UMR Data Needs in Support of Effective Management

Brian Nerbonne, UMRCC Chair, MNDNR


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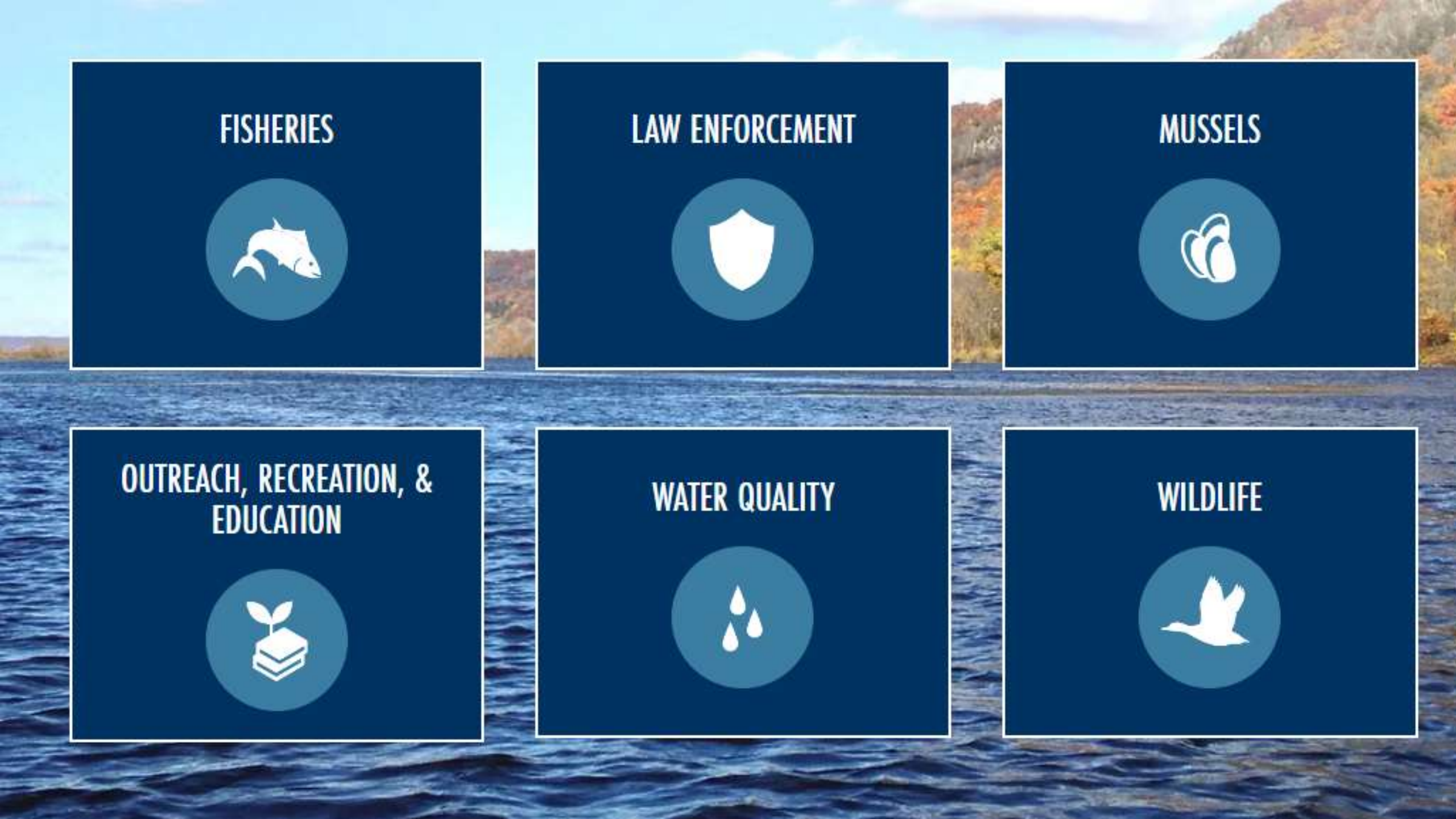
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY


