

National Association of Wetland Managers Annual State/Tribal/Federal Coordination Meeting



Building an Evergreen Future with Wetlands

April 8-11, 2025

Skamania Lodge, Stevenson, WA

ABSTRACTS

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

Tuesday, April 8

Day 1 Afternoon: Tribal Wetlands and Aquatic Resources

1:30pm – 2:00pm The PNW TWIG (Tribal Wetlands Working Group): Supporting EPA R10 Tribes in Protecting Wetlands and their Cultural Uses

Rue Hewett Hoover, Nez Perce Tribe

Self-governance, tribal heritage, and cultural identity are closely tied to high water quality and the traditional resources guaranteed by treaties. However, the geographic isolation of Tribal wetlands and aquatic resource management professionals makes maintaining a cohesive support network difficult. For the past 15 years, the Tribal Wetlands Working Group (TWIG) has facilitated collaborative, science-based decision-making while fostering peer relationships and creating opportunities for developing natural resource management policies and methods that align with Tribal values. This presentation will provide an overview of TWIG, discuss recent successes, and highlight future opportunities for the group and interested Tribal wetland and aquatic resource managers in the Pacific Northwest.

2:00pm – 3:00pm Panel: The Tulalip Tribes' Wetland Program Successes and Lessons Learned

Tulalip Tribes Wetland Management and Assessment Program Jared Busen, Tulalip Tribes

There are approximately 500 delineated wetland/wetland complexes on the Tulalip Tribe reservation, around 20% of the land. This presentation will cover the Wetland Monitoring and Assessment strategy used by the Tulalip Tribes since 2016. We have formally assessed 62, about 12%. This will be a high-level overview of the 6 different protocols used. Some provisional results on the health of the wetlands, plant communities, water quality, fish habitat, external and internal stressors. What are our next steps/lessons learned from 8 years of monitoring? Lastly, how the results will be used in our Wetland Management Plan, which we will be updating in 2025.

Wetland Camps for Tribal Youth
Melissa Gobin and Teesha Osias, Tulalip Tribes

We are cultivating a relationship with our Tulalip Tribal youth and Wetland through educational and outreach initiatives. Exploring constructive methods to engage our youth has been a rewarding journey. By integrating our Indigenous knowledge and teachings, we have observed significant outcomes, emphasizing the importance of connecting with the youth.

With immense enthusiasm, our youth are uncovering the importance of wetlands. We are transforming our recently acquired land, Woods Lake, into a venue for a wetland camp. We believe hosting a wetland camp will encourage a greater appreciation for and commitment to preserving these essential ecosystems with our youth.

Installation of Pre-Planted Pallets via Helicopter to Restore Inaccessible Reed Canary Grass-Dominated Wetlands
Michelle Bahnick, Tulalip Tribes

Reed canarygrass (*Phalaris arundinacea*), an invasive perennial grass, threatens wetland habitat throughout the Tulalip Tribes' Usual and Accustomed Areas (U&A), especially in wetlands that are difficult or dangerous to access for restoration project implementation and management. This project determined if experimental pre-planted pallets can be installed via helicopter in a reed canarygrass-dominated wetland to increase restoration planting survival and shade out the reed canarygrass. We assembled 120 wood shipping pallets with burlap sheets, wetland-appropriate soil, degradable planting stakes, and Manila rope. On each pallet we installed one native tree and four native shrubs. On October 12, 2023, we successfully installed ~90 pallets across three plots in a reed canarygrass-dominated wetland near Startup, WA. We also established three routine restoration plots using 350 willow live-stakes per plot and three control plots all within the same wetland for comparison. All of the 50'x60' plots had baseline vegetation cover measurements taken using the line-intercept method before the pallets and live stakes were installed. We will conduct annual monitoring for at least 5 years to determine if the pre-planted pallets can (1) establish native vegetation and (2) shade out an established reed canarygrass infestation. If successful, this innovative restoration method could be used in a variety of settings, especially in areas that are difficult or dangerous for restoration crews to access such as tidally-influenced floodplains or areas riddled with beaver channels.

