Day 1: Tuesday, June 17, 2025

National Wetland Inventory Overview – *Lauren Healey, National Wetlands Inventory (NWI)*
The U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) is a program dedicated to mapping and maintaining wetland data across the United States. NWI's extensive dataset, includes over 37 million polygons covering 100% of the contiguous U.S. and 63% of Alaska and is widely used for ecological assessments, land management, infrastructure planning, and natural resource damage assessment (NRDA). This presentation will answer questions like: how is NWI data created? How do I make NWI compatible data? What is the current status of NWI data in my region?

Installation of Pre-Planted Pallets via Helicopter to Restore Inaccessible Reed Canarygrass-Dominated Wetlands – *Michelle Bahnick, Tulalip Tribes of Washington*
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.

Inventory and Assessment Efforts of Nevada's Wetland Program – *Chantal Iosso, Nevada Division of Natural Heritage*
Wetlands in Nevada make up only a few percent of the state's area, but support much of its biodiversity and serve essential functions for humans. Despite their importance, limited inventory and monitoring have occurred at Nevada's wetlands, leaving major information gaps for wetland managers in the state. This presentation will highlight three recent projects undertaken by the Nevada Wetland Program (within the Nevada Division of Natural Heritage, NDNH). Two of the rarest wetlands in Nevada are fens and vernal pools. Neither has been well studied in Nevada, so the NDNH is undertaking the first

statewide inventory to understand their distribution and condition. More than half of the likely fen and vernal pools in the state have been surveyed, and more than 30 rare species associated with these unique ecosystems have been documented. Springs are critically important in Nevada as habitat for many sensitive and endemic species, water sources, and climate refugia. NDNH has partnered with the Springs Stewardship Institute (SSI); SSI's inventory efforts are stored in SpringsOnline, a secure, publicly accessible springs database. Through this work, SSI has greatly increased knowledge of the condition of springs in Nevada, the distribution of associated sensitive species, and data sharing with land managers. Finally, WetBar is a Nevada wetland analysis toolbar that integrates satellite imagery with web-based data to quickly produce graphics and charts of wetland condition and trends. NDNH partnered with the Desert Research Institute (DRI), who developed this tool with the support of WPDGs, culminating in the new web-based version (at https://dri-apps.earthengine.app/view/ee-nv-wetlands) that allows users to analyze wetlands of interest without the need for GIS expertise or paid licensing.

Lummi Nation Wetland and Habitat Mitigation Bank – *Jamie Mattson and Jeff Solomon, Lummi Natural Resources Department*
The Lummi Indian Reservation is located in northwest Washington State approximately 20 miles south of the Canadian border, along the Washington coastline. The Lummi Nation Wetland and Habitat Mitigation Bank (Bank) is the first tribally-owned and operated commercial mitigation bank in the United States. The Bank became operational on October 18, 2012 and is operated by the Water Resources Division of the Lummi Natural Resources Department. Wetland mitigation credits are generated by creating new wetland areas, planting native plants, monitoring plant success, and achievement of performance standards. The Lummi Nation works with the Interagency Review Team (IRT) to manage mitigation credit generation and document all mitigation credit sales. Credit sales support the Lummi Indian Business Council General Fund along with providing mitigation opportunities for Lummi enrolled Tribal Members, the Tribal Government for municipal projects, and the Tribal Housing Authority for residential development projects. Mitigation Credits can be used for on Reservation projects and can also be sold for non-member development projects located off-Reservation within the Service Area.

Day 2: Wednesday, June 18, 2025

Developing Hawai'i's First Protection and Restoration Strategy for Wetlands – *Maya Goodoni and Devon Aguiar, Hawai'i Coral Reef Initiative, Social Science Research Institute, University of Hawai'i*
In 2020, the Hawai'i Department of Land and Natural Resources (DLNR) published its Wetland Program Plan (HWPP) for four Wetlands of Focus: Anchialine Pools, Marshes, Estuaries, and Coral Reefs. The Marshes and Anchialine Pools Protection and Restoration Strategies developed a novel decision-making framework to evaluate and guide protection and restoration efforts. Hui (working groups) convened based on wetland type: marshes and anchialine pools. After setting a unifying goal for protection and restoration of the ecosystem, these hui co-produced evaluation criteria that represented the key considerations for management. Criteria spanned categories like key threats, land management, and biocultural value. The tool was based on the Pacific Birds Habitat Joint Venture strategic planning process, grassroots restoration efforts already in progress, decades of research and monitoring, and generations of local indigenous knowledge. This iterative and collaborative process included numerous consultations with resource managers, partner agencies, nonprofits, researchers and cultural practitioners that will inform statewide management priorities. Once the framework was drafted, it was beta-tested with sites that the hui were interested in supporting, and the results highlighted needed management interventions for each place. These were published in the Protection and Restoration Strategies: Vol. 1 Marshes and Vol. 2 Anchialine Pools. The project complimented protection and restoration strategies with much-needed coordination and development of the state's anchialine pool monitoring and assessment strategy, developed environmental review guidance for wetland restoration

