LAKE ONALASKA PROTECTION AND REHABILITATION DISTRICT
August 2023 Meeting

U.S. Geological Survey, Upper Midwest Environmental Sciences Center – Science Update

Upper Mississippi River Restoration Program (UMRR)

Long Term Resource Monitoring (LTRM) Element:

- US Army Corps' Federal-State Partnership program aimed at restoring habitat and monitoring the ecological health of the UMR celebrated 37 years in 2023.
    - USGS has science oversight for LTRM element of UMRR.
    - A concise summary of the program is available in this UMRR program flyer.
- Partners continue to monitor Fish/Veg/Water Quality annually with 6 State operated field stations

- 2020 Systemic Land-Cover/Use Imagery and Maps:
    - Imagery collected Fall 2020; U.S. Fish & Wildlife Service plane & new cameras; summer peak vegetation (August); entire UMR and Illinois Rivers
    - **Imagery processed and available online** at: 2020 Systemic Imagery, Upper Mississippi River System (UMRS): https://doi.org/10.5066/P962VKR4
        - Completed Pools:
            - Mississippi River: Pools 04, 08, 09, 10, 11, 12, 13, and 26, and Open River South.
            - Illinois River: Alton, Brandon, Dresden, LaGrange, Marseilles, Peoria, and Starved Rock Pools.
        - Under review or in progress:
            - Mississippi River: Pools 02, 03, and 07
            - Illinois River: Alton Pool
    - **LCU Maps developed and available online** at: 2020 Systemic Land Cover Data, Upper Mississippi River System (UMRS): https://doi.org/10.5066/P9U46VQP
        - Completed Pools:
            - Mississippi River Pools 04, 08, 09, 10, 11, 12, 13, and 26, and Open River South
            - Illinois River La Grange Pool.
        - Under review or in progress:
            - Mississippi River: Pools 02, 03, and 07
            - Illinois River: Alton Pool
- **Report: Ecological Status and Trends of the Upper Mississippi and Illinois Rivers**
    - UMRR has published three reports of the river's ecological status and trends using Long Term Monitoring Data. The latest report was published in June 2022 and provides a clear and quantitative assessment of our understanding of how the Upper Mississippi River ecosystem is doing, how we know that, and why it matters. This new report presents the most complete understanding of any large river ecosystem in the world. The full report is available here: Open-File Report 2022-1039
    - **Study Area Informational Flyers**
        - The UMRR program has developed snapshot summaries highlighting the most important observations about the river's ecological health and how long-term monitoring can inform how the river's ecological resources can be sustained and restored. They focus on **fisheries, floodplain forest loss,**

sedimentation, water quality, and aquatic vegetation. The five snapshot summaries are available here:

- **Fisheries – Aquatic Plants – Water Quality – Sediment – Forest Loss**

USGS RESEARCH

Invasive Species:

INVASIVE CARP –

Interim Reports Released for Two Experimental Invasive Carp Deterrent Studies

- Funding provided by the U.S. Environmental Protection Agency through the Great Lakes Restoration Initiative, U.S. Geological Survey, and U.S. Fish and Wildlife Service supports the evaluation of two experimental invasive carp deterrents: a BioAcoustic Fish Fence (BAFF) at Barkley Lock and Dam on the Cumberland River near Grand Rivers, Kentucky, and the Underwater Acoustic Deterrent System (UADS) at Lock No. 19 on the Mississippi River near Keokuk, Iowa. Two interim project updates have been released as Open File Reports that provide information from the first two years of operation and evaluation for each study. Invasive carp and native fish behaviors were monitored in response to each experimental deterrent.
    - **USGS Open-File Report 2023–1051:**
        - Fritts, A., Gibson-Reinemer, D., Stanton, J., Mosel, K., Brey, M., Vallazza, J., Appel, D., Faulkner, J., Tompkins, J., Castro-Santos, T., Sholtis, M., Turnpenny, A., Sorensen, P., and Simmonds, R., 2023, Multimodal invasive carp deterrent study at Barkley Lock and Dam—Status update through 2022: U.S. Geological Survey Open-File Report 2023–1051, 7 p., https://doi.org/10.3133/ofr20231051.
    - **USGS Open-File Report 2023–1058:**
        - Brey, M.K., Woodley, C.M., Stanton, J.C., Fritts, A.K., Sholtis, M., Castro-Santos, T., Vallazza, J.M., and Albers, J.L., 2023, Lock 19 underwater acoustic deterrent system study—Interim project update, through 2022: U.S. Geological Survey Open-File Report 2023–1058, 11 p., https://doi.org/10.3133/ofr20231058.

UMESC Science Publication and Activity Report:

- USGS UMESC Semi-annual report of publications and activities are sent to Marc Schultz. Recent version was October 2022 to March 2023 report.