FISHERIES
LAW ENFORCEMENT
MUSSELS
OUTREACH, RECREATION, & EDUCATION
WATER QUALITY
WILDLIFE


Hallie Rasmussen


Winona District USFWS

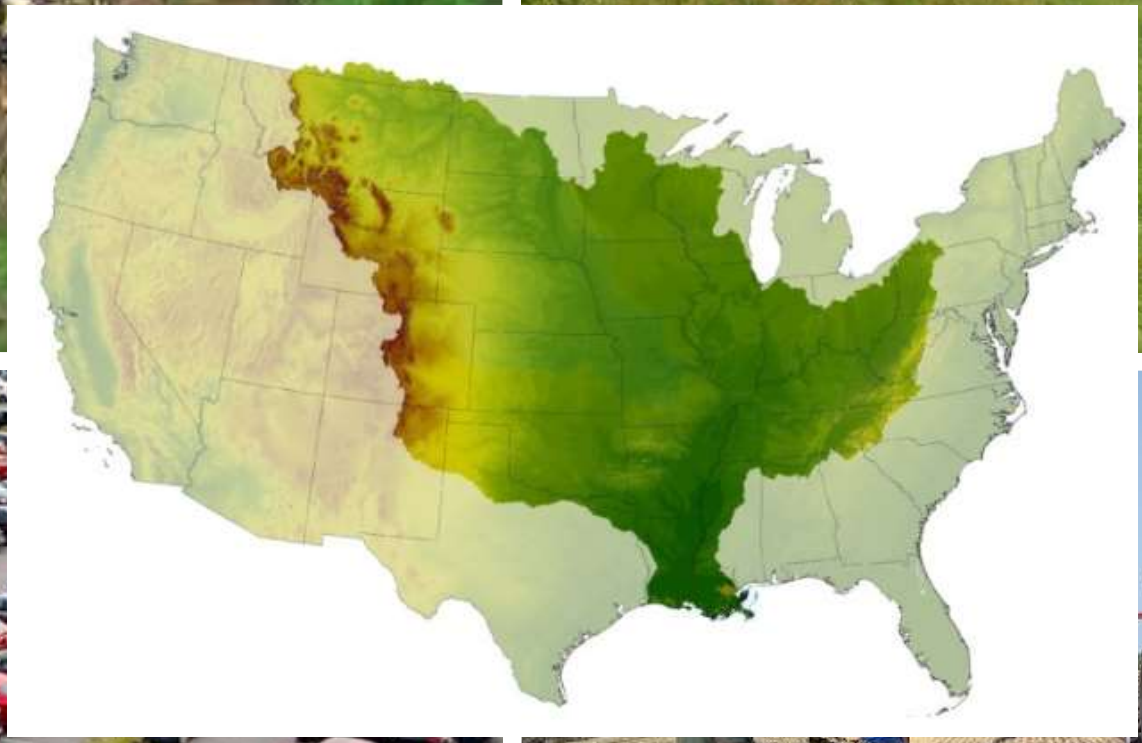

Jamie Bertram


Robert Hurt


Billy Reiter Marolf

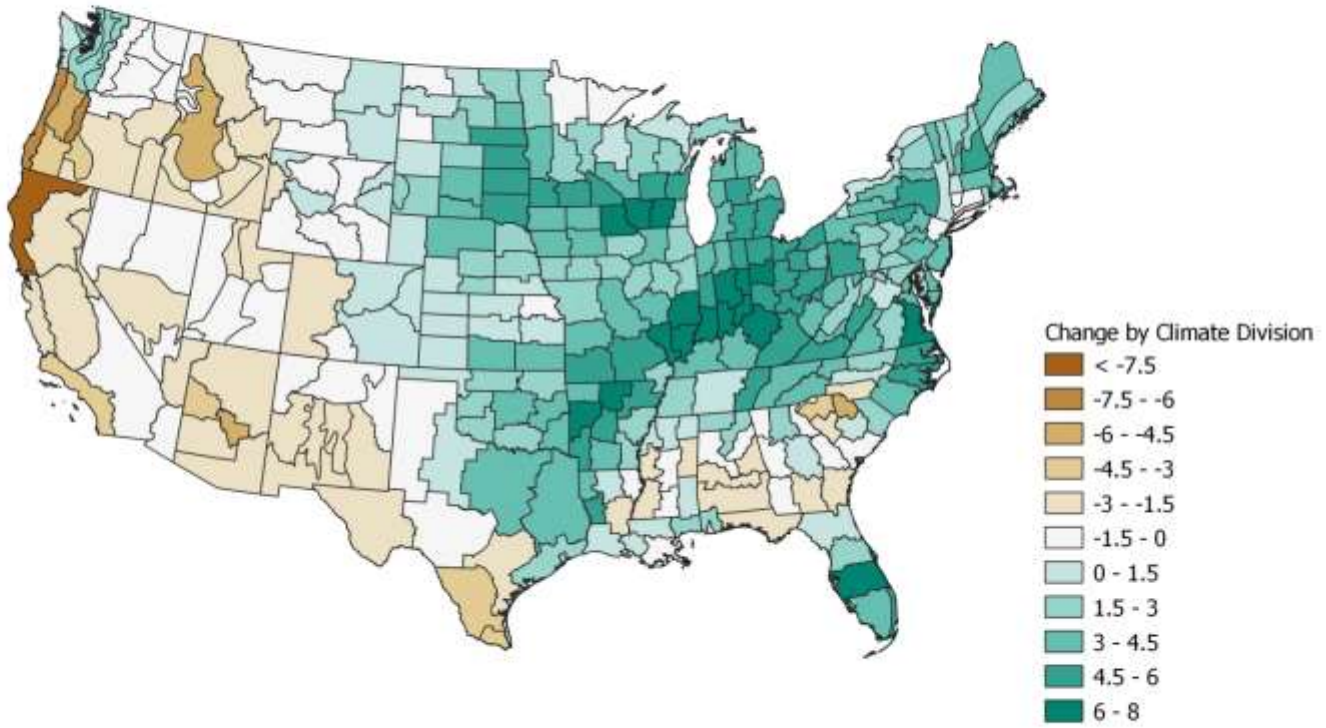

UMR refuge


Katie Julian



AP Photo/Jeff Roberson

USA Today

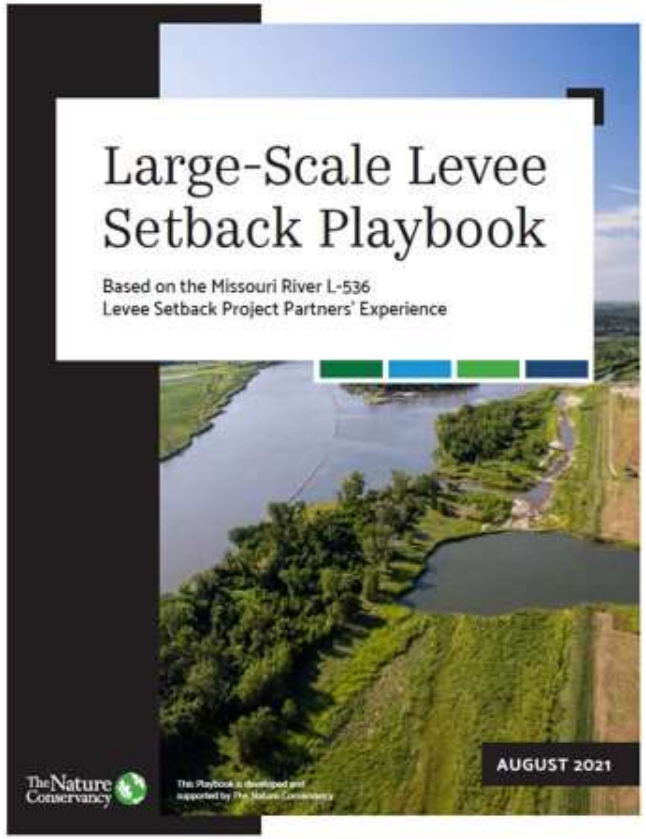


Climate Central

Climate Change


Rob Burdis
Aaron McFarlane
John Nelson

Sediment



Lateral Connectivity


Randall Urich


Andy Bartels


Steph Edeler

Vegetation

USGS science for a changing world

Upper Midwest Environmental Sciences Center

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Upper Mississippi River Conservation Committee (UMRCC) Vegetation Data

The Upper Mississippi River Conservation Committee (UMRCC) is a multi-agency partnership of natural resource managers in Illinois, Iowa, Minnesota, Missour
Vegetation Committee of the UMRCC Wildlife Technical Section has attempted to conduct sampling of aquatic vegetation in one or two pools of the Upper Miss
conducted by employees of state and federal agencies, tribes, NGOs, and volunteers, and is usually complet
efforts is slightly modified from that of Yin et al (2000).

Metadata for the UMRCC Vegetation Data can be found here.

Download Entire UMRCC Vegetation Dataset

Select Format: Comma Separated Values (CSV)

Create Entire UMRCC Vegetation Dataset

Or

Explore Individual Pool and Year Data

Pool or Location: Select Pool

Year:

