



# Sustainable Rivers Program

*The Des Moines River Regional Stakeholder Meeting*

September 24<sup>th</sup> & 25<sup>th</sup>, 2019

West Des Moines, Iowa

Prepared by

Des Moines River Team and The Nature Conservancy - Iowa



(USACE photo)

## Introduction

The Des Moines River Team (DSMR Team) and The Nature Conservancy (TNC) – Iowa, hosted a regional Sustainable Rivers Program (SRP) meeting at the Raccoon River Nature Lodge in West Des Moines, Iowa on 24 & 25 September 2019. The scope of the meeting included two separate meetings held consecutively; ***The Regional Stakeholder Meeting*** and ***Upper Midwest Operations and Water Management Meeting***. The meetings were developed and framed in an effort to bring existing and new stakeholders together to explore related watershed initiatives in the Des Moines River basin and to bring greater awareness and inclusion of the SRP program in other USACE districts. The goals of the meetings were to 1) increase awareness and appreciation of SRP; 2) demonstrate how ecological benefits can be achieved without interfering with existing mandated purposes; 3) create an SRP collaboration/ information sharing network among Midwestern and Great Plains Corps districts. The focus of this report is to recap the Des Moines River Regional Stakeholder Meeting.

The Regional Stakeholder Meeting hosted 19 NGO's, Municipal Governments, County, State and Federal agencies. The stakeholders in attendance were invited due to their involvement and work within the Des Moines River watershed.

## SUMMARY OF AGENDA

**SRP NATIONAL BRIEF:** John Hickey (USACE, Hydrologic Engineering Center) and Gretchen Benjamin (TNC), provided a short history and status of the Sustainable Rivers Program (SRP). The mission of SRP is to improve the health and life of rivers by changing dam operations to restore and protect ecosystems, while maintaining or enhancing other project benefits. The SRP goal is to ***ADVANCE, IMPLEMENT, AND INCORPORATE*** environmental flow strategies at Corps reservoirs. There are currently 16 different SRP sites across the nation that include 66 reservoirs in total. The presentation highlighted work accomplished on the Willamette River that included defining environmental flows, implementing & monitoring outcomes, and ultimately incorporating measures into operational parameters. The presentation then moved to highlight SRP outcomes on the Roanoke River that included a unique approach termed “Quasi Run of River”. The Roanoke process included several challenges due to hydropower operations in the upper basin.

**DES MOINES RIVER – A REGIONAL PERSPECTIVE:** Dave DeGeus (TNC) and Hugh Howe (USACE, Lake Red Rock), provided a history of the Sustainable Rivers Program on the Des Moines River. The Des Moines River began involvement in 2015, hosting several stakeholder meetings to identify the greatest environmental concerns in the Des Moines River and its watershed. TNC funded a scientific literature review in 2016 and partnered with USACE to host an environmental flows workshop that sought to define environmental operations at Saylorville Lake and Lake Red

Rock. Several recommendations sought to address the concerns identified during the stakeholder engagement process.

The Des Moines River, Sustainable Rivers Program (DSMR SRP), expanded the scope of environmental flows in 2017 and 2018 to investigate issues within the watershed that compromise soil erosion, soil health and water quality. In 2019, the Water Control Manuals for Saylorville and Red Rock were updated to further reduce the risk of flooding on the Des Moines River. The process gave SRP an opportunity to formally incorporate environmental measures into the document. Both reservoirs were able to incorporate flexibility into the Water Control Plans to better facilitate environmental approaches to water management. More recently, DSMR SRP has conducted evaluation and modeling to develop a plan that restores 3100 acres of floodplain habitat and several oxbows below Saylorville dam.

**COLLABORATIVE PARTNERSHIP RESOURCING:** Several partners within the Des Moines River watershed were able to provide short presentations of the work they conduct to improve the function of the environment. The session provided an opportunity for organizations to briefly present programs they steward, describe challenges and potential collaborative opportunities.