3:30pm – 4:00pm Planning and Implementing Low-Tech, Process-Based Wetland and Floodplain Restoration on Kalispel Aboriginal Lands in Idaho

Molly Sherwood, Kalispel Tribe of Indians

Unconfined valley segments (valley width > 4x channel width) are known biological hotspots that support a number of valuable ecological services, including providing opportunities for sustainable harvest of culturally important species like river otter and native trout. Approximately 4.5 percent of the Kalispel Tribe's (Tribe's) aboriginal lands in Idaho contain unconfined valley segments, with approximately three percent overlaying permeable geologic deposits that store spring floodwaters and supplement baseflows in the mostly precipitation free summer months. Most of these areas have been impacted by legacy activities, including overharvesting of beaver, channelization, and dewatering. The Tribe has long realized that the most cost-effective and ecologically beneficial way to restore these valley segments is to implement low-tech process-based techniques such as landform grading, beaver dam analogs, and pole-assisted log structures. This talk will describe how the Tribe mapped unconfined valley segments, prioritized actions, and discuss the design, implementation, and monitoring of two low tech, process-based projects.

4:00pm – 4:30pm Developing a Tribal Specific Wetland Rapid Assessment Method

Alek Kreiger, Ducks Unlimited, Inc.; Raven Mingo and Nicklaus Shumake, Mississippi Band of Choctaw Indians

This presentation will detail the process from conception to field testing of a Wetlands Rapid Assessment Method (WRAM) which considers characteristics related to the priorities of the Mississippi Band of Choctaw Indians (the Tribe). The WRAM is an ArcGIS-based tool developed through a partnership with the Tribe and Ducks Unlimited; and funded by an EPA Wetlands Program Development Grant. The presentation will include information on what parameters were included, the development of the desktop assessment tool and preliminary GIS Score, as well as the field data collection tool. The presenters will also discuss how the tool will be used for decision making by the Tribe.

4:30pm – 5:00pm Pacific Birds Coastal Wetlands Strategic Plan: Wetland Planning Work in Hawai'i Brings Benefits to Endangered Birds, Communities and Indigenous Agro-Ecology

Laura Farwell and Helen Raine, Pacific Birds Habitat Joint Venture

Coastal wetlands throughout the Pacific region provide essential habitats for migratory birds and are used by millions of birds each year to breed, rest, refuel, and overwinter. Estuaries are among the most productive ecosystems on Earth, providing clean water, increased resilience to climate change, and billions of dollars in recreational and economic benefits annually. These areas are also highly valued by coastal communities for subsistence, traditional harvests, and spiritual well-being. Despite their many values, coastal wetlands are being lost at accelerating rates to erosion, sea level rise, invasive species, and human development. In 2024, Pacific Birds released the Coastal Wetlands Strategic Plan to catalyze positive change for coastal wetlands in the Pacific region over the next ten years (2024-2034). The plan was developed in collaboration with partners from across the northern Pacific Flyway, from northern California to Alaska, and is based on the guiding principle that coastal wetlands are most effectively conserved through an approach that transcends political boundaries, regulatory jurisdictions, and public and private ownership to address habitat needs at an ecosystem level. The plan describes coastal conservation strategies and actions, priority coastal bird species, and associated population and habitat objectives that Pacific Birds and partners will focus on over the next ten years. The plan also emphasizes Tribal priorities for coastal wetlands, synthesized from 14 Tribal Wetland Program Plans and scoping sessions with coastal Indigenous partners regionwide. Across focal habitats – including tidal wetlands, eelgrass meadows, freshwater wetlands, and bird-friendly working lands/waters – overarching strategies are complemented by a suite of recommended actions. The intended audience includes agencies, Tribes, nonprofits, and community groups interested in leveraging the plan to promote regional partnerships, pursue funding opportunities, and help inform coastal conservation outreach, priorities, and investments at local to regional scales.