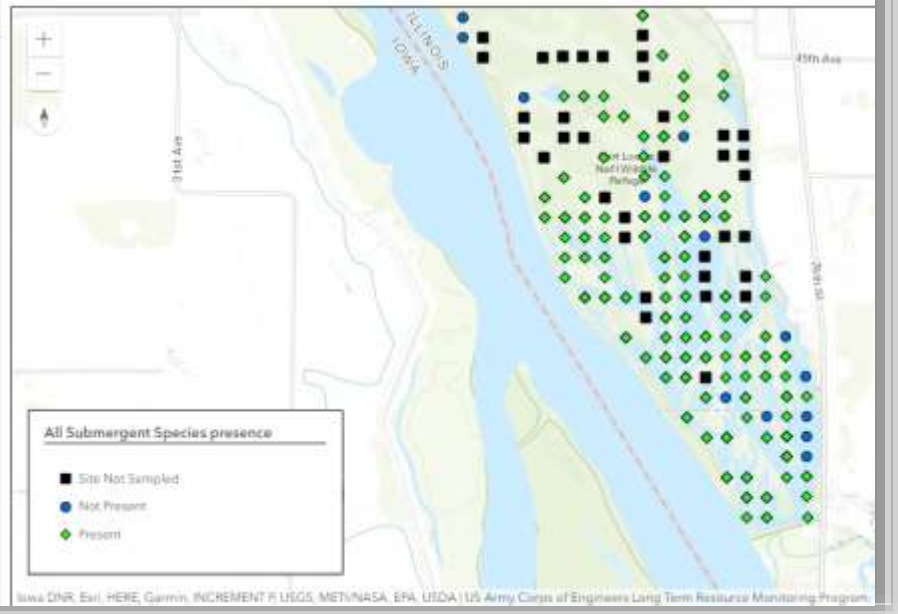
Go To Pool and Year Information

Sampling Effort For Pool 18: Keithsburg During 2015

Species Distribution Maps For Keithsburg During 2015

Species: All Submergent Species

