SHORING UP RESILIENCE IN NPDES PERMITS: Tools and Opportunities

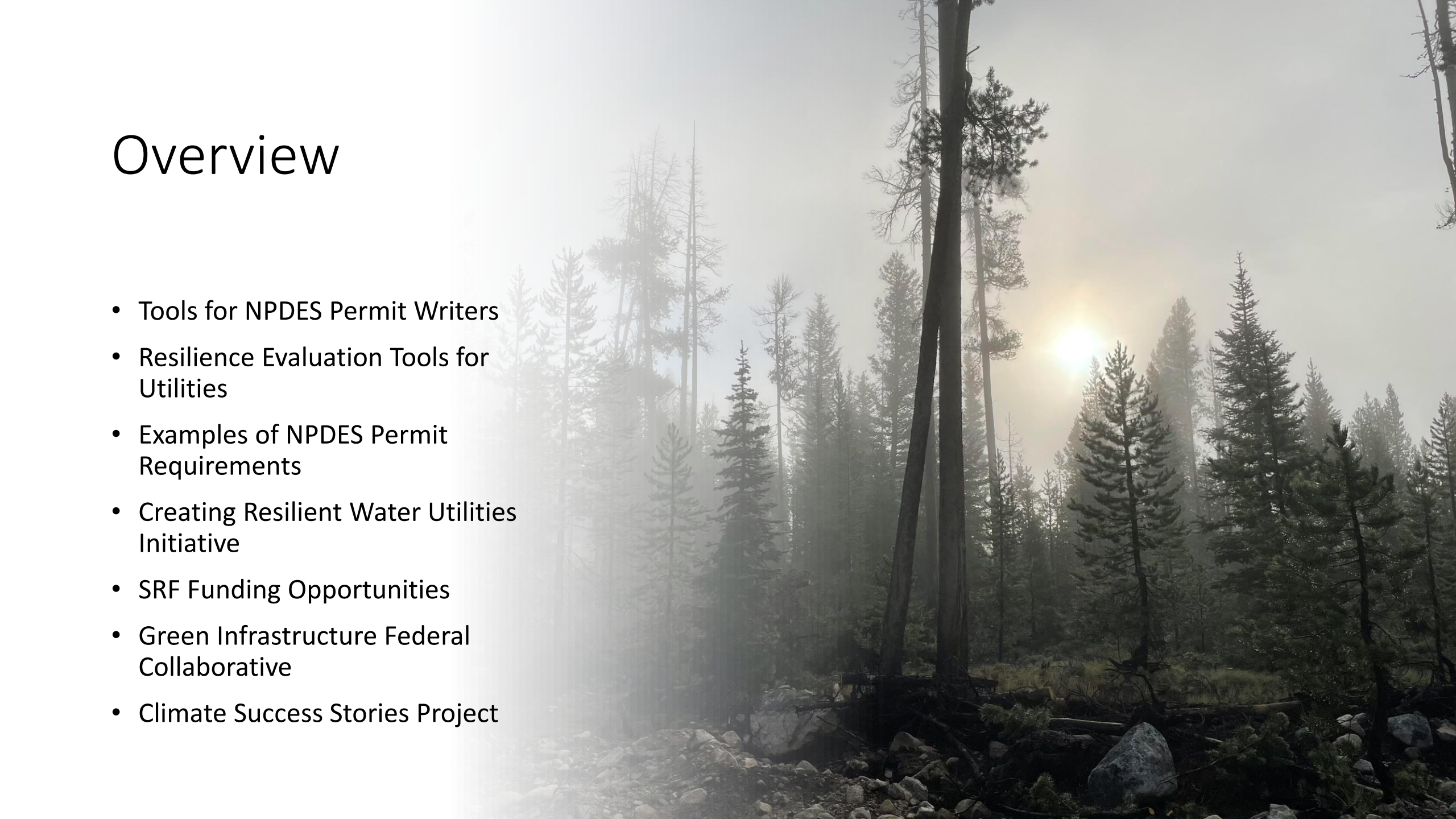
ACWA 2023 Annual Meeting

August 11, 2023

Kevin Weiss, EPA

CO2 Emissions: DEFRA 2,512 lbs, GHGP 1,596 lbs

Overview



- Tools for NPDES Permit Writers
- Resilience Evaluation Tools for Utilities
- Examples of NPDES Permit Requirements
- Creating Resilient Water Utilities Initiative
- SRF Funding Opportunities
- Green Infrastructure Federal Collaborative
- Climate Success Stories Project

Major Themes

- NPDES Permits
  - Climate change impacts RPA/WQBEL calculations
  - Climate considerations can be important for permits addressing major infrastructure (POTWs/CSOs)
  - Vulnerability Assessments may be important for coastal permittees
  - Green infrastructure can mitigate climate impacts (MS4/CSO permits) and provide other benefits
  - Seeing more of an emphasis on some discharges (e.g. water reuse, desalination, wildfire chemicals, storm water capture, nutrients/HABs)
- Other Topics
  - CRWU Initiative
  - Other Funding Opportunities
  - Green Infrastructure Federal Collaborative

Tools for NPDES Permit Writers

Low Flow Statistical Tools Handbook (Recently Updated)

- The handbook describes how to estimate low flow statistic values in a variety of situations using free publicly available tools.