**Stacy Williams**, Capital Crossroads/Water Trails:

Ms. Williams covered initiatives and collaboration among organizations in the Greater Des Moines Metropolitan Area to enhance and improve the “natural capital” in the area. Several capital committees and bold plans have been developed to improve the social and biological attributes that humans and wildlife depend on. The environmental focus of Capital Crossroads is to raise awareness of current policies and regulations, public discourse about environmental issues, watershed management, flood control infrastructure, water trails, and drinking water.

**Jeff Boxrucker**, Reservoir Fisheries Habitat Partnership

The mission of RFHP is to protect, restore and enhance the nation’s fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people. Jeff described the ability of RFHP to accept private funding that is ultimately awarded through competitive proposals to improve fish habitat across the nation. Challenges to the program include limited funding, addressing “mega habitat issues”, sedimentation in reservoirs, and addressing nitrification in reservoirs.

**Scott Gilje**, Neil Smith National Wildlife Refuge Manager, USFWS

The mission of Neal Smith National Wildlife Refuge is to actively protect, restore, reconstruct and manage the diverse native ecosystems of tallgrass prairie, oak savanna, and sedge meadow. Scott discussed ongoing work at the refuge that included environmental education and a robust prairie seed production operation. The USFWS also employs a Private Lands Biologist that is able to work with land owners in the watershed to improve conservation through cost sharing programs. Challenges at Neil Smith include lack of adequate funding and staff to maintain services to the public.

**Jake Hansen**, Bureau Chief, Water Resources Bureau, Iowa Department of Ag. & Land Stewardship

The mission of IDALS is to provide leadership for all aspects of agriculture in Iowa, ensure consumer protection and promote the responsible use of our natural resources. The presentation emphasized several IDALS initiatives. The Iowa Water Quality initiative has seen nearly \$67M in funding. Work has been focused on several demonstration projects to: 1) learn places of rapid adoption of practices, and 2) Conduct trial runs to learn what works. IDALS has designed 30 edge of field wetlands to improve water quality. The organization works to leverage partnerships and currently has a regional partnership with NRCS to accomplish watershed improvement goals. Mr. Hansen informed the audience that oxbow restoration was included in the Nutrient Reduction Plan as a cost-share practice but the focus of the Plan would be on edge of field applications. IDALS challenges include funding, building capacity, regulatory (legal/political), farmland values, and adoption of alternative uses due to the value of commodity production.

**Matt Helmers**, Director of Iowa Nutrient Research Center, Iowa State University

The purpose of the center is to pursue a science-based approach to nutrient management research that evaluates the performance of emerging nutrient management practices and adaptive management framework for providing recommendations on implementing and developing new practices. Recent work has focused on multi-purpose oxbow restorations and demonstrating there are positive impacts to nitrate reductions. Research also has focused on saturated buffers, cover crops, nutrient movement in the landscape and exploring the phosphorous loading from bed and banks of streams.

**Rebecca Krogman**, Large Impoundments Research Biologist, Iowa Department of Natural Resources

The IDNR large reservoir fisheries research team works with fisheries managers to identify and resolve issues affecting the fishery resources of large reservoirs. Ongoing research projects ensure that Iowa's reservoirs are managed with the best available science. Recent work conducted by Ms. Krogman's team has included measures of ecological health, fish health, flow related impacts downstream of dams, and several small dam removal projects. One of the greatest challenges to fisheries management working in large reservoirs is learning ways to manage impacts to the system from upper watershed influences.

**Robert Meir**, Resource Conservationist, NRCS Partnership Team

NRCS is a conservation leader for all natural resources, ensuring private lands are conserved, restored, and more resilient to environmental challenges. NRCS works with landowners through conservation planning and assistance designed to benefit the soil, water, air, plants, and animals that result in productive lands and healthy ecosystems. The presentation emphasized the key differences in programs available through NRCS. The **Conservation Stewardship Program (CSP)**

are five year contracts with producers only and all lands owned by the producer must be included. The **Environmental Quality Incentives Program (EQIP)** funding was renewed in the 2018 Farm Bill. NRCS assists producers develop a conservation plan and provides financial assistance to implement the practices. The **Agricultural Conservation Easement Program (ACEP)** includes agricultural land easements and wetland reserve easements. Length of easements can be temporary to permanent.