Day 2 Morning: Protection, Restoration & Compensatory Mitigation

10:30am – 11:00am Dredged Canals, Wetland Loss, Legacy and Restoration

R. Eugene Turner, Louisiana State University

The direct effects of converting coastal wetlands to open water by dredging them can be magnified by indirect effects. For example, dredged canals allow for recovery of mineral fluids 1000s of m belowground which may induce geological subsidence or faulting; the dredged material deposited at the surface creates levees that redirect overland water flows. These indirect factors may stress wetland plants enough so that additional wetland habitat is converted to open water as a result of longer intervals of wetland soil waterlogging and drying, sulfide toxicity, less organic matter and sediment accumulation, and greater erosion. We quantified the indirect effects by demonstrating a robust dose-response relationship between coastal land loss and canal density in the Mississippi and Niger river deltas over 5 decades. Importantly, the ratio of land loss to canal area increases with time – a legacy effect. Surface impediments to water movements rather than belowground subsidence is the dominant causal factor. We also found that flood protection levees on the main river channel did not significantly magnify the effect of dredging on wetland loss. The cumulative effect of these direct and indirect consequences in coastal Louisiana are enormous and continuing, equaling many tens of billions dollars annually. Understanding these effects supports the rejection of a hypothesis that regional river channel flood protection levees or fluid withdrawal is of greater importance than the local changes in wetland hydrology. Wetland restoration/mitigation of dredging impacts on these two coasts has been tried successfully but sparsely. Restoration of canals and spoil banks can be implemented at a relatively low cost (1/10th the cost per acre of alternatives) and quickly if this paradigm of the causes of coastal wetland losses is adopted.

11:00am – 11:30am Stream Mitigation: Oregon's Innovative Approach for Function-Based Accounting

Melody Rudenko, Oregon Department of State Lands

Oregon's Removal-Fill Law mandates that any loss of water functions and values, including those in perennial and intermittent streams and rivers, must be mitigated. However, establishing mitigation requirements for stream projects is challenging due to lack of common terminology and understanding about stream functions and values, difficulties in assessing partial losses, and challenges in determining appropriate compensatory measures. Often, decisions are made with limited information and understanding of how a site-level action is influenced by its watershed context, and how that action will affect stream system functions.

To address this, Oregon Department of State Lands (DSL) partnered with the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers to develop an integrative, systematic, and function-based approach for stream mitigation in Oregon. A new accounting protocol, utilizing the Stream Function Assessment Method (SFAM), will be proposed through state rulemaking in 2025. The protocol is a mathematical formula that

- uses SFAM scores to quantify functional change resulting from an action (impact or restoration),
- considers the watershed context for the proposed action,
- applies the stream project length as a unit of measure to quantify the SFAM scores,
- accommodates changes to stream length within a project area, and
- allows adjustments to address agency objectives.

The stream accounting protocol will be accepted by federal partners who administer Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act in Oregon. Oregon's approach serves as a model for incorporating multi-agency policies and objectives for the benefit of the regulated community and the resources the agencies are entrusted with protecting.

11:30am – 12:00pm Oregon's Approach to Identification and Protection of Aquatic Resources of Special Concern

Daniel Evans and Matt Unitis, Oregon Department of State Lands

In Oregon, a state permit is often required to remove or fill materials in wetlands and streams. The Oregon Department of State Lands (DSL) recognizes Aquatic Resources of Special Concern (ARSCs) as naturally rare or disproportionately lost wetlands and waters that provide functions, values, and habitats that are limited in Oregon. Many ARSCs occur in areas experiencing high demand for housing, industry, renewable energy, or other developments. Under Oregon state law, ARSCs necessitate special consideration during the permitting process.

To improve the identification of ARSCs, DSL is developing a reference guide that documents key information about these habitats, including their defining characteristics and identification tips. The guide includes an abbreviated list of landform criteria, indicator species, and soils for each ARSC type, if applicable. It also provides examples of aerial imagery signatures to help with identification before field work, and rough maps showing the known distribution of each ARSC type in the state.