Hydrologic Toolbox

- The Hydrologic Toolbox is a Windows-based desktop software program that provides a graphical and mapping interface for analysis of hydrologic time-series data with a set of widely used and standardized computational methods. It combines the analytical and statistical functionality of the Surface-Water and Groundwater Toolboxes and provides several enhancements to these programs.

Tools for NPDES Permit Writers

- **Thermal Discharge in NPDES Permits Guide (New)**
  - The permitting process helps ensure that thermal discharges do not cause unacceptable changes to the local aquatic community and habitat.
  - Managing discharges to protect water quality under these changing conditions can be aided by the refinement of the methods, tools, and information used to develop and implement NPDES permits and programs.

Tools for NPDES Permit Writers (cont.)

- **Compendium of MS4 Permitting Approaches**
  - Compendium showcases permits that incorporate green infrastructure to promote resilience
- **Green Infrastructure and the MS4 Permit: A Compendium of Case Studies (recorded webinar)**

- **Green Infrastructure Wizard (GIWiz)**
  - GIWiz provides access to a repository of EPA-sourced Green Infrastructure tools and resources designed to support and promote sustainable water management and community planning decisions.
  - The tools and resources available through GIWiz will help you analyze problems, understand management options, calculate design parameters, analyze costs and benefits, evaluate tradeoffs, engage stakeholders, and/or develop education and outreach campaigns.

Tools for NPDES Permit Writers (cont.)

- **Protecting Aquatic Life from Effects of Hydrologic Alteration** (EPA/USGS)

- **NPDES Climate Training** (coming soon)
  - model permit language and factsheets,
  - training on Thermal Discharge in NPDES Permits Guide and Low Flow Statistical Tools Handbook
  - utilizing vulnerability assessments in NPDES permits.

Tools for NPDES Permit Writers (cont.)

NPDES Permit Writer's Clearinghouse

- Website: EPA.gov/NPDES and click on 'Clearinghouse'
- Click on 'Search Resources'
- In search box: climate
- Submit new examples by sending to:
  - Registering as Clearinghouse Contributors or Email:
    - Ross Brennan (brennan.ross@epa.gov, (202) 564-3248) or
    - Doris Ihejirika (ihejirika.doris@epa.gov, (202) 564-2110)

Resilience Evaluation Tools for Utilities

Resilience Strategies Guide: For those in the early stages of understanding potential climate change risks, typically smaller water sector utilities.

Climate Resilience Evaluation and Awareness Tool (CREAT): For those that want to take a comprehensive approach to water sector utility climate change risk assessment.

What is CREAT?

A tool for water sector utilities to assess climate-related risks. The modules are:

1. **Climate Awareness;**
2. **Scenario Development:** Understand utility risk; design scenarios of threats based on climate data;
3. **Consequences and Assets**;
4. **Adaptation Planning:** Inventory current actions that provide resilience; design adaptation plans; and
5. **Risk Assessment:** Assess risk from a changing climate; compare risk reduction of adaptation plans.

Examples of NPDES Permit Requirements

District of Columbia MS4 Permit Fact Sheet (2018)

1.5.3.1 Permit limit specifying Acres Managed (page 8)

2.7 Infrastructure Resilience Assessments (page 13)

- Assesses risks and vulnerabilities in DC due to flooding, sea level rise, etc.

3.2.3 Stormwater Retention Credit Program (page 25)

- Offsite mitigation and payment-in-lieu options

3.2.8-10 Tree Plantings, Green Roofs, and RiverSmart (page 28)

Examples of NPDES Permit Requirements

City of Morro Bay, CA WWTP NPDES Permit/Fact Sheet (2022)

- 6.3.6.2 Recycled Water Management Plan (page 23)
- 6.3.6.2.2.4 Must include Climate Impacts & Resiliency (page 25)
- 6.3.7.2 Climate Change Response Hazards and Vulnerabilities Plan (page 26)
- 6.2.6 Special Provisions for Recycled Water Management (page F-32)
- 6.2.7.2 Climate Change Adaption (page F-34)

Chelsea Creek Bulk Petroleum Storage Facilities NPDES Permitting

- Chelsea, MA is a large transportation port, adjacent to Boston, recognized for years as a community with complex EJ issues.
- 8 bulk oil facilities unloading millions of gallons of fuel for greater Boston, including all jet fuel for Logan Airport.
- Logan Airport flight line immediately above, access road to airport directly through
- Tobin Bridge and Route 1 provides major access for commuters to Boston

2022 Final NPDES Permit Requirements *to address Climate Change*

- Required to assess in Stormwater Pollution Prevention Plan (SWPPP) potential impacts/risks of climate change and implement stormwater control measures (i.e., BMPs).
  - Modelled after 2021 Multi Sector General Permit - goes further, includes major storm and flood events to account for dry-weather flooding
  - Must consider specific BMPs
  - Must use forward-looking data over near and far-term time periods, not just historical data
- Must use best science/data
  - Permit identifies specific data sources from the U.S. Global Change Research Program agencies (e.g., NOAA, EPA, NASA, USGS) that must be reviewed
  - Must use up to date information including state and local resources, which will be posted publicly by Region 1 as climate science data become publicly available