Submit Distribution Map Query



Vegetation



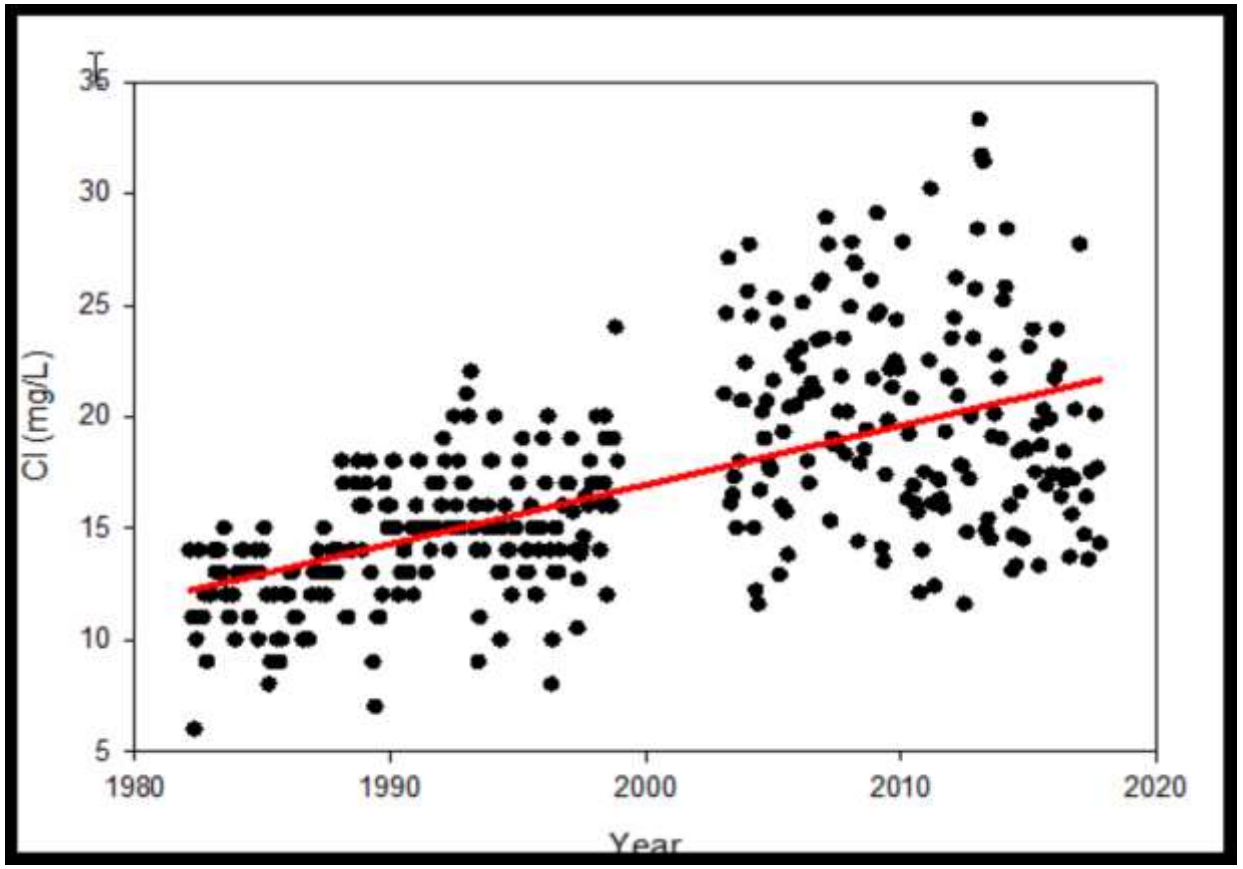
Invasive Plants

Aquatic Invasive Species

Fish Passage

Mike Durenberger

Chloride



Chloride concentration at LD 9. From: How's the River Doing?