**Jon Nania**, Deputy Director, USGS Central Midwest Water Science Center

The USGS Central Midwest Water Science Center primarily addresses water issues that include ground water & surface water quality and flooding. The Central Midwest Water Science Center investigates the occurrence, distribution, quantity, movement, and chemical and biological quality of Illinois, Iowa, and Missouri's surface and groundwater. Specific water resources activities of the Central Midwest Water Science Center include maintenance and analysis of long-term (prior to the turn of the Century) quantitative and qualitative data for streams, reservoirs, estuaries, and groundwater; and short-term interpretive investigations of specific water-resources issues on a local, State, regional, and national level. Such investigations include the study of urbanization and flooding, water quality of Illinois, Iowa, and Missouri's major river basins, sedimentation of rivers and lakes, and contamination of surface water and groundwater by hazardous waste.

**Johnathan Swanson**, WMA Coordinator, Polk County

Mr. Swanson is a Water Management Authority Coordinator in Polk County, Iowa. He currently coordinates activities for the Walnut Creek WMA, Fourmile Creek WMA, and the Mud, Camp, and Spring Creek WMA. Efforts are consistent with the Iowa Watershed Approach (IWA). The IWA represents a vision for Iowa's future that voluntarily engages stakeholders throughout the watershed to achieve common goals, while moving toward a more resilient state. It is a replicable model for other communities to improve the landscape's natural resilience to floods and improving water quality. Work in Polk County has focused on 1) building soil health in urban and rural settings, 2) Encourage agriculture and urban partnerships 3) Develop storm water amenities across urban development's 4) Restore function and flood resiliency to greenways.

### **USACE Continuing Authorities Program and Planning Assistance to States:**

**Jim Homann**, Project Manager, USACE Rock Island District

The U.S. Army Corps of Engineers stewards several important programs on behalf of Congress. Two programs of particular interest to the Des Moines River watershed are the Continuing Authorities Program (CAP) and Planning Assistance to States (PAS). The presentation reviewed specifics details and relative opportunities for each program. CAP section 1135 – Project Modifications for Improvement of the Environment, targets adversely affected environments for restoration. CAP section 1135 funding is limited and would only apply to environments impacted by the Department of Defense or USACE. CAP section 206 – Aquatic Ecosystem Restoration

allows USACE to carry out aquatic ecosystem restoration and protection projects. Projects generally include modifications of the hydrology in and along bodies of water, including wetlands and riparian areas. The program will provide funding on a cost share basis if a detailed investigation determines the project will improve the quality of the environment and is in the best interest of the public. Planning Assistance to States does not fund construction of projects; however, it can significantly aid non-federal entities in preparing plans and initiating actions to manage their water and related land resources. The studies generally involve the analysis of existing data for planning purposes using standard engineering techniques, although some data collection is often necessary. Two DSMR SRP related initiatives that could apply: 1) oxbow restoration site below Saylorville (CAP 206) and 2) utilizing the reservoir delta for shallow water wetlands to improve water quality (PAS).

**FOCUS SESSIONS** - The afternoon session broke the attendees into three groups who were asked to focus on three topics, 1) reservoir water level management and environmental flow opportunities; 2) watershed and nutrients; 3) floodplain and oxbow restoration at Saylorville Lake. Each of the focus sessions started with asking the participants three questions, 1) what are the opportunities and which are most promising; 2) what are the limitations to implementation; and 3) how can we partner?

***Reservoir water level management and environmental flow opportunities:*** Hugh Howe (USACE) led the water level management (WLM) and environmental flows (EF) discussion. The groups were first introduced to concepts related to WLM and EF with a poster board that illustrated the characteristics of dam operations. The illustration also contained a list of potential targets for WLM and EF for consideration. The groups were also encouraged to consider the timing, duration, magnitude, rate of change, and frequency when suggesting WLM and EF.