This reference guide represents an initial effort to equip DSL staff, wetland and stream professionals, and the larger public with tools for ARSC identification. DSL is collaborating with regional experts to refine the field manual further. Once completed, the manual will be shared with the public and local, state, federal, and Tribal partners.

With improved identification criteria and heightened public awareness of ARSC's, DSL aims to facilitate their detection early in the delineation and permitting process. This proactive approach is expected to lead to more accurate permit reviews and decisions, ultimately preventing the loss of ARSCs and fostering restoration of previously impacted areas. Additionally, we hope the field manual will generate interest and resources for enhanced mapping of ARSCs throughout Oregon.

Day 2 Afternoon: Wetlands, Hazard Mitigation and Adaptation

1:30pm – 2:15pm Panel: Opportunities for Wetland Conservation and Restoration as a Wildfire Fighting Strategy

Alex Funk, Theodore Roosevelt Conservation Partnership, Alicia Marrs, National Wildlife Federation, and Jessie Moravek, University of Minnesota

Climate change, including increased heat, extended drought, and a thirsty atmosphere, has been a key driver in increasing the risk and extent of wildfires in the United States. While fire is a natural and necessary ecological phenomenon, these increasingly large and intense fires have the potential for devastating compound impacts when burning through source watersheds. After large wildfires, rainstorms flush vast quantities of ash, sediment, nutrients, and contaminants into streams, rivers, and downstream reservoirs.

Traditional approaches to minimizing wildfire risk focus on hazardous fuel treatments, fuel break creation, slash piles, prescribed fires, and other upland activities. More recently, a growing body of research indicates that healthy wetland ecosystems, particularly those influenced by beaver activity, also generate beneficial pre- and post-wildfire benefits. Further, new research suggests that aquatic restoration techniques mimicking beavers, such as the installation of beaver dam analogs, also provide considerable wildfire risk reduction benefits.

Despite these benefits, few federal and state agencies tasked with preventing wildfires recognize the wildfire benefits of wetland conservation and restoration efforts. However, efforts are underway to work with federal and state wildfire and natural resources agencies to better understand the wildfire risk reduction benefits of wetland conservation and restoration efforts. This can potentially unlock new funding opportunities to support wetland conservation and restoration initiatives in states and regions grappling with increased wildfire activity. In this presentation, attendees will hear from multiple stakeholders working to socialize the latest science around wildfire and wetlands, how federal and state wildfire and natural resource agencies are acting on this information, and how state and Tribal wetland managers can become involved in making these critical connections with agency officials and policymakers.

2:15pm – 3:00pm Harnessing Coastal Wetlands for Climate Mitigation and Resilience: Case Studies from the Pacific Northwest

Alexandra Moya, Pew Charitable Trusts; Elizabeth Ruther, Oregon Department of Energy, and Adrian Laufer, Sea & Shore Solutions

The concept of “blue carbon” frames coastal ecosystems and the services they provide in terms of climate mitigation and climate planning. Healthy coastal wetlands like salt marsh, seagrass, and forested tidal wetlands efficiently sequester and store atmospheric carbon dioxide in biomass and sediments. However, when degraded, these habitats release stored carbon back into the atmosphere. The loss of coastal wetlands is accelerating across the U.S., necessitating policy and funding to protect and restore blue carbon ecosystems. This session will provide an overview of coastal habitats as a nature-based climate solution, followed by perspectives from state agencies and researchers in Oregon and Washington who are developing greenhouse gas inventories and technical tools to aid state managers who seek to better manage coastal wetlands for their climate mitigation and resilience benefits.