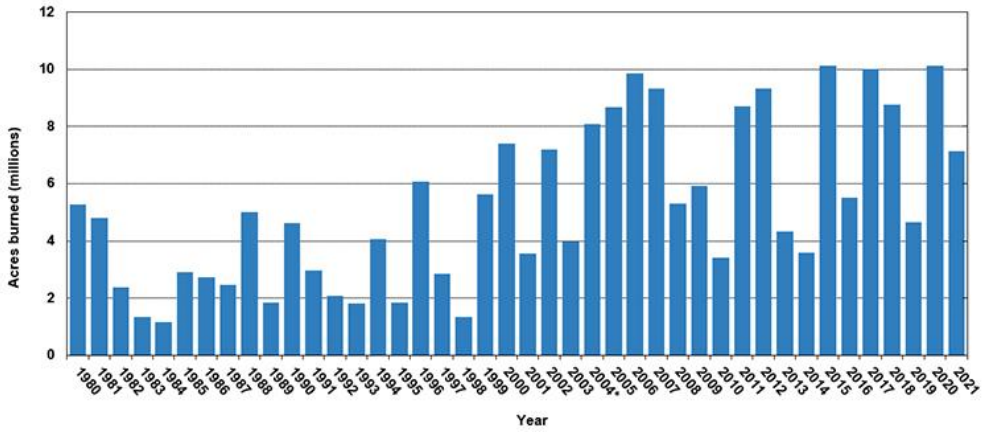
2022 Final NPDES Permit
Requirements to address Climate Change

- Facilities are required to review and update their BMPs over the life of the permits to reflect the latest science and their experiences with major storm and flood events at the facilities.
- BMPs must address, at a minimum, storm surge, increased/heavy precipitation, sea level rise, and dry weather flooding, in addition to direct impacts from major storms, such as wind damage.
- EPA will post facilities' SWPPPs, which identify the specific BMPs implemented and present the results of the climate change assessment, on its public Terminals website

Examples of NPDES Permits

Wildfire Chemicals General Permit

Annual Number of Acres Burned in Wildland Fires, 1980-2021



Creating Resilient Water Utilities (CRWU) Initiative

- Water Utilities can request free Climate Change Risk Assessment Technical Assistance from EPA
  - August 15, 2023 deadline
  - Provides the water sector and its stakeholders with practical tools, training, and technical assistance needed to increase their resilience to climate change.
- Utilities can begin the process of assessing their risk from climate change.
  - Resilience Strategies Guide
  - Climate Resilience Evaluation and Awareness Tool (CREAT)

Green Infrastructure Federal Collaborative

- 15 Federal Agencies
- Goals of encouraging equitable implementation of green infrastructure and prioritize actions in Nature-Based Solutions Roadmap.
- Topics the collaborative will prioritize include:
  - **coordinating federal funding and technical assistance**, with a particular focus on Tribal and underserved communities.
  - Building Regional permitting networks with **expertise in green infrastructure**.
  - Strengthening nature-based solutions in hazard mitigation decisions
  - Sharing tools, resources, and approaches to benefits-cost analysis for federal grant programs

CWSRF Climate Resiliency

- The CWSRF can finance a wide range of water infrastructure projects that support climate resilience.
- **Eligible resilience projects** pertain to many activities that help to:
  - Prevent interruption of CSO's during a flood or natural disaster;
  - Preserve, protect, and maintain the operation of treatment works and the integrity of the treatment in the event of a flood or natural disaster;
  - Enhance resilience through stormwater management using green and gray infrastructure during a flood;
  - Encourage climate-smart that increases resilience to help farmers adapt to and mitigate climate change; or
  - Reduce impairment of water quality from extreme rain runoff, sedimentation, and mudslides caused by wildfire through improved forest management activities such as forest thinning

CWSRF Programs and Resources

- Clean Water State Revolving Fund
- Clean Water State Revolving Fund Eligibility Handbook
- Funding Resilient Infrastructure and Communities with the CWSRF
- Funding Drought Resiliency Projects with the CWSRF
- Funding Wildfire Mitigation, Resiliency, and Recovery Projects with the Clean Water and Drinking Water State Revolving Fund Programs
- Memorandum of Understanding Between the Environmental Protection Agency and the Department of Homeland Security
- Federal Funding for Water and Wastewater Utilities in National Disasters (Fed FUNDS)
- Disaster Response I and II Webinars

Clean Water
State Revolving Fund

Water Quality Standards Handbook

- Water Quality Handbook update underway including climate change considerations

Climate Success Stories Project

- Partnership with EPA, ACWA, and ASDWA
- Collecting examples of successful incorporation of resilience and adaptation into State water programs
- Case studies, templates, success stories, permit language, etc
- Across programs but especially: 106, 319, 404/wetlands, NPDES, TMDL, CW SRF GPR/NBS, WQS
- To be posted to EPA's website