Participants from each group provided comments as follows:

#### **GROUP 1**

##### **1) Flow / Elevation Management**

- a) Implement an hourly and daily limit on how fast outflows are reduced from the dam and degree of change. Considering limitations of flood control reservoirs, the recommendation would be a guide and not a rule.
  - Reduces bank caving.
  - Time to adjust for animals, people and substrate. CFS depends on the project.
  - Suggest creating a flow change table for how flows will be released. Factor CFS when outflows are going up and factor elevation when reducing outflows.

##### **2) Sediment Management**

- a) Build sediment traps and manipulate the sediment when water levels are down. Focus on the upper end of the reservoir to create a trap and/or create habitat with the sediment. This is especially important when upstream sediment sources are not managed.
  - b) EXAMPLE: Spirit Lake sediment retention dam. Pipes with spillway and culverts to divert the sediment.
  - c) Work on sediment inputs close to where the sediment input occurs.
- 3) **Stream bank reservoir stabilization program**
- a) State funded program in KS with private landowner. Landowners want to do this work because of potential loss of land.
  - b) Vegetative stabilization along shoreline and within the watersheds. EXAMPLE: Stream Team – KS water office. They have a hotspot analysis of streambank areas that are destabilized
- 4) **Nutrients**
- a) Better coordination on what is coming off the land. Nutrients, sediment and flow
- 5) **Coordination/Partnerships**
- a) Suggest interacting with the Water Resources Coordinating Committee – entire state group.

## **GROUP 2**

- 1) **Flow / Elevation Management**
- a) Figure out how to balance competing interests within the flood management reservoir.
  - b) Address gas bubble disease in fisheries and bank sloughing.
  - c) Attempt to not change reservoir elevation more than a foot per day.
  - d) Are we able to more closely follow the natural hydrology of the system?
- 2) **Denitrification**
- a) What are the impacts to fish and wildlife?
  - b) What degree is this happening and how best to implement in the lake and river.
  - c) Is it possible for the Corps to manage water levels upstream to create wetlands in the floodplain and bring water down where the wetlands would hold the water and denitrify the system?
- 3) **E-Flow Needs**
- a) Research spawning cues for fish.
  - b) What kind of flow pulses are required for fish (e.g. shallow water fish species and off channel habitat)?
  - c) Can we obtain marginal production land downstream? Recommend identifying habitat downstream that might include restored wetlands.
- 4) **Wildlife management**
- a) What kind of heterogeneity of habitat do we need for multiple species?
  - b) Manage for shorebirds and sandbar nesters.

- c) Create better habitat for mussels, birds, turtles, amphibians, and insects.
- d) Use established conservation practices to aid special status species.

5) **Coordination/Partnerships**

- a) Partners could be university, environmental/conservation NGOs, state agencies, USFWS, Fishers and Farmers. Finding a cost share partner can be difficult. NRCS (CIG), DNR, IA Dept Ag and land stewardship (IDALS), local NGOs (fishing, hunting, etc), county conservation board.

**GROUP 3**

1) **Flow / Elevation Management**

- a) Implement changes in flow structure to create better habitat.
- b) Reestablish interaction with the floodplain.
- c) Avoid flows that aid the spread of invasive species (Tamarisk in KS).
- d) Reservoir requires competition for flows. Sedimentation is affecting the total amount of water for the various users.

2) **Wildlife management**

- a) Work toward the legacy of species that were present pre dam.
- b) Help support the 45 original mussel and pelagic species EXAMPLE: Pelagic species are affected by sediment starved system of the KS,
- c) Lack of structure is an issue. Vertical relief, high structures for fish orientation, placement is critical, rock reefs – reshaping (off bank line revetment).
- d) Habitat Restoration manual for UMR with multiple techniques and optimum placement with varying river conditions for these structures. Nebraska and IA restoration lake restoration techniques are also effective and well documented.
  - [https://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HRE P/EMP Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf](https://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HRE%20EMP%20Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf)

3) **Coordination/Partnerships**

- a) The public interacts with the KS on a regular basis. Parks and Rec Department has increased the number of access substantially.

4) **Social**

- a) Money generated by outdoor recreation/tourism far outweighs the economics of other uses.

5) **Shoreline erosion**

- a) Reservoirs lack woody structure (can they be concentrated in areas to get the right response for fisheries (invert responses).