3:30pm – 4:00pm Protecting Washington State’s Peatland Biodiversity

Joe Rocchio, Washington Department of Natural Resources

Washington State’s climatic, geologic, topographic, and biogeographic diversity has led to the development of a large array of peatland types, ranging from ombrotrophic bogs to minerotrophic, calcareous fens. Abiotic factors such as water source, elevation, pH, mineral concentration, landscape position, and natural and anthropogenic disturbances influence the biotic composition, vegetation structure, and ecosystem processes of these peatlands. Understanding this variation is necessary to account for the full suite of peatland biodiversity on the landscape. This presentation explores Washington’s peatland diversity within the context of the U.S. National Vegetation Classification and NatureServe’s approach to assessing ecosystem imperilment. This information guides field-based survey and inventory effort to identify explicit locations for peatland conservation. These critical sources of information—peatland classification, imperilment status, and locations—provide a systematic framework for communicating biodiversity values, distribution patterns, threats, and prioritize conservation and management needs of Washington’s diverse peatland resource. The presentation will also discuss how this information is used within the context of Washington Department of Ecology’s Wetland Rating System and Washington’s Register of Natural Areas to guide peatland protection and conservation across the state.

4:00pm – 4:30pm Development of a General Permit for Living Shorelines in Florida

Tim Rach, Florida Department of Environmental Protection

Coastal resiliency has been a hot topic in Florida for several years; storm intensity, frequency, along with sea level rise have made our coasts more vulnerable. Unfortunately, most of the solutions to provide some protection, have typically included hardened structures. Practitioners have stated that it's easier and quicker to receive permits for seawalls or rip rap than it is to receive a permit for a living shoreline project. Although there are some regulatory exemptions on the books for living shoreline projects, they are limited and haven't been used very often. Florida DEP is looking to develop a state general permit for living shoreline projects to help speed up the regulatory process and encourage more nature-based solutions. There's also a push nationally to look at nature-based solutions to help protect the vulnerable military bases that are along the coasts. Florida intends on coordinating with the U.S. Army Corps of Engineers (Corps) during the development of this permit in hopes of having it included in a State Programmatic General Permit (SPGP). The current SPGP agreement with the Corps is up for reissuance in July 2026. Incorporation of a general permit for living shorelines within the SPGP would mean that Florida DEP would be able to provide both state approval as well as Federal approval for projects that meet the general permit. This regulatory efficiency would provide more options for landowners looking to stabilize and protect their shorelines in a more environmentally sustainable manner.

4:30pm – 5:00pm Targeted Nature-based Infrastructure for ES Enhancements on FEMA-Qualifying Buyout Properties to Improve Health in Vulnerable Urban/Industrial Locations in Greater Houston, TX

Deborah January-Bevers, Houston Wilderness

Through a multi-partner, large-scale targeted native tree planting framework, implemented in Houston, Texas, thousands of native tree species that rank high in key ecosystem services are being planted in locations that experience substantial flooding during large rain events, have high rates of health effects exacerbated by air and water pollution and experience multiple days of elevated heat and air pollution. This multidisciplinary framework addresses a critical need to provide interventions accessible to urban communities, particularly in heavily industrial areas, and to educate on the connection between climate change adaptation and resilience, air pollution mitigation and health. Two programs are discussed: (1) the regional *Houston Ship Channel Trees and Riparian Enhancement of Ecosystem Services* (HSC TREES) Program - that targets large-scale native tree plantings along the 25 miles of the Houston Ship Channel, and (2) the *Riverine Targeted Use of Buyouts* (Riverine TUBs) Program – that prioritizes FEMA-qualified contiguous buyout properties adjacent to riparian corridors leading to Galveston Bay (Texas) and the Gulf of Mexico. With the assistance of local, regional and federal partners, the Riverine TUBs Program implements targeted large-scale native tree plantings, wetlands replenishment and native grass bioswale installations on these contiguous public lands to increase coastal and riverine resilience, address harmful impacts from frequent rainwater and storm events and establish best management practices that can be emulated by other stakeholders/decision-makers in the region and around the coastal U.S. and the world. These climate change improvements provide ecological resilience, flood mitigation, air and water quality enhancements, increase carbon sequestration and riverine erosion control, among other benefits. Houston Wilderness has worked with NRCS-Texas to create a Best Management Practice for native grass bioswale planning and implementation in Texas. This BMP will be discussed with case examples and cost analysis provided.

