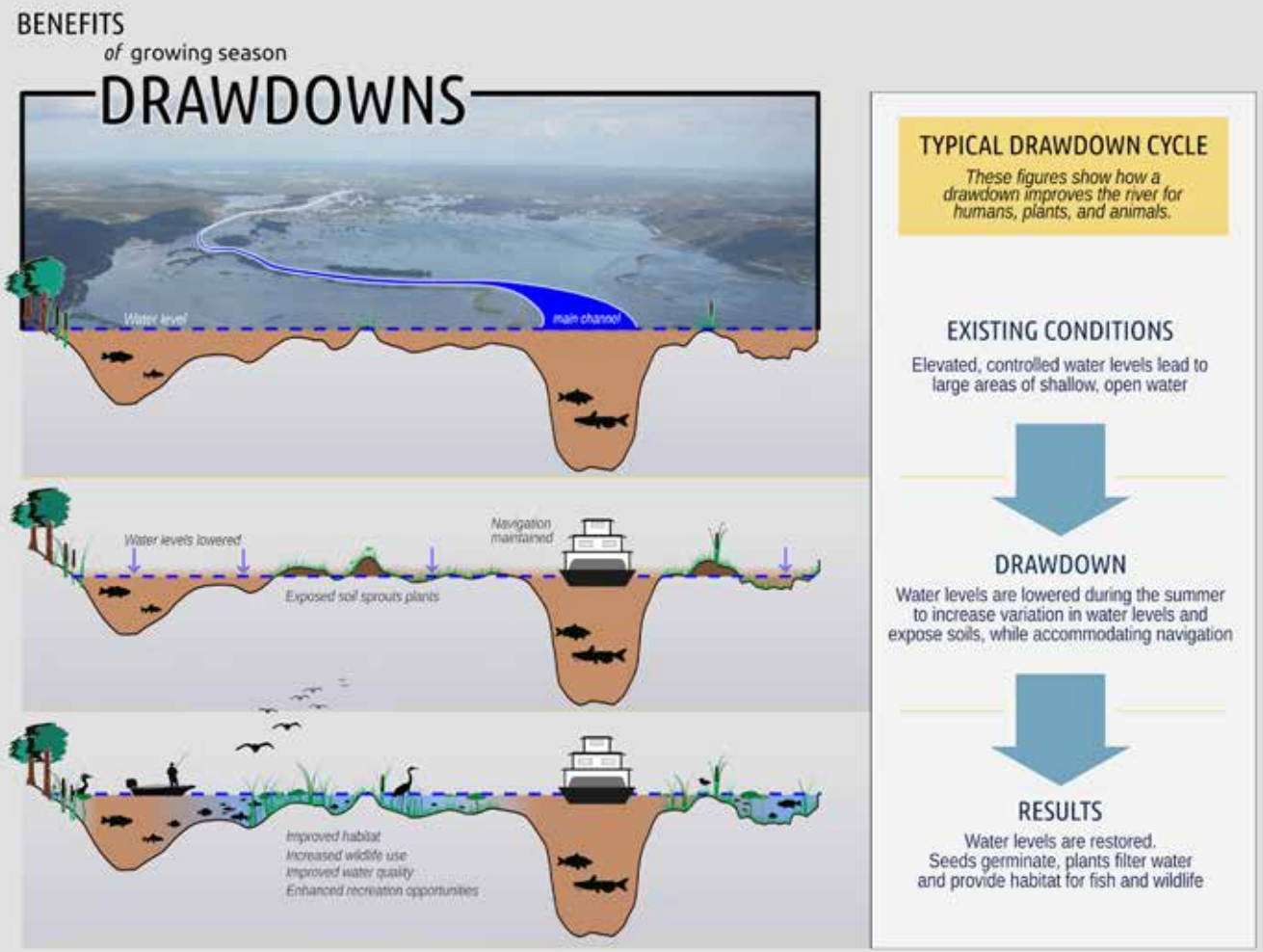


Figure: Audubon MN

History of WLM

WLM activities have been ongoing for 25 years

<u>2005</u>
Pool 5 drawdown in Milton, WI

But WLM has not been implemented uniformly…

Challenges:

- Dredged material management and placement
- Corps authorities and policy
- Stakeholder outreach
- Impacts to recreation, industry, etc.

Photo: MVS Flicker

UMR WQ Improvement Act

A federal-state collaborative **to improve and sustain the availability of clean water** in the UMRB, **propelling investment in the reduction of nutrient and sediment runoff** as well as other pollutants.

