



NPS Stormwater BMP GIS Database FFWG Demonstration



Illustration by Greg Harlin, Wood Ronsaville Harlin, Inc.

May 10, 2022

Agenda

- Introduction/Overview of NPS Coordination Process
- GIS Database Data Development
- GIS Database demonstration
- Questions & Answers

NPS Team Members

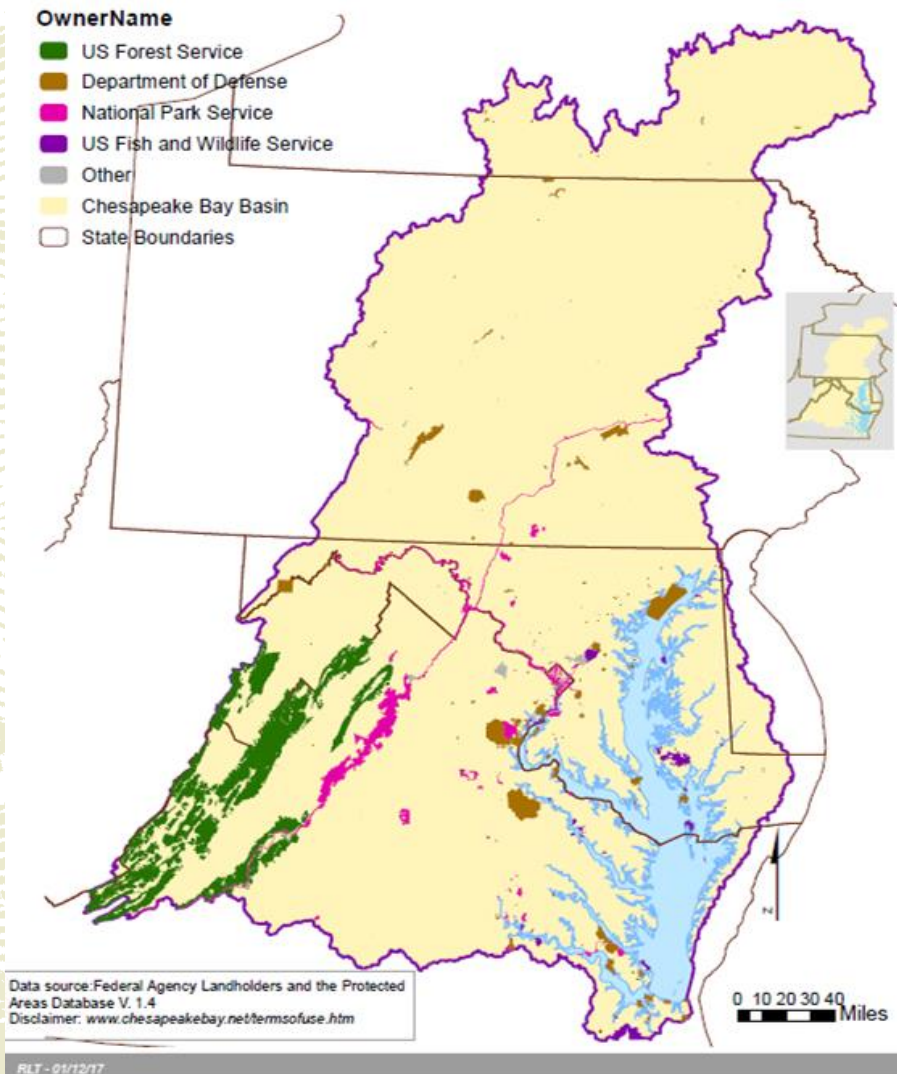
- René Senos (National Capital Area): Project Manager for Wood Chesapeake Bay WIP III task order
- Shawn Norton: Current Federal Facilities Workgroup NPS representative
- Wendy O'Sullivan, Superintendent, NPS Chesapeake Bay Office
- Jonathan Meade, Associate Regional Director, Resource Stewardship and Science, Interior Region 1
- Tanya Gossett, Associate Regional Director, Resource Stewardship and Science, National Capital Area
- Danny Filer (Chesapeake Watershed CESU Research Coordinator): Previous Federal Facilities Workgroup NPS representative
- Britt Slattery, NPS Chesapeake Bay Office, Fostering Chesapeake Stewardship Coordinator
- Cynthia Wanschura, GIS Specialist – National Capital Area
- Abbi Huntzinger, Northeast Landscape Architect
- Lynne Mowery (Wood): Project Manager for Wood Chesapeake Bay WIP III task order
- Christina Davis (Wood)
- Ben Green (Wood)