Day 3 Morning: Tools & Geospatial Approaches

9:30am – 10:00am Teal Carbon: Mapping Carbon in Washington State's Inland Wetlands

Meghan Halabisky, University of Washington

This research aims to create foundational baseline data on soil organic carbon (SOC) stocks across Washington State wetlands, contributing to a national effort to assess carbon in inland wetlands. Using remote sensing and geospatial analysis, we developed SOC maps that quantify carbon stocks across diverse wetland types, including areas along the wet-dry gradient and those that don't meet legal wetland definitions. Our approach integrates continuous wetland probability mapping, in situ SOC samples, and land cover types to predict a continuous map of SOC for the state. By calibrating our model with field-based SOC data and employing machine learning, we produced maps revealing SOC distribution and its variability in forested and non-forested wetlands statewide as well as a map of model uncertainty. This study establishes a scalable approach, supporting the integration of SOC data into decision-making at local and state levels.

10:30am – 11:00am Mapping the Future: Using GIS to Guide Watershed Level Ecosystem Service Mitigation

Jane Rombouts, Oregon Department of State Lands

Ecosystem services are the suite of benefits that natural areas provide to communities. Through the administration of Oregon's Removal-Fill Law, Oregon Department of State Lands (DSL) requires permittees to compensate for the loss of ecosystem services resulting from impacts to aquatic resources. However, DSL recognizes there are circumstances when addressing other watershed priorities may provide greater benefits for all outcomes of watershed health. To address this, DSL administrative rule outlines six watershed priority goals that can be accepted as 'out of kind' mitigation. A key challenge for implanting out of kind watershed priority mitigation is identifying other watershed needs that align with DSL's six priority goals.

To help applicants connect mitigation requirements with other watershed level needs, DSL has reviewed many readily available GIS datasets from other agencies and organizations and, has identified datasets that can address one of DSL's six watershed priority goals. These datasets have been added to DSL's Mitigation Planning Map Viewer, a public online tool that provides a variety of relevant GIS layers to help develop effective mitigation projects. A mitigation proposal focused on a DSL watershed priority goal must also demonstrate it adequately addresses the identified issue. To help both the applicant submit an acceptable proposal and assist in agency review, guidance documents have been developed specific for each GIS layer which prompts the applicant for information needed to evaluate if the watershed priority will be adequately addressed by the mitigation project.

The watershed priority option can promote ecosystem services that communities value most and foster public support for trade-offs between lost and replaced services. It can also encourage more collaborative projects that promote broader benefits.

DSL continues to expand and refine the watershed priority process by encouraging further dialogue on watershed priorities among local and state agencies, Tribes, and the public.

11:00am – 11:30am Geospatial Modeling of Soil Organic Carbon in Restored Wet Meadow and Sage Brush Ecosystems

Etinosa Igunbor, Old Dominion University

Researchers have examined the restoration of degraded wetlands and sagebrush to enhance soil organic carbon (SOC) content and plant biomass. Nevertheless, the conventional method of assessing SOC content in these restored ecosystems is time-consuming, costly, labor-intensive, and constrained in terms of spatial coverage. Hence, a more robust and efficient approach for SOC estimation and monitoring across larger spatial scales in these restored ecosystems is necessary. This research aims to explore the feasibility and precision of utilizing freely available remote sensing and topographical data to capture values over extensive spatial scales, potentially enhancing the estimation of SOC content in these restored ecosystems. The study was conducted in two ecosystem types in the western United States: sagebrush and wet meadow ecosystems. SOC content at a soil depth of 0–10 cm was sampled in two watershed sites (100 samples per watershed) located in the upper Gunnison Basin, Colorado, each encompassing both ecosystem types. Averaging time data (5 years, 3 years, 1 day) of six remote sensing variables, including NDVI, GNDVI, GLI, SAVI, CI, GSI, and topographical data (TD) variables such as topographical position index, DEM, slope, and aspect, were employed as explanatory factors in developing the SOC predictive model. The performance and accuracy of the best model were evaluated using the RMSE, R², and MAE. The results indicate the following: (1) MGCV models yielded the most accurate SOC prediction utilizing various averaging time data and topographical data for both sites; (2) the MGCV model incorporating NDVI, GSI, and CI remote sensing indices provided the most accurate prediction for SOC stock at both sites. In conclusion, these results underscore how topographical variables and time series RS data can impact the accuracy of SOC prediction.