Photo: USFWS Flickr

Components of the Act

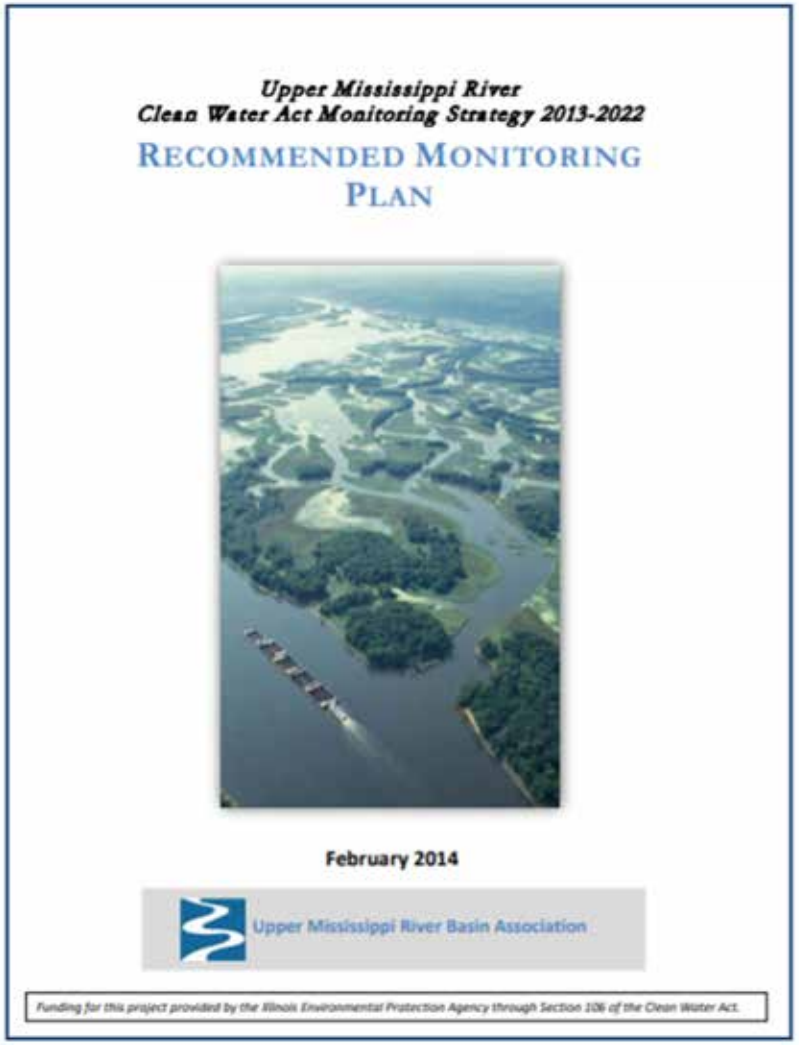
- Sediment and Nutrient Runoff Reduction
- Monitoring Network
- Modeling and Research
- Communications Strategy
- Establishment of a Mississippi River National Program Office

Photo: MVS Flickr

Components of the Act

Sediment and Nutrient Runoff Reduction - Implementation of agricultural and urban non point source BMPs

Photos: USDA NRCS and USGS



Components of the Act

UMR Interstate Water Quality Monitoring

Scope

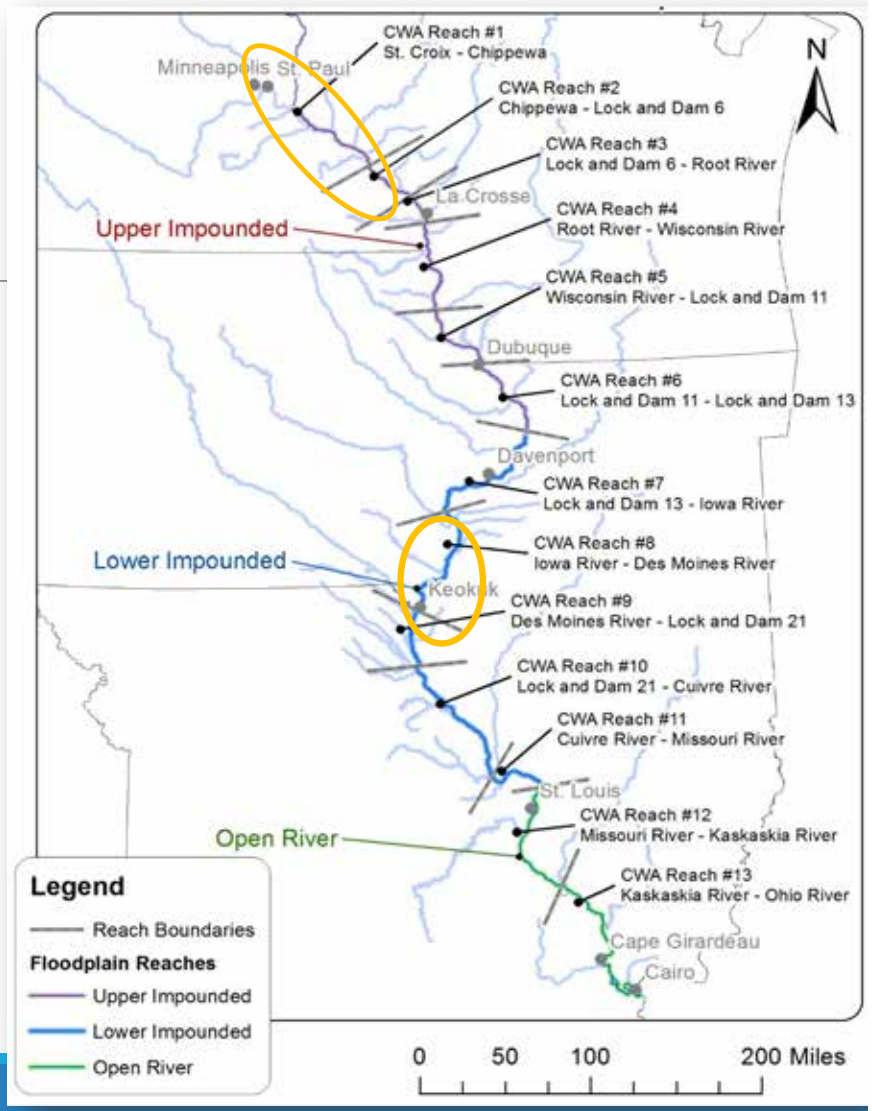
- Full longitudinal extent and main channel
- Four major designated uses – aquatic life, drinking water, recreation, fish consumption
- Chemical, physical, and biological parameters