NPS AND THE CHESAPEAKE

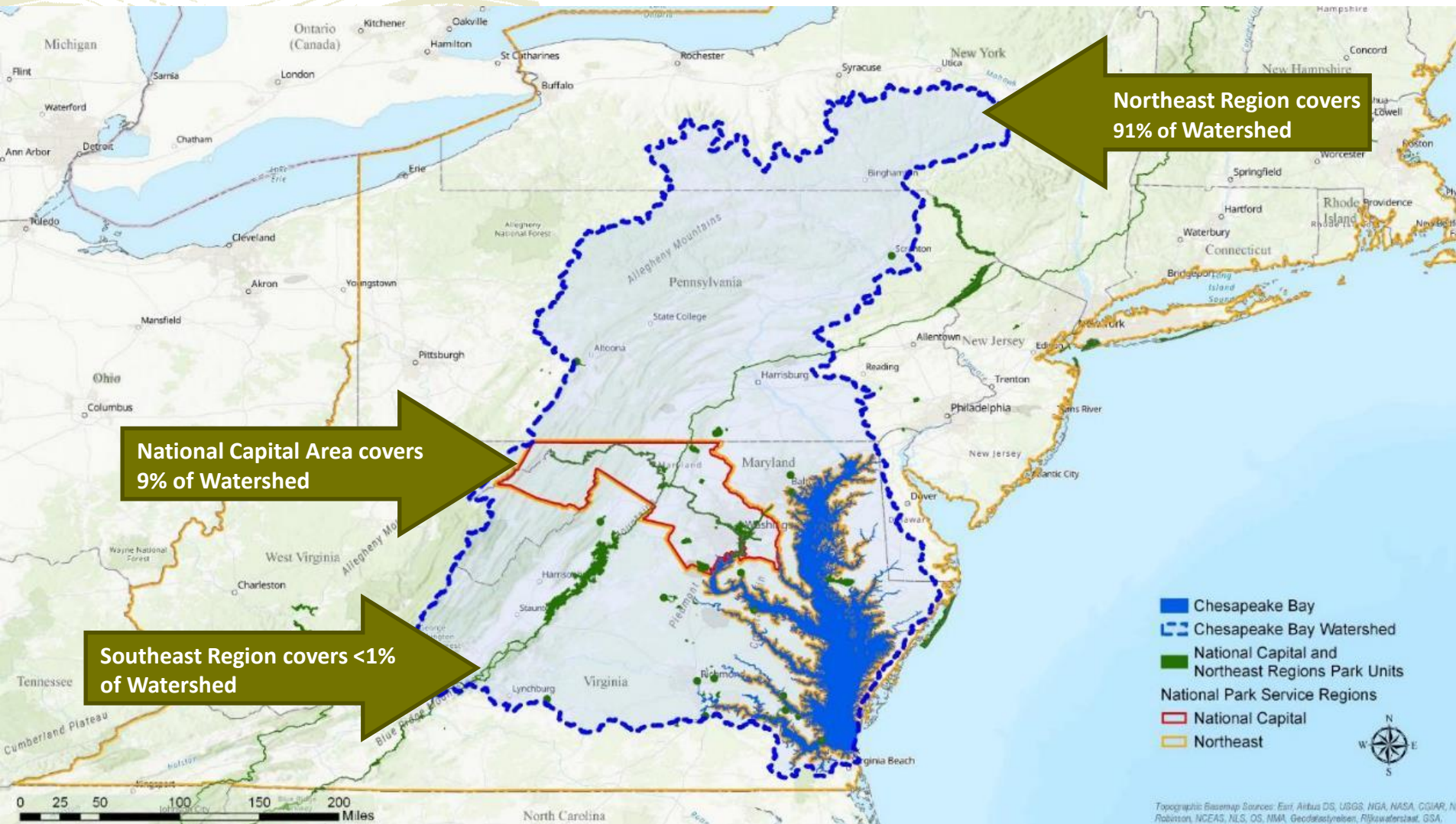
René Senos, Program Manager, Landscape Architect
National Capital Area

NPS Lands in Chesapeake Region



| Federal Department | Total Acres |
|--------------------|--------------|
| FS | 2,543,167.69 |
| DoD | 484,631.74 |
| NPS | 410,635.97 |
| FWS | 223,288.95 |
| Other | 23,834.87 |
| ARS | 6,949.81 |
| SI | 3,966.73 |
| GSA | 2,596.51 |
| NASA | 2,000.17 |