Mississippi River Clean Water Act Pilot Water Quality Summary for Minnesota-Wisconsin *2019 EGAD # 3200-2020-08*

Shawn M. Giblin, Principal Author

Upper Mississippi River Conservation Committee

LET'S CURB SALT USE

UPPER MISSISSIPPI RIVER CONSERVATION COMMITTEE

The UMRCC works to promote & preserve natural and recreational resources through wise use, conservation, and management

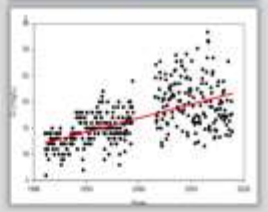
The overutilization of road salt is costing tax payers and putting our freshwater resources and the foundation of our economy at risk. Chloride used in deicing and water softeners is making the Upper Mississippi River saltier and is becoming a major concern for the ecosystem. Implementing proper management efforts is essential to best combat against these emerging threats to our natural freshwater resources, economy, and infrastructure.

One teaspoon of road salt is enough to pollute 5 gallons of water permanently.

UMRCC chloride resolution:
*** link ***

Salt degrades freshwater resources

Salt pollution is detrimental to our freshwater lakes, streams, and drinking water. Once in a system, it is impossible to get rid of. High concentrations of salt (sodium chloride) stress the plants and animals and inhibit natural growth. Over the past several decades, the Upper Mississippi River has seen a 77% increase in chloride concentrations.



Salt degrades infrastructure

Salt erodes away and damages concrete, brick, stone, and reinforcing rods that make up our homes, bridges, and roads. Across the nation, $5 billion is spent annually to repair these damages and were losing the battle as high salt usage continues.

5 strategies to curb salt use:

1. Optimize mechanical removal
2. Calibrate equipment
3. Incorporate brine
4. Properly train operators
5. Educate the public

5 Strategies to curb salt use:

Optimize mechanical removal

Equipping plow trucks with multiple blades will allow for effective movement of as much snow as possible off the road surface as quickly as possible.

Calibrate equipment

Equipment that is properly calibrated allows for precise adjustments of application rates to best approach and respond to each unique storm and changing condition.

Incorporate brine

Brine works faster than solid rock salt and it can prevent the formation of a bond between snow and the pavement enabling a quicker return to better road conditions.

Properly train operators

Implementing training for operators on salt management practices is necessary. Training information includes an emphasis on pre-storm planning, deicer materials, precision application rates, mechanical removal, and the environmental impacts of salt.

Educate the public

Informing residents along the UMR of the increasing chloride contamination and how to take a proactive approach to winter weather will promote reasonable expectations and goals for our winter roads.

Additional Resources:

Minnesota Pollution Control Agency	pca.state.mn.us
Salt Wise Wisconsin	wisaltwise.com

emerging contaminants

EWG study: Eating one freshwater fish equals a month of drinking 'forever chemicals' water

REPORT

NEONICOTINOIDS

Neonicotinoids disrupt aquatic food webs and decrease fishery yields

Masumi Yamamuro[1,2]*, Takashi Komuro[3], Hiroshi Kamiya[3], Toshikuni Kato[3], Hitomi Hasegawa[4], Yutaka Kameda[5]

Invertebrate declines are widespread in terrestrial ecosystems, and pesticide use is often cited as a causal factor. Here, we report that aquatic systems are threatened by the high toxicity and persistence of neonicotinoid insecticides. These effects cascade to higher trophic levels by altering food web structure and dynamics, affecting higher-level consumers. Using data on zooplankton, water quality, and annual fishery yields of eel and smelt, we show that neonicotinoid application to watersheds since 1993 coincided with an 83% decrease in average zooplankton biomass in spring, causing the smelt harvest to collapse from 240 to 22 tons in Lake Shinji, Shimane Prefecture, Japan. This disruption likely also occurs elsewhere, as neonicotinoids are currently the most widely used class of insecticides globally.

occurs (fig. S3, A and B). However, this species has been collected only infrequently at four long-term sampling points since 1993: in 1998 to 2000 and 2004 to 2006 (fig. S3C and table S1). The possibility that *C. plumosus* abundance was anomalously high in the 1980s and that the drop in 1993 represents a return to baseline conditions is not plausible because *C. plumosus* declined in other lakes at about the same time that neonicotinoids were introduced (e.g., Lake Suwa) (9).