Components of the Act

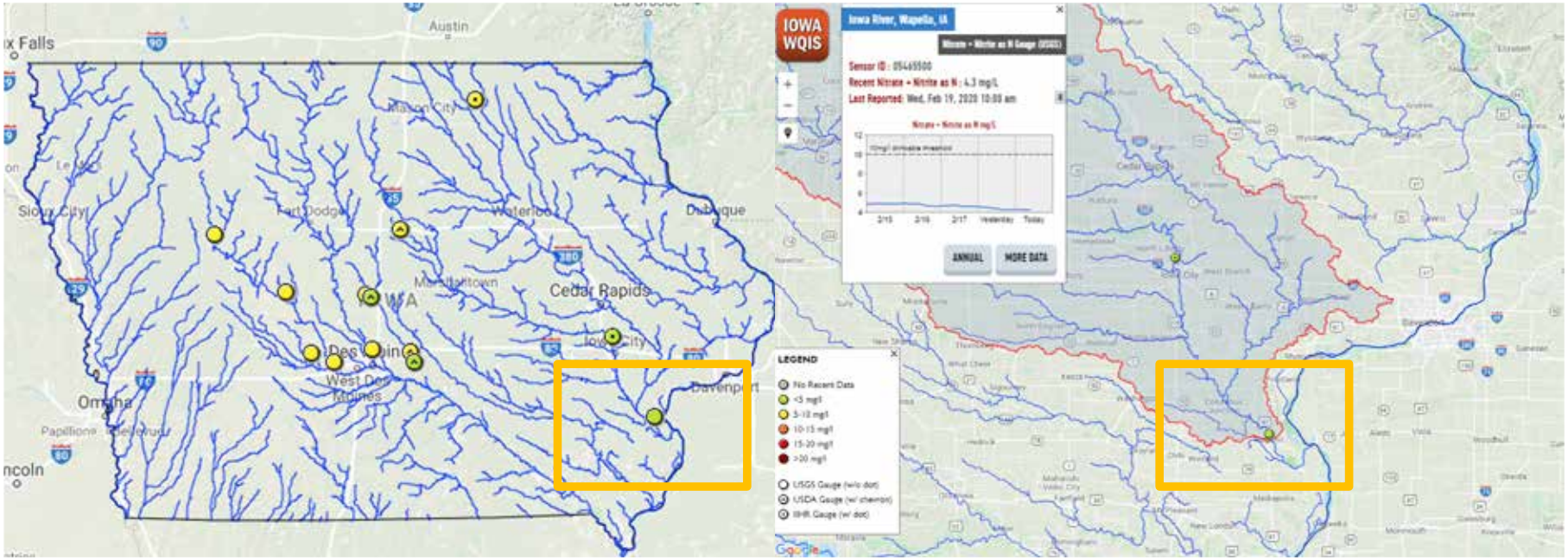
Monitoring Pilots

- **Reaches 0-3** - May 2016 to April 2017

- **Reaches 8-9** – December 2019 to December 2020



Components of the Act - Nutrient Monitoring Network



https://iwqis.iowawis.org/app/

Photo: IIHR

Components of the Act

Mississippi River National Program Office -

A national program office jointly administered by USEPA and USDA-NRCS

Photo: USFWS Flickr

Opportunities for Collaboration

- Advocate the need for the UMR WQ Improvement Act to your U.S. Congress person
- Get involved in your local watershed
- Participate in UMRBA or UMRR quarterly meetings

Photo: USFWS flicker

Thank you!

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http://umrba.org/wq.htm

Upper Mississippi River
Basin Association

Questions?

Photo: US FWS, Friends of Chalmers, MVS Flickr