6) **Misc.**

- a) Sedimentation, nitrification, and water level management – biggest issues in a reservoir.



**Watershed and nutrients:** Dave DeGeus (TNC) led the Watersheds and Nutrients Discussion. Overall, participants believed that water quality work represented an opportunity for the Corps to address an important concern of the public. Additional outreach by the Corps would reinforce the message of other partners and let the public know what the Corps was doing to address water quality. Many supported the Corps assisting with water quality solutions and awareness. Focus group members also believed there needed to be a coordinating body similar to the Rathbun Land and Water Alliance for the Des Moines River. Such an alliance could stimulate investment, implementation, and partnerships on the Des Moines River. Others mentioned the need to look at urban development influences on water quantity entering the lakes, opportunity to use ACPF mapping as the basis for additional collaboration on watershed conservation, and a need to address stream bank erosion. Other opportunities to work with Iowa State on research needs were also discussed.

Participants from each group provided comments as follows:

**GROUP 1:**

Jeff – WQ topic resonates with public.

Amanda – Watersheds ties people and issues together. Gives a common ground to work from. Science and monitoring, ie. Nitrate test kits, connects people and dynamics within the basin.

Phil – Those types of efforts reinforces WQ and its importance.

Tony – Platform for educational opportunities.

Being able to identify watersheds via a targeted approach points to the most likely actions...and sort of work down the list.

Laura – So many programs. Education about what actions are ongoing.

Clint – Trying to do this for a lot of years. Nice to see Corps advocating for it as well...

Holly – Echoes...nice for Corps as a federal entity working in this arena too...complementary with efforts with private landowners

Phil – Nexus with Corps cap authorities to connect efforts to private lands.

Clint – Exciting to hear that lake levels might be a useful method to manage nutrients.

Brian – Echos...Corps often just a reflection of whats going on upstream, but you do what you can where you can.

Holly – Public recognition of something going on different at the lake...more migratory birds.

Clint – Some way to get more attention for things like that...hey go check out the birds at this location! Is this a tweet (haha)?

**Limitations**

Phil – Need a point person for the local watershed actions. Coordination, lobbying, etc. Rathbun example. The utility created the Alliance, which becomes the local entity proponent.

Clint – Without a dedicated person, these efforts can flounder. Opportunity too.

Amanda – Not enough outreach to ag partners.

**GROUP 2:**

Presented framework about Pool level management / upland management / stream bank

Group also recommended Floodplain management / urban development

**Opportunities.**

Coordination of development to integrate all of these things. Development affecting water...pushes water in different ways...older neighborhoods challenged in new ways and can't handle it. Development increases tax base...that is their motivation.

Developer responsibilities need to be tightened up.

Ankeny is doing a better job than other communities.

Water Management authorities play a key role. There's now a council of these authorities that could

Oxbow and bio reactors being constructed by City of Des Moines outside of city limits.

Interested to learn about the utility of PLM for denitrification and wetland habitat.

More adaptive management alternatives related to PLM. IE, Can we make March releases April when we see a dry couple of weeks?

Brett – Tough ask. Flood risk high that season, especially in a basin where we're seeing more water.

Seasonal pool level management in KS. Perhaps an example for other basins / users.

Brett – Do this a bit in May...only example for recreation for MVR.

Partnership opportunities.

Brett – Always open to opportunities. Conversations happen a lot.

**GROUP 3**

Todd - Lots of unknowns regarding using mudflats for denitrification. Want to know how effective it is.

Todd - Great to have more wetlands in the reservoir itself. Water purifiers.

Todd - Use the sediment to construct shallow wetlands.

Jamie – Oxbow connection, wetland restoration...connecting to tile drainage for denitrification

## Sustainable Rivers Program Report

### Different kind of partnership required

Jake – Identification of stream/canal networks...watershed approach to prioritization leading to actions. Rathbun approach to assess watersheds...that was galvanized by Rathbun's role as a key water supply source. Targeting.

Jamie – Modeling of water holding capacity...soil, crop practices v. structural measures. Want to know effectiveness, might be more attractive to ag community.

