



## ABSTRACTS

*(Listed in order of presentation. Please note not all speakers submitted an abstract.)*

### Day 1 Tuesday, May 2<sup>nd</sup>

#### Day 1 Afternoon: Migrating Toward the Future: Advancing State & Tribal Wetland Programs

##### 1:00pm – 1:30pm Tribal Water Quality Standards: EPA's Proposed Additional Regulations

###### Donna Downing, NAWM

The U.S. Environmental Protection Agency (EPA) is developing a number of water quality standards-related rulemakings to address tribal waters. These rulemakings include provisions to ensure standards reflect and protect tribal reserved rights, and federal baseline standards for tribal waters that do not currently have Clean Water Act standards in place. This presentation will provide an overview and update on EPA's standards-related rulemaking efforts and an opportunity for attendees to discuss implications for tribal water quality protection programs.

##### 1:30pm – 2:00pm EPA's CWSRF: Below-Market Financing for Wetlands Conservation and Restoration

###### Alison Souders, U.S. Environmental Protection Agency

The Environmental Protection Agency's Clean Water State Revolving Fund (CWSRF) is dedicated to addressing water quality concerns caused by both point source and nonpoint source pollution. It has been a reliable resource for municipal wastewater and stormwater infrastructure financing for over 30 years and state CWSRF programs have collectively provided over \$160 billion in assistance. With the injection of \$11.7 billion over the next five years from the Bipartisan Infrastructure Law (BIL), the CWSRF has the opportunity to lead a massive shift in how infrastructure is perceived and financed.

The CWSRF programs in all 50 states and Puerto Rico can finance nature-based solutions, including wetland conservation and restoration. This presentation will provide a quick SRF 101, and the opportunities present with BIL financing, including funding for emerging contaminants and under-resourced communities. Case studies of relevant SRF projects and developments will be presented, including innovative financing mechanisms created to address nonpoint source pollution and finance nature-based solutions.

### **2:00pm – 2:30pm Nebraska's Clean Water Act 404 Assumption Journey**

#### **Dane Pauley, Nebraska Dept. of Environment & Energy**

The Nebraska Department of Environment and Energy has been tasked with assuming the Clean Water Act Section 404 Dredge and Fill permitting from the Army Corps of Engineers. This permitting program regulates the placement of dredge and fill materials into Waters of the United States and is responsible for ensuring impacted streams and wetlands are properly mitigated. The state completed a feasibility analysis and has begun developing the 404 program application to submit to EPA for assumption. This talk will cover the process we have been working through in order to assume the CWA 404 program and the results of the feasibility analysis from our investigation phase including a few required elements of the program application such as estimated workload, cost to implement the program and staffing needs.

## **Day 2 Wednesday, May 3<sup>rd</sup>**

### **Day 2 Morning: Finding Common Ground: Wetlands and Agriculture**

#### **9:15am – 9:45am Considerations When Working with Farmers and Ranchers on Wetland Conservation Projects**

##### **Ted LaGrange, Nebraska Game and Parks Commission; Ritch Nelson, NRCS**

We will discuss the consideration and approaches that have been used in Nebraska when working with farmers and ranchers on wetland conservation projects. The Nebraska Game and Parks Commission, NRCS, and other partners have worked with landowners throughout Nebraska for many years, and we will share some lessons learned in getting wetland conservation implemented in agriculturally dominated landscapes. The topics that will be covered include: the importance of tailoring approaches to the local culture and economy, how to communicate with agricultural producers, how to access needs of the landowner and the best conservation measures for the wetland, and the types of programs and partnerships that are available and have been successful.

#### **9:45am – 10:15am Nebraska Agricultural Mitigation Banking: An Emerging Option for Farmers to Maintain Wetland Compliance and Support Quality Habitat Restoration**

##### **Mike Glester, Magnolia Land Partners**

Agricultural wetland mitigation banks created and set aside solely for agricultural producers can provide a quick and easy option for producers with wetland impacts to remain in USDA wetland compliance. They have also been a novel way to take impacts from low quality wetlands to

create high quality, high functioning wetlands. Nebraska's Agricultural Wetland Mitigation Banking program is expanding, and this presentation will outline how the program works for both farmers needing wetland mitigation, as well as landowners looking to earn money putting land into conservation. The overview will be led by Mike Glester, the Director of Operations for Magnolia Land Partners. Magnolia has spent the last six years successfully developing and implementing this program in Illinois and is now working with the NRCS to help standardize the Ag Banking process in Nebraska using lessons learned from those experiences. Mike manages wetland mitigation banking in three states and will use actual examples from those working projects to give real-world insight on how the program works. Topics covered will include: What is Ag Banking, Who qualifies, Costs, Predicted mitigation timeframes, and the current state of the program in Nebraska.