activities, and evaluated protections across multiple regulatory jurisdictions. In the coming phase of Hawai'i's wetland program, sites will implement restoration and protection measures guided by the tool, anchialine pools will be mapped to begin developing protective buffers at the county level, and the state will begin developing protection and restoration strategies for estuaries.

Developing a Submerged Aquatic Vegetation Monitoring Program for the Southern California Bight – *David Gillett, Southern California Coastal Water Research Project*
Submerged aquatic vegetation (SAV) is an ecologically, economically, and societally important component of estuarine and coastal systems across southern California and the nation. Reflective of this importance, SAV is recognized as a special aquatic habitat under Section 404b of the Clean Water Act and as a key wetland for protection and restoration by the state of California. Eelgrass is viewed as the most important type of SAV in California. However, despite a clear need, there is no coordinated eelgrass monitoring and assessment effort in the California. The absence of a monitoring program is largely due to a lack of standardized data collection methods and a lack of an interpretive framework. Without an ability to evaluate eelgrass condition or functioning, local and state agencies cannot effectively evaluate the success of the different protective management strategies they employ nor meaningfully track the success of mitigation or restoration projects. In response to this gap, SCCWRP developed a 3-tiered framework for assessing SAV extent, condition, or functioning. In concert with the framework, SCCWRP has also created a series of field and lab protocols to conduct the Tier 3 Ecological Function assessment on eelgrass (Zostera spp.). The present project was designed to be the first regional deployment of these Tier 3 assessment tools, testing their feasibility when stepping up in scale from a single estuary to the whole of the Southern California Bight. Beyond providing the first regional-scale assessment of eelgrass conditions, this project would also provide the infrastructure – both field (sample draw maps of eelgrass bed locations), data management (publicly facing database, data query, and data visualizations) and data interpretation (condition assessment tool) – needed to support the maturation of a regional eelgrass program supported by local management community in the future. Engagement with the local management community has been maintained through a Management Advisory Committee comprised of federal, state, and local agency personnel, which reviewed technical products to give us insight into their utility.

Russian River Regional Monitoring Program: Comprehensive Basemap of Surface Waters and Riparian Areas – *Cristina Grosso, San Francisco Estuary Institute*
This project is updating the geospatial map of aquatic resources, including at-risk waters and their riparian areas, to support the Russian River Regional Monitoring Program (R3MP; https://sites.google.com/sfei.org/r3mp/). The project has two main tasks: (1) produce a new geodatabase of aquatic resources in the Russian River Watershed (RRW) and Sonoma County by piloting automated digital mapping techniques that can be repeated in the future to assess change over time, and (2) map adjacent riparian buffer (as defined in the California Water Board Wetlands Policy) and employing the Riparian Zone Estimator Tool (RipZET; www.sfei.org/projects/ripzet). These new map products are necessary for implementation of the Sonoma County Riparian Corridor Protection Ordinance, and will be used as the basemap for the R3MP. Both geospatial datasets will be made publicly available through SFEI's Data Center webpage, and will be available interactively on EcoAtlas (www.EcoAtlas.org), a public web tool for sharing, visualizing, and summarizing environmental data in the watershed context. The project supports the State's Wetland and Riparian Area Monitoring Plan (WRAMP) by developing a basemap of aquatic resources and adjacent riparian areas to use for regional monitoring and tracking changes in the amount, distribution, and diversity of wetlands in the region.