Todd – Cover crops...vegetation in spring likely beneficial.

Susan – using rapid watershed assessment as a foundation. Watershed management authority approach promising. Human structure there for authorities to be leads for actions. Consider expansion of assessments to areas within watershed, but away from dams.

Dan – Boone WMA looking to utilize info from the watershed assessments.

Boone might be an opportunity for PAS for Corps expertise

Kaileigh – Any groundtruthing of ACPF? Tile is one of its inputs. If that's off, then...

Jake – ACPF...inputs not perfect, but good filter. Effective disqualifier.

John – I wonder if NASA can pick up any tile signatures. They're doing so much remote sensing of earth surface. Soil moisture.

Dave – intersection of storm water treatment and tile drain water treatment?

Jake – Not especially. Different locations. Opportunities to do more.

Jake – HUD fit...not a huge source of funding. Not sure where it is going in the future... Cedar seems to be the exception. Looks like things are coming together there.

Heidi – Example in KS where constructed wetlands as treatment areas fill in with sediment and become ineffective areas for denitrification.

Jake – Not seeing that much in IA. Can read more at Iowa's CREP website.

Todd – Oxbows, but streams are channelized. Stream bank erosion problematic. Opportunity to do more of that in the Red Rock pool.

Marvin – RCCP 2.8M. Willing partner in an urban environmental. NRCS federal collaboration.

***Floodplain and oxbow restoration:*** Justin Edwards (USACE) led the floodplain and oxbow restoration at Saylorville Lake discussion. The groups were first introduced to the site earlier in the day by, Tyler Hill (USACE), and then again during the breakout. Aerial maps and Lidar were provided to participants to assist them in bolstering ideas on how to approach enhancing the old river oxbows that were no longer connected with the DSMR. The groups were asked to think outside of the box when thinking of solutions.

Below are summarized comments from participants from each of the groups:

## Opportunities

- USACE Continuing Authorities Program and Planning Assistance to States – Section 1135
- Improve connectivity between DSMR and old river oxbows
- Utilizing gravity along landscape features to bring in a new source of water, if connecting oxbows is not realistic
- WOTS Request & ERDC Forest Mgmt. Assistance
- Specified flood pulses through environmental flow management
- Timber stand improvements and prairie plantings
- Nutrient monitoring in oxbows – i.e. nitrates, phosphorus, etc.
- Deepen and expand oxbows down to water table for flood storage and fish habitat
- Sustainable farming practices – i.e. cover crops, rotational plantings.
- Manipulate culverts and add water control structures
- Bio-Blitz: engage local experts in all things living and have them conduct baseline vegetation and animal data
- Reach out to IDNR fisheries Dodd and Stubbs ASAP to engage them in the fisheries portion of this project
- Generate more depth data on oxbows to supplement existing LiDAR data

## Limitations

- FY funding
- Cultural Clearances
- Natural Resource Mgmt. – i.e. prescribed burning
- Environmental concerns from dredging material being removed
- Destroying the integrity of the oxbows structure by dredging, further research needed

## How we can partner

- Partnering with local school districts for monetary and volunteering opportunities.
- Ding Darling Wildlife Refuge Partnership
- Partner with local environmental/outdoor groups – i.e. ducks unlimited, private wetland developers, etc.
- Reach out for assistance at river projects for technical help, such as Brad Thompson (Omaha District)
- Explore the process to create a mitigation bank for restoration work
- Local and surround quarries could potentially be utilized as a water source or even sites for dredging material to be transported.

## ***FIELD DAY TOURS – WEDNESDAY, SEPTEMBER 25TH.***

Both meeting session attendees were invited to participate in the field day tours. The locations were chosen to compliment both the local and regional meetings as it demonstrated some of the unique projects within the Des Moines area watersheds.