### **11:00am – 11:30am What Speeds and Slows Wetland and Stream Restoration: Insights from Research on Mitigation Bank Approval Timelines**

#### **Becca Madsen, Environmental Policy Innovation Center**

Restoration projects are burdened with delays and permitting costs that can burn through up to a third of a project's budget. This presentation will review research results from a quantitative analysis of US Army Corps of Engineers data on timelines of wetland and stream mitigation bank approvals. The presentation will also provide a summary of insights from a series of interviews with project developers on what slows and speeds restoration. Using a live survey tool, we will find out what the audience thinks are the top opportunities to speed wetland and stream restoration.

### **Day 2 Afternoon: Sharing the Marsh: Wetlands, Wildlife, & People**

#### **1:00pm – 1:30pm Wetland and Floodplain Restoration in New Mexico – Part 2: Leveraging Stakeholder Engagement, Volunteer Efforts and Sound Science to Restore Multi-Use Habitat in the Valle Vidal**

#### **Karen Menetrey, Rio Grande Return; Andy Robertson, Saint Mary's University of Minnesota Geospatial Services**

Much of the public land wetland restoration and improvement in New Mexico has been implemented by non-profit organizations and local stakeholders. Project design and oversight is typically conducted by professional restoration companies, but general public, youth and volunteers often provide field labor activities as well. Funding support has been a combination of public and private sector interests and robust science is promoted through the entire process. These unique collaborations have led to 100s of acres of successful restoration and a groundswell of public support for land management that sustains recreation, habitat diversity, maintenance of hydrology and economic activity. Stakeholder engagement is the key to this successful process. This presentation will focus on the Valle Vidal in the Sangre de Cristo Mountains of Northern New Mexico. This area has been the focus of wetland and floodplain restoration activity for more than two decades and is truly a demonstration of what can be achieved at the intersection of wetlands, people and wildlife.

The first part of this presentation will focus on the New Mexico Wetland Jewels campaign developed by Amigos Bravos, a statewide non-profit organization dedicated to protecting and restoring the waters of New Mexico. This project provides an excellent example of how wetland spatial data, photos and text can be used to educate, facilitate stakeholder engagement, support policy advocacy, influence land use management and focus science-based community action for wetland preservation and restoration.

The second part of the presentation will describe wetland restoration in the Valle Vidal (one of the Wetland Jewels). Through these efforts, professionals and volunteers have developed, refined and implemented restoration techniques using rocks, logs, sod and woody vegetation to restore montane slope and riverine wetlands. This case study highlights the opportunities, challenges, results and lessons learned from a multi-year, multi-organization effort to preserve and restore critical habitat and water quality in an area with significant natural diversity, active recreation and cattle grazing.

### **1:30pm – 2:00pm Working Together and Getting Along for Better Results - Saline Wetlands Conservation Partnership**

#### **Tom Malmstrom, City of Lincoln Parks and Recreation Department**

The City of Lincoln, Nebraska has been involved for the past twenty years with the development and implementation of efforts to conserve and restore rare eastern saline wetlands through a partnership approach. The partnership consists of four primary contributors (City of Lincoln, Lower Platte South Natural Resources District, Nebraska Game and Parks Commission, and Nebraska Chapter of Pheasants Forever, Inc. and Quail Forever) and several other entities who participate in efforts to conserve the wetland system.

The entire Eastern Saline Wetland complex is in and near the City of Lincoln, past losses have been severe, and future threats from development activities are imminent. These wetlands once extended over an area estimated to be more than 20,000 acres, less than 4,000 acres remain today. This habitat is essential for the federally endangered Salt Creek tiger beetle (*Cincindela nevadica lincolniana*), which is endemic to the eastern saline wetlands and to several saline plants that are found nowhere else in Nebraska, including the state endangered saltwort (*Salicornia rubra*).

The presentation will focus on the operation of the partnership and the cooperative efforts to implement wetland restoration and management activities. By establishing the partnership and learning through trial and error, participants have been able to share both resources and knowledge for the conservation of this rare and threatened wetland habitat.

In the past twenty years, the Partnership has conserved nearly 2,100 acres of land containing saline wetlands through fee-simple and easement acquisitions and completed several wetland restoration projects. The partnership is guided by the Nebraska Eastern Saline Wetlands Conservation Plan (2018, update) and cooperated in the development of the outreach publication *Success in the Salt Marsh* (Michael Forsberg, 2018).