Sediment and Soil for Wetland Adaptation Project – *Brenda Goeden, San Francisco Bay Conservation and Development Commission*
San Francisco Bay's tidal wetlands were diked and drained for agriculture and development between the 1850's and mid-1900's. Between the 1940's and 1980's streams and creeks were channelized into flood protection channels that swiftly moved water and sediment off the landscape into the Bay, bypassing the remaining wetlands. As habitat and species declined with the wetlands, people began to better understand the value they bring to society and the natural world and set goals to restore 100,000 of the 200,000 acres that were lost, mostly sitting behind levees and berms, deeply subsided and cut off from the tides and streams that fed them. In the 1990's the Long Term Management Strategy for the Placement of Dredged Material set goals to maximum beneficial reuse of sediment and has succeeded in beneficially reusing over 31 million cubic yards, restoring landscape scale wetlands. But it's not enough, rerouting water from the Delta to other parts of California has also caused the sediment supply to decline to the Bay. The Sediment and Soil for Wetland Adaptation Project seeks to identify materials that can be beneficially reused rather than disposed of and the barriers to that use, identify actions, and potential solutions to allow more sediment and soil to reach wetland restoration projects. An Action Plan has been developed. We are entering a policy development phase to be followed by a financing strategy. This presentation will share our progress and successes to date.

San Francisco Estuary Wetlands Regional Monitoring Program (WRMP): Bridging Data with Decision-Making for Adaptive Management – *Sasha Harris-Lovett, San Francisco Estuary Partnership*
The WRMP delivers coordinated regional monitoring of the San Francisco Estuary's wetlands to: Inform science-based decision-making for wetland restoration and adaptive management, and increase the cost-effectiveness of permit-driven monitoring associated with wetland restoration projects. It serves as a regional model of the California Wetland Program Plan. Wetland Program Development Grants have been essential for setting up a governance structure for the program, and for planning and piloting monitoring around the SF Bay Area. Our current WPDG supports:

- Developing an information delivery strategy that enables more effective decision-making based on information derived from WRMP data and analyses. It will also facilitate peer-to-peer learning among decision-makers to share ideas about how WRMP data can inform decision-making.
- Strengthening regulatory alignment to clarify ways in which the WRMP can make permit-driven monitoring more impactful, efficient and cost-effective.
- Focusing on community engagement to prioritize and implement the recommendations for program development contained within the WRMP engagement strategy, including for workforce development.
- Preparing logistics for program implementation by developing the first bi-annual Implementation Workplan for the WRMP to describe priorities and logistics for monitoring considering funding availability.

Building Capacity for Assessing Wetland Recovery Efforts in Supporting Regional Wetland Health and Resiliency – *Katie Nichols, CA State Coastal Conservancy*
Co-authors: Janet B. Walker, Kevin O'Connor, Eric D. Stein and Corey Clatterbuck
A major challenge in coordinated wetland restoration in California is that the responsibility for assessing wetland extent, abundance, and condition and managing data currently resides with multiple agencies. To increase coordination, the Southern California Wetlands Recovery Project (WRP), consisting of directors and staff from 18 public agencies, was founded to coordinate to advance the protection, restoration, and enhancement of California's coastal wetlands between Point Conception and the Mexican border. The WRP has since identified a critical need to develop a comprehensive, regional wetland monitoring program for coastal wetlands to evaluate and track the collective condition and resilience of coastal wetlands in the region. Comparable monitoring information is essential to evaluate whether regional and state goals for wetland resiliency and restoration are being achieved, to inform

future funding decisions, and to protect past investments in wetland restoration from the rapidly advancing impacts of sea-level rise. The WRP Regional Monitoring Program is being developed to establish comparable approaches for coastal wetland monitoring across the region and incorporate these into permit- and funding-required monitoring programs. A successful monitoring program needs to establish protocols that are both consistent enough to measure the regional condition of wetlands, and flexible enough to meet the needs of the individual regulatory and funding agencies. To help facilitate this, this program is developing guidance to help provide agency-specific procedures for incorporating and applying the regional monitoring program into permitted and funded projects.
The final products of this project include four guidance documents: 1) recommendations for the development and maintenance of a southern California sentinel site network, 2) a monitoring strategy for the WRP Regional Monitoring Program, 3) agency-specific guidelines for applying the regional monitoring approach to permitted and funded projects, and 4) a proposed implementation strategy for the WRP Regional Monitoring Program in southern California.