**Saylorville Floodplain:** Attendees were driven along a pedestrian trail that paralleled the Des Moines River and associated oxbows below the Saylorville Dam. Saylorville Lake Project has 3100 acres of floodplain and several old river oxbows immediately downstream of the dam outlet within public land ownership. This important natural resource area is officially recognized as the Ding Darling Greenbelt and a key component to the newly established USFWS Urban Wildlife Refuge on the Northeast side of Des Moines. Collectively, the partnerships and management of this unique area include USACE, USFWS, Iowa Department of Natural Resources, Polk County Conservation, City of Des Moines and the Des Moines Area Metropolitan Planning Organization. This area is the most extensive and contiguous floodplain in public ownership along the Des Moines River that affords opportunity to implement e-flows and restore oxbow function within the floodplain. The oxbows within this reach have considerable potential for restoration and connection with the river channel. Established conservation bands at Saylorville Lake will allow USACE to manipulate flow releases in a manner that can fill and regenerate the oxbows according to frequencies, timing, durations, and magnitudes determined at the Des Moines River e-flow workshop. Improvements to current culverts and water structures as well as restoration of sediment-filled oxbows will allow for a remnant oxbows to be managed seasonally, as fish and amphibian nurseries in the spring, and moist soil units for waterfowl in late summer and fall. The floodplain riparian zone restoration below the dam can occur without negatively affecting private lands. The visit helped capture the sheer size, qualities, and potential of the floodplain oxbows. The importance, potential, and challenges in restoring function to the old river oxbows were discussed at length.

**Downtown Des Moines dam removal and water trails:** Staff from the Des Moines Metropolitan Planning Organization and Great Outdoors Foundation gave presentations on the plans for the Des Moines water trail that include conversion of two low head dams to whitewater courses. The presentation conveyed the importance of river recreation and environmental improvements to bolster the economy and improve quality of life for citizens. The Des Moines Metro currently has a workforce shortage. Investments in these areas will help recruit and retain talented employees for the Des Moines area workforce. Opportunities for Corps involvement in development of the water trail were explored briefly after the presentation.

**Four Mile Creek oxbow restoration:** Staff from Polk County, Polk County Conservation Board, and City of Des Moines discussed oxbow restoration and storm water treatment projects in the Fourmile Creek watershed. Several measures have been taken as part of a larger flood recovery and flood prevention project on Fourmile Creek. Historic flooding in the summer of 2018 prompted the City of Des Moines to initiate housing buyouts and construction of storm water purification and storage projects throughout the Fourmile Creek drainage. Goals are to create a flood resilient greenway that will reduce future flood damage and provide recreational opportunities to the community.

**Red Rock Delta and reservoir water level management:** Staff from the Iowa Department of Natural Resources hosted the group at a location with panoramic views of Lake Red Rock's delta reach. The Corps and IDNR worked in partnership to establish a water level regime and vegetation establishment for the benefit of migrating shorebirds and waterfowl in 2019. Spotting scopes were positioned for attendees to view bird activity and vegetation establishment within the delta area of Red Rock. TNC and IDNR staff also discussed the utilizing the extensive mudflats as shallow water wetlands to reduce elevated nitrogen concentrations that plague water quality. USACE is currently seeking funding to research the effectiveness of the proposed wetlands and determine a protocol to maximize the potential to improve water quality.

### **TNC PERSPECTIVE:**

The Sustainable Rivers Program on the Des Moines River has greatly exceeded expectations. Through SRP we've been able to identify strategies that will potentially reduce nutrient levels in the Des Moines River, increase migratory shorebird habitat and provide important storm water storage and wildlife habitat via reconnection of the river to nearby oxbows. It's been a fabulous partnership and one that will continue to grow as new partners and projects are explored.

### **CONCLUSION:**

The Rock Island District and The Nature Conservancy proposed hosting the Regional Sustainable Rivers Program (SRP) meeting to provide greater awareness of the many types of environmental stewardship efforts within the Des Moines River watershed. The goal of the regional meeting was to increase awareness and appreciation of SRP, demonstrate how ecological benefits can be achieved across competing interests and create an SRP collaboration/information sharing network among stakeholders and partners. The SRP Regional Stakeholder Meeting proved to be first steps towards greater collaboration between all stakeholders and partners.