## Day 3 Thursday, May 4<sup>th</sup>

### Day 3 Morning: Learning to Fly: Advances in Geospatial Tools and Technology

#### 10:30am – 11:00am Land Protection Partnership and Spatial Modeling in the Montezuma Wetlands Complex

##### Mat Halliday, Ducks Unlimited

Conserving critical wildlife habitat at a regional scale can be challenging, especially when the region hosts a range of land uses, jurisdictions, and competing interests. Abundant opportunities exist for cooperation when vested conservation entities find common ground to use their unique strengths in a cooperative effort to protect and restore wetlands for wildlife and people. We present the Montezuma Wetlands Complex (MWC) Land Protection Partnership as a case study of regional conservation collaboration aimed at identifying areas in greatest need of wetland protection and restoration to support wetland wildlife and provide wildlife-based recreation. The MWC is among the most important wetland complexes in the Atlantic flyway of eastern North America for migratory birds because it provides critical migratory stopover habitat for millions of birds and regionally unique habitats for breeding birds and resident wildlife, including numerous endangered and threatened (E&T) species. This case study demonstrates how state, federal, and nonprofit entities with differing goals and objectives can partner to protect and restore critical wetland habitat for wildlife. Partners optimized efforts by developing an online survey that included physical, land cover, biological, and people/use attributes which were ranked by each partner to determine common priorities and applied these into a spatial mapping, decision-support tool. Within attribute categories, land protection (physical), emergent marshes (land use), E&T (biological), and recreational areas (people/use) were highest ranked by partners. The decision-support tool provided an objective method of ranking parcels of land for public outreach efforts by the partners to protect and restore wetland wildlife habitat.

#### 11:00am – 11:30am Remote Biologists – Integrating UAS and Spatial Data in Wetland Detection & Modeling

##### Blake Walter, Felsburg Holt & Ullevig

Wetlands are dynamic ecosystems that exist in unique spatial and temporal circumstances across a landscape. Identification of wetlands and their extents traditionally requires an intensive ground survey to assess the local vegetation, soils, and hydrology of a site. Past research investigating remote detection and identification of wetlands has largely been limited to specific ecosystems, wetland types, or coarse spatial data. Recent advances in Uncrewed Aerial Systems (UAS, also known as “drones”), have opened new possibilities in the realm of remote wetland detection. In the past few years Felsburg Holt & Ullevig (FHU) has partnered with the Nebraska Department of Transportation (NDOT) and the Colorado Department of Transportation (CDOT) to investigate remote wetland detection as a supplemental tool to assist traditional wetland surveys, in an effort to create workflow efficiencies and improve decision-making. In cooperation with NDOT, FHU developed the “Wetland Prediction Model” which utilizes LiDAR data to model the hydrology and terrain of a site to identify potential wetland areas within the landscape. NDOT has integrated the model into their workflows to assist in preliminary site investigations and project scoping. With CDOT, FHU used multispectral sensors to detect vegetation signatures and assess plant biomass as a potential indicator for wetland



presence. In addition, FHU identified specific technological, analytical, and biological parameters that CDOT can carry forward for future implementation that optimizes the effectiveness and efficiency of remote wetland detection.

**11:30am – 12:00pm Advance Wetlands Monitoring and Assessment Information Platform: Learning from Drones and Open-accessing Near Real-time Satellites**

**Zhenghong Tang, University of Nebraska-Lincoln; Jahangeer Jahangeer, University of Nebraska-Lincoln**

Surveying wetland habitat conditions to obtain accurate estimates is an important but challenging task that requires a considerable investment in time and resources. Existing wetland monitoring mainly relies on three types of data sources: (1) satellite imagery, (2) airplane-based survey, (3) field survey. Unmanned Aircraft System (UAS) (or Unmanned Aerial Vehicle (UAV), or drone) is an emerging new technology for wetland monitoring and assessment. Satellite images are collected at a high temporal resolution and can provide important data sources for ecosystem monitoring. This research summarized the capabilities of drones and Sentinel Satellites in playa wetlands' dynamic monitoring and precise assessment in the Rainwater Basin, Nebraska. Empirical results show that the two platforms returned wetland water detection and inundation classifications with high accuracy and automation. The professional recommendations were provided for wetland managers to launch the rapid monitoring and assessment programs for wetland management.

