

MOAFS Rivers and Streams

Autumn 2022 Meeting

In-person attendees:

Online attendees:

Updates

MOAFS Rivers and Streams

Tom Boersig recapped the year to date. Stream advocacy workshop with Stream Teams United, Clean Water Day at the Capitol, Dome Life Meramec River Cleanup, River Soundings with Greenway Network

- River Soundings membership was very interested in having MOAFS participation/presentations regarding river science at future River Soundings.
- Clean Water Commission meeting November 4th at 10:00, virtual option.

Conservation Federation of Missouri (CFM)

Eric Rahm provided an overview of CFM's mission and goals.

- CFM offers Risberg grants for projects related to conservation throughout the state, contact Eric Rahm if interested in applying.
- Efforts to develop a Mississippi River Fish Commission, modeled after Great Lakes Fisheries Commission.
- National Wildlife Federation (and CFM) support additional access to Fish and Wildlife Refuges, with the caveat lead shot and fishing gear is prohibited. Direct impacts to refuges within the state.
- Mississippi River Restoration Initiative, supported by CFM. Coalescing funding sources to direct restoration projects within the Mississippi River Basin.

Emily Tracy-Smith discussed the CFM Rivers, Streams, and Fisheries Committee and their role within CFM.

- CFM Meeting is scheduled for February 24-26 2023.
- Resource Advisory Committee (RAC) meets virtually, allows members to attend committees which were previously concurrent.
- Discussed CFM Resolution process.
- Legislative session begins in January, pre-filing begins in December, as soon as that happens CFM begins developing a list of legislation they're watching.
- Recent court ruling maintained protections of Eleven Point River State Park.

- Craig Paukert mentioned CFM provides many student scholarship opportunities.

MOAFS

Jacob Westhoff provided MOAFS updates

- Fishes of Missouri Posters are progressing, Jacob showed off one of the sunfish proof posters.
 - 16 posters covering Missouri's fish fauna
 - Once all posters are printed, they'll be up for sale. Between \$5-10 each.
 - Should be available by MNRC.
- Lots of recent emails from Parent Society and NCD regarding surveys and student support, please complete them.
- Talk with students about scholarship opportunities.
 - Great candidates the past few years, but would like to expand the applicant pool.
 - Scholarship applications are due in December.

North-Central Division AFS

Matt Matheney provided updates from the NCD Rivers and Streams Committee.

- If anyone would like to provide Matt with an end-of-year report regarding Rivers and Streams related activities within the state, please send it to him.
- Updates can be regarding research and management, public outreach, and science communication.

Additional Updates

Eric Rahm provided updates about national activities regarding stream restoration.

- National Stream Restoration Conference will be an annual event. In Nashville this year, slated for Baltimore next year.
 - Nashville conference included engineers, contractors, state and federal agencies, university researchers.
- Eric represented state perspectives at a workshop as part of the federal infrastructure legislation.
 - Hundreds of millions in infrastructure spending over the next 5 years, with money earmarked for environmental resource issues, mostly fish passage.
 - Presented work MDC has done with county cooperation to replace low-water crossings with span bridges for fish passage, especially Niangua darters.
 - Program dollars nationally, not allocated by state.
 - Focus on impacts to indigenous and disadvantaged communities.
 - If successful, may be an opportunity Congress is willing to continue funding.

Presentations

John Brant presented on fish passage projects ongoing at Fort Leonard Wood (FLW)

- Passage around Big Piney weir which impounds the river for FLW drinking water.
- Benefits for native fish and mussels, as well as eastern hellbender.

Matt Matheney presented on updates to the National Hydrography Dataset (NHD) and National Wetlands Inventory (NWI).

- 1 m digital elevation models (DEMs), as opposed to 10m used previously
 - o Updated, higher resolution provides increased stream density, more accurate delineation of stream channels, as well as information about landforms, watershed development, and potential fish barriers.
- Importance of bringing together data from multiple sources, especially in urban environments.
 - o Ditches, culverts, stormwater management, and buried streams.
 - o Sourcing quality data in developed landscapes is an important component of updated NHD/NWI.
- Data updates
 - o Leaf-off imagery
 - Southern half of Missouri flown in 2021, data being reviewed.
 - Northern Missouri in 2022.
 - o Lidar
 - NRCS has planned 2021-2023
 - May be opportunities to update Lidar imagery in parts of the state
 - o Several states are updating their hydro layers.
 - o USGS Recently announced users will be unable to edit NHD in the future, moving into the 3D HP program, everything will be elevation-derived hydrography.

Craig Paukert presented updates on a new project at MU examining the effectiveness of stream rehabilitation projects.

- Partner organizations (Trout Unlimited, etc) would like guidance on post-project monitoring of stream conservation measures.
 - o Limited funds and staff for monitoring
 - o What projects have the most consistent results? What projects should we invest in monitoring?
 - o Finding vague metrics for success in peer-reviewed literature.
- Stream restoration projects can have positive impacts for fish populations as well as long-term climate change adaptation.
 - o Can projects be implemented or evaluated as part of climate change mitigation strategies.

- Hope is to develop tools managers and organizations can use to determine the impacts of actions.
 - o How much monitoring is needed for a given project

- Eric Rahm mentioned having concrete metrics for success was an important component of new federal infrastructure legislation.
 - o Human dimensions component of evaluation as well: is the passage project safe for people?

Allison Pease presented on her research interests.

- Connectivity supporting river fish recruitment
 - o Use of off-channel areas and river-reservoir interface areas as nursery habitat for fish.
- Fish communities
 - o How is trophic diversity affected by flow alteration?
 - Stable isotope analysis, river food webs, food chain length
 - Gut contents
 - o Population level responses to environmental change
 - Flow alteration and urbanization impacts on sport fisheries
 - Differences in morphology, growth rates, recruitment
 - Impacts of repeated extreme flow events on fish communities
 - Open to suggestions on study areas, research sites, etc.
 - o Resources supporting big-river fisheries
 - Environmental covariates for growth and recruitment in big-river fishes
 - Food subsidies between tributaries and big rivers.
 - Effects of floodplain restoration.

Jacob Westhoff presented on research regarding beaver analog structures in prairie streams of northwest Missouri.

- Beaver dam analogs mostly occur in western streams, but beaver dams likely impacted prairie streams as well.
 - o Beaver dam analogs may aggrade sediment, help re-connect stream channels with floodplains, increase wetted zone and riparian corridor.
 - o Allow fish passage at certain discharges
- Pilot beaver dam analogs at Pawnee Prairie in northwest Missouri
 - o Develop and evaluate potential designs.
- Project objectives:
 - o Evaluate effect of beaver dam analogs on lateral, longitudinal, and vertical channel morphology.

- Determine ability of BDAs to increase floodplain connectivity.
- Evaluate impacts on Topeka shiners, aquatic species diversity and abundance, and fish passage.
- Determine if BDAs and associated wetlands increase species diversity.
- Project ongoing through 2027.

Final thoughts and open discussion

Meeting adjourned