### **RESOURCES:**

#### **Sustainable Rivers Program Website:**

<https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-water-stories/sustainable-rivers-project/>

<https://www.iwr.usace.army.mil/sustainableivers/>

#### **Des Moines River, SRP Environmental Flows Workshop Report AND Literature Review:**

<https://www.iwr.usace.army.mil/sustainableivers/sites/desmoines/>

**Des Moines River, SRP ACPF Story Map:**

<https://arcg.is/bqm1a>

**USACE Civil Works Guidebook:**

[https://www.mvr.usace.army.mil/Portals/48/docs/Outreach/2017CWGuidebook\\_July\\_webversion.pdf?ver=2017-07-06-112011-510](https://www.mvr.usace.army.mil/Portals/48/docs/Outreach/2017CWGuidebook_July_webversion.pdf?ver=2017-07-06-112011-510)

<https://www.mvr.usace.army.mil/Business-With-Us/Outreach-Customer-Service/>

**USACE Habitat Guidance Manuel:**

[https://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HREP/EMP\\_Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf](https://www.mvr.usace.army.mil/Portals/48/docs/Environmental/EMP/HREP/EMP_Documents/2012%20UMRR%20EMP%20Environmental%20Design%20Handbook%20-%20FINAL.pdf)

**ATTENDEES:**

<b>Attendee First Name</b>	<b>Attendee Last Name</b>	<b>Email Address</b>	<b>Organization</b>
Cody	Smith		Center for Rural Affairs
Patrick	Beane		City of Des Moines
Chad	Christiansen		City of Des Moines
Jonathan	Gano		City of Des Moines
Steve	Johnson		City of Des Moines
Dan	Pritchard		City of Des Moines
Adam	Smith		City of Des Moines
Dawn	Buehler		Friends of the Kaw
Rebecca	Krogman		IDNR - Fisheries Research
Todd	Gosselink	email addresses redacted	IDNR - Red Rock Wildlife Unit
Jake	Hansen		Iowa Dept. Ag. & Land Stewardship
Matthew	Helmets		Iowa State University
Jamie	Benning		Iowa State University Extension and Outreach
Debbie	Baker		Kansas Biological Survey
Tony	Stahl		Kansas Dept. of Health and Environment
Josh	Olson		Kansas Water Office
Kirk	Sunderman		Kansas Water Office
Katie	Tietsort		KS Dept. of Ag. Div. of Water Resources
Jeff	Conley		KS Dept. Wildlife & PA

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Aaron	Deters		KS Dept. Wildlife & PA
John	Reinke		KS Dept. Wildlife & PA
Robert	Mier		NRCS - Iowa Partnerships
Holly	Giombi		NRCS - Marion County, Iowa
John	Swanson		Polk County
Amanda	Brown		Polk County Conservation
Tanner	Puls		Polk County Conservation
Doug	Sheeley		Polk County Conservation
Jeff	Boxrucker	email addresses redacted	Reservoir Fisheries Habitat partnership
Kristen	Blann		TNC
David	De Geus		TNC
Rich	Walters		TNC
Karen	Wilke		TNC
Gretchen	Benjamin		TNC
Heidi	Mehl		TNC - Kansas
Nathan	Beane		USACE - ERDC
John	Hickey		USACE - HEC
Laura	Conrad		USACE - Lake Red Rock
Hugh	Howe		USACE - Lake Red Rock
Brett	Call		USACE - MVR
Joe	Jordan		USACE - MVR
Kaileigh	Scott		USACE - MVR
Dave	Busse		USACE - MVS
Garett	Fleming		USACE - MVS
Brian	Johnson		USACE - MVS
Marvin	Boyer		USACE - NWK
Todd	Gemeinhardt		USACE - NWK
Ginger	Harper		USACE - NWK
Laura	Totten		USACE - NWK
Phil	Brown		USACE - Rathbun Lake
Justin	Edwards		USACE - Saylorville Lake
Tyler	Hill		USACE - Saylorville Lake
Derek	Murken		USACE - Saylorville Lake
scott	Gilje		USFWS - Neil Smith WLR
Steve	Kalkhoff		USGS
Jon	Nania		USGS