In addition to *C. plumosus*, the isopod *Chaetuev macromiensis* (fig. S4), the oligohaline polychaete *Notomastus* sp., and oligochaetes (figs. S5 and S6) had all declined in abundance by 2016 ($p < 0.05$, paired t tests). In contrast, mesohaline polychaetes increased (fig. S7, *Lumbrineris albicingillum*, $p < 0.05$; paired t test) or remained unchanged (fig. S8, *Prionospio japonica*, $p = 0.19$; paired t test), probably because their planktonic larva disperse annu-

Downl

Science of the Total Environment 686 (2019) 995–1009

Contents lists available at ScienceDirect

Science of the Total Environment

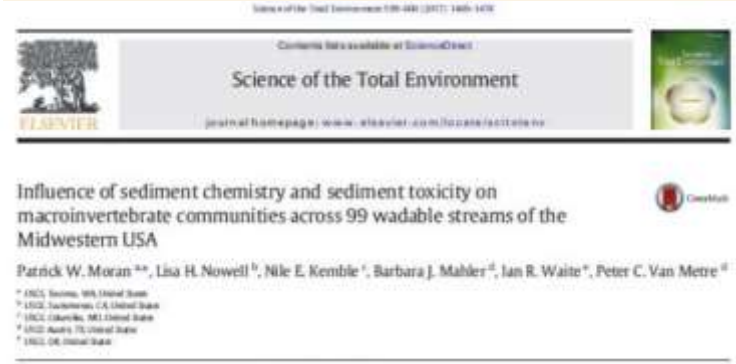
journal homepage: www.elsevier.com/locate/scitotenv

ELSEVIER

Prioritizing chemicals of ecological concern in Great Lakes tributaries using high-throughput screening data and adverse outcome pathways

Steven R. Corsi [a,*], Laura A. De Cicco [a], Daniel L. Villeneuve [b], Brett R. Blackwell [b], Kellie A. Fay [c,1], Gerald T. Ankley [b], Austin K. Baldwin [d]

[a] U.S. Geological Survey, Middleton, WI 53562, United States
[b] U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN 55804, United States
[c] General Dynamics Information Technology, Duluth, MN 55804, United States



Science of the Total Environment 599-600 (2017) 1400–1414

Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

ELSEVIER

Influence of sediment chemistry and sediment toxicity on macroinvertebrate communities across 99 wadable streams of the Midwestern USA

Patrick W. Moran [a,*], Lisa H. Nowell [b], Nile E. Kemble [c], Barbara J. Mahler [d], Ian R. Waite [e], Peter C. Van Metre [d]

[a] USGS, Tacoma, WA, United States
[b] USGS, Sacramento, CA, United States
[c] USGS, Columbia, MO, United States
[d] USGS, Austin, TX, United States
[e] USGS, OR, United States

The Gulf Of Mexico's Dead Zone Is The Biggest Ever Seen

August 3, 2017 · 4:58 AM ET

Heard on Morning Edition

The teal blue area along the Louisiana coastline represents a "dead zone" of oxygen-depleted water. Resulting from nitrogen and phosphorus pollution in the Mississippi River, it can potentially hurt fisheries.

NASA/Getty Images

Rare and non-game species

Understanding Use

- Creel Survey
- Recreational Use Survey
- Economic impact

IADNR

Randall Urich

Neal Jackson

MNDNR

Objectives to meet the strategy

- Improve Water Quality: deliberate effort to apply basin scale
- Reduction in Erosion, Sediment, and Nutrient impacts
- Return of natural floodplain to enable more habitat diversity
- Seasonal flood pulse and periodic low flow conditions
- Connectivity of backwaters to main channel
- Open side channels, create islands, shoal and sandbar habitat
- Channel maintenance and disposal to support ecosystem objectives
- Sever exotics pathways
- Provide native fish passages at dams