**Day 3 Afternoon: Warbling About Wetlands: Effective Communication and Outreach Strategies**

**1:30pm – 2:00pm Wet and Wild Learning in Nebraska: Shaping a Statewide Wetlands Outreach and Education Project Wired for a 21st Century Audience**

**Ted LaGrange, Nebraska Game and Parks Commission; Grace Gaard, Nebraska Game and Parks Commission; Ethan Freese, Platte Basin Timelapse**

Information will be shared about a recently completed collaborative project to produce and distribute integrated and innovative outreach and education products to increase awareness of the importance of wetlands in Nebraska and an understanding of the need for their conservation. A series of short films, an array of interactive web content, and printed publications designed for adults and students alike were produced to provide up-to-date information in a format that is favorable to today's audiences. We will discuss why the project was initiated, how it is being implemented, and the partners involved. We will address the importance of defining our audience, understanding how people learn, and our approach of designing content that uses education to motivate positive conservation actions. One of these methods is aligning products with the state's education standards to ensure that they are dynamic and usable within a classroom setting. A highlight will be showing some examples of the innovative audio-visual products being generated which showcase the diverse types of wetlands across Nebraska. A major focus of this project is to discuss the benefits wetlands provide and share stories from people working in wetlands that inspire people to think about what makes wetlands valuable and why they should care about conserving them. Partners include: The Nebraska Game and Parks Commission, Platte Basin Timelapse project at the University of Nebraska–Lincoln, Nebraska Cooperative Fish and Wildlife Research Unit, U.S. Environmental Protection Agency, and Ducks Unlimited.

## **2:00pm – 2:30pm Integrating Project WET, Water Quality, Wetlands, GIS and H2Ohio into the 7th Grade Curriculum**

### **Laura Manns, Ohio Wetlands Association**

The Ohio Wetlands Association was awarded an OEEF mini grant which sought to create an authentic, place-based learning opportunity for the students of St. Brigid of Kildare School in Dublin, OH. The basis of this project was Project WET, with 14 lessons being integrated into the 7th grade curriculum, over four content areas. The goal was to foster a deeper understanding of science concepts related to fresh water and the social context in which they occur. Project concurrently met Ohio Learning Standards 7.ESS.1, 7.ESS.2, 7.LS.2 and 7.W.1 and introduced surface water quality issues currently being addressed in OH, wetlands, GIS, and H2Ohio. The four content areas included were science, language arts, art, and religion. Forty students participated in the 7-week module. Outcomes included: educators trained in Project WET & Healthy Water, Healthy People; stormwater workshop led by Franklin Soil and Water Conservation District, wetland led trip led by Metro Parks; creation of an interactive digital wetland map through a collaboration between FSWCD & Metro Parks, a watershed mural with a wetland focus created by students and displayed at the school to educate the student body on current watershed issues and contains a digital interface which is accessed through a QR code; virtual wetland led trip was created by the USDA NRCS. Students decided to raise enough funds to install a well in a village Africa and held 3 separate fundraising events, raising a total of \$1,610; providing a water well, pump, family wash station, and two hand washing station through Catholic Relief Services.

## **2:30pm – 3:00pm Promote “Integrative Planning” for Wetland Conservation: Learning from Multiple Types of Local Plans in Nebraska**

### **Zhenghong Tang, University of Nebraska-Lincoln**

Local planning systems provide critical cooperation mechanisms to incorporate wetland conservation actions to achieve the goal of “no-net-loss of wetlands” and increase the quality and quantity of wetlands. This project evaluated the major local plans (local comprehensive plans, hazard mitigation plans, watershed plans; water resources management plans) to document existing regulatory policies and voluntary activities on wetland conservation in Nebraska. The results show that the majority of local comprehensive plans in Nebraska pay little direct attention to wetland conservation, although many conservation efforts are conducted under the umbrella of an environmental protection frameworks. The indicators include water resource protection received the highest score and was the descriptor of natural or environmental resources and resulted in the highest level of local awareness on natural assets. The indicator of setting goals for no net loss of wetlands received the lowest score among all indicators, demonstrating a clear gap between the national vision and the local reality of wetland conservation. The results for hazard mitigation plans suggested that wetland conservation was inadequately considered as a hazard mitigation tool in these plans. The findings of watershed plans and water resources plans show that wetland conservation efforts were partially considered in these water plans. The findings of this study also indicate that the local watershed plans have an issue of similarity in wetland conservation contents. Findings suggest local governments need more direct and proactive inputs to improve wetland conservation. These findings suggested that an integrated planning approach was needed to promote the integration of wetland resources and conservation efforts with local comprehensive plans, floodplain management, hazard mitigation programs, and watershed planning, and water resources programs.

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