11:30am – 12:00pm Enhancing Wetland Biodiversity through Habitat Improvement Projects: A UAV Based Approach

Sarah Drahovzal & Hannah Gorin, Kleinschmidt Associates

As part of ongoing habitat improvement initiatives, the modification of winter water levels in a designated wetland area aims to enhance the over-wintering success of muskrat populations. Historically, dense cattail stands in this wetland limited plant diversity and negatively impacted overall wildlife habitat functionality. While cattails are essential components of wetland ecosystems, their overgrowth can diminish biodiversity.

The increased winter water levels are anticipated to support muskrat populations, subsequently reducing cattail density—their preferred food source—and promoting improved plant diversity and habitat quality. Baseline surveys conducted in previous years established a framework for monitoring ecological changes. Recent advancements included the use of unmanned aerial vehicles (UAVs) alongside traditional field surveys to document cattail extent effectively.

Post-intervention surveys were conducted using both methodologies to assess changes in cattail coverage in subsequent years. By employing drone-based aerial imagery and advanced multispectral analysis, we achieved precise identification and mapping of cattail distribution. This approach enabled quantitative, repeatable surveys that facilitate year-over-year comparisons, enhancing our understanding of ecological dynamics.

The integration of drone technology in habitat management significantly reduces the time and labor associated with traditional ground surveys, offering clear, data-driven insights into cattail distribution. These findings will inform decision-making processes related to habitat management, waterway maintenance, and future project planning, contributing to the overarching goals of wetland conservation and biodiversity enhancement.

Day 3 Afternoon: Communications, Outreach, & Partnerships

1:30pm – 2:00pm How to Tell the Story of Sackett in Your Community

Jim Murphy, National Wildlife Federation

The National Wildlife Federation to present its [Waters Storytelling Toolkit](#). The toolkit is meant to be used by advocates, Tribes, community members, and others to provide them with guidance on how to tell the story of how the threat of the loss of the Clean Water Act protections resulting from the 2023 SCOTUS *Sackett* decision impacts their communities and local and regional water resources. The toolkit explains the decision, provides messaging recommendations, and describes a variety of potential story frames. Each section has a succinct slide deck and an accompanying video with more discussion and detail. NWF's ultimate goal is to create a broader base of public support for strong water protections at the local, state and federal levels. We intend to work with communities using the toolkit to get media coverage on the impacts of the *Sackett* Supreme Court decision narrowing the scope of the Clean Water Act. The presentation will give an overview of *Sackett* and present on what the toolkit provides, how it can be used, and how NWF is willing to work with those on the ground seeking to protect wetlands to better tell the story of the threat of *Sackett* at the local level.

2:00pm – 2:30pm Walking Hand in Hand with Wetland Allies: Observations on Successful Outreach

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

As the intersection between surface water and ground water, wetlands are diverse, unique and often poorly understood. These natural systems are barometers of environmental health and the first to display the impacts of climate warming. Government agencies, tribal entities and non-profit organizations tasked with resource management often have limited data to support wetland, water and habitat management objectives. In this presentation, we will use a series of outreach activities across New Mexico to demonstrate various strategies for addressing this knowledge gap and contextualizing wetland data. Examples will be drawn from stakeholder engagement with soil and water conservation districts, federal and state land management agencies, and tribal communities who are dealing with highly erodible soils, inefficient agricultural practices, water shortages, and competing land uses/permitting. Lessons learned for successful outreach include: thorough preparation to understand the issues facing each organization, the importance of being attentive to local messaging, putting indigenous knowledge on equal footing with western science, and the value of creative collaboration to develop solutions.

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