Parks in Chesapeake Bay Watershed



NPS Scope of BMP Data Collection

- Parks in DC, MD, PA, VA, WV
 - No parks in watershed in DE & NY
- Chesapeake Bay Parks primarily in two different NPS regions (National Capital and Northeast)
 - Small portion of Blue Ridge Parkway is in the Southeast Region
- BMPs not tracked as facility type in PMIS/FMSS systems
- Diverse park units in the Bay watershed (rural & urban)



BMP Data Gathering Process

2012 - 2015

- Center for Urban Ecology (CUE) BMP Data Gathering

2019

- Wood hired late 2018
- BMP data refinement – questionnaires to parks in April 2019
- WIP III submittals in June 2019

2020

- BMP Database Development

2021

- Database roll-out to parks, training in May 2021
- Evaluations of BMP opportunities at 6 parks in May-July 2021
- Database used for annual reports to jurisdictions in September 2021

Use of Database

- Staff can use the web-based tool at desk or field, track maintenance, create reports
- NPS can respond to various jurisdictional data requests
- Partnership collaboration
- Parks can identify new multi-value BMP opportunities
- Field Assessments at 6 parks in NER and NCA in 2021
- Capture data for Park BMPs throughout Region 1 – not just the Bay



Park Project Examples



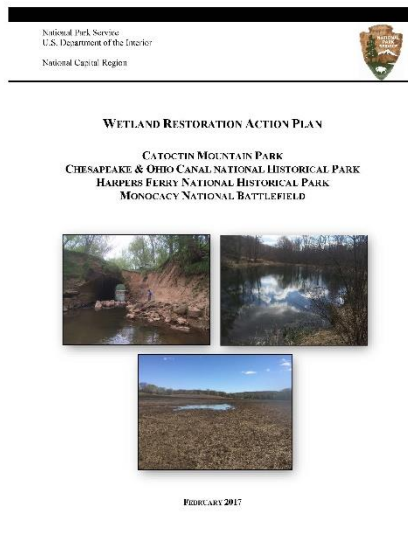
Park Project Examples



CATO Camp Greentop Swimming Pool



NAMA National Mall Cistern

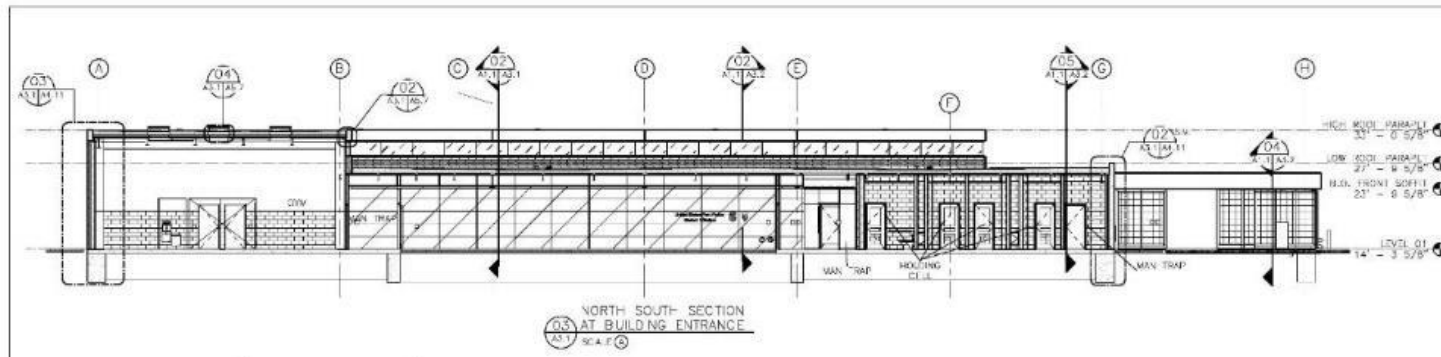


Wetland Restoration Action Plan



Rock Creek Park Tennis Courts Bioretention

Park Project Examples



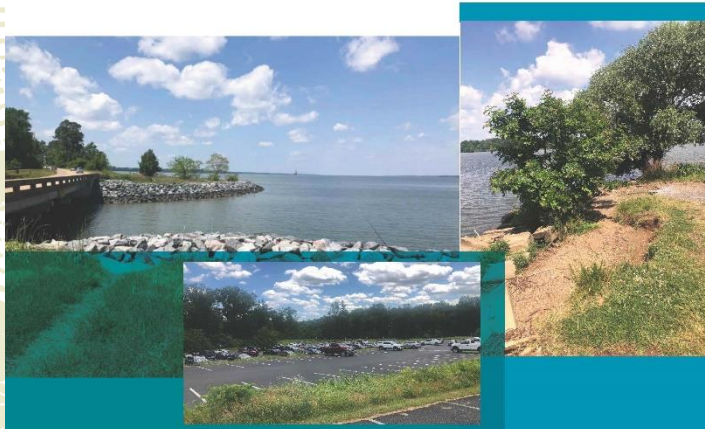
NCRO USPP D1 Station – Bioretention, Reduce Flood Risk at Hains Point

NPS Stormwater BMP Opportunity Assessment in the Parks



Chesapeake Bay BMP Opportunity Assessment

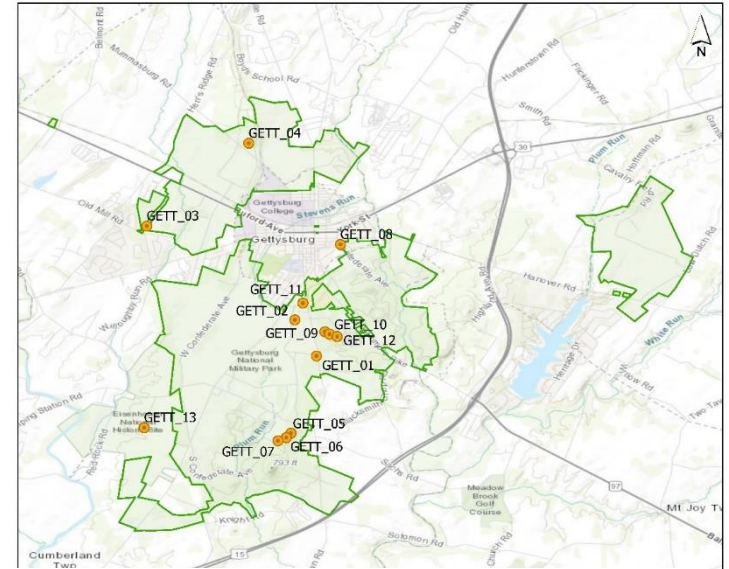
wood.



Submitted to:
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August 23, 2021



Gettysburg National Military Park
Project Site Map





DATABASE DEVELOPMENT PROCESS

Lynne Mowery, Wood

Database Features

- Geodatabase contains previously collected BMP data
- ArcGIS Online BMP Database Features
 - Customized data entry forms (per state and BMP type) for parks to record and edit park BMP projects and practices
 - Parks must report data by individual BMP not by project – there can be multiple BMPs reported for one project
 - How-to guide available in the database
 - Base map can be selected
- Ability to add future functionality to track partnerships and educational opportunities

The screenshot shows the 'National Park Service Stormwater BMP Project Tracking Tool' interface. A search bar at the top allows users to 'Find address or place'. Below it, a map view is visible. Overlaid on the map is the 'Edit Data' form, which includes fields for 'Jurisdiction' (set to VA), 'NPS Area' (set to NER), 'NPS Park Unit' (set to COLO), and 'NPS Project Title'. There are also text areas for 'Project Description', 'NPS Location Description' (set to Colonial Parkway), 'PIMS Number' (set to 241586), and 'Task Order/Contract No.'. At the bottom of the form are 'Close', 'Delete', and 'Save' buttons.

The screenshot shows the 'National Park Service Stormwater BMP Project Tracking Tool' interface with a map view. Overlaid on the map is the 'User Guide' for the 'Stormwater BMP Project Tracking Tool'. The guide includes links for 'Web Application Components', 'Adding a BMP', 'Editing data for a BMP', 'Changing the location of a BMP', 'Deleting a BMP', and 'Helpful links'. Below these links, the 'Web Application Components' section is expanded, showing a list of features and their usage instructions.

Web Application Components

- **Layers list.** Open the layers list by clicking the layers icon in the top right of the application on the header bar. Click the arrow on the left side of the check box to display the symbology of any layer. Click the check box to turn layers on and off.
- **Attribute table.** Open the attribute table by clicking the tab with an arrow in the bottom center of the map. Click the different tabs to view the data associated with each different layer. Click the "Options" button to show or hide columns in the table, filter data with a query, or export a data table as a csv file. The "Filter by map extent" button will filter the records in the attribute table to only list those that are visible in the current map view. For example, if you are zoomed in to one park where there are two facilities, you would only see those facilities listed in the attribute table. If you panned the map or zoomed out such that more facilities are visible, those visible facilities will also appear in the attribute table. Click the "Filter by map extent" button again to turn off this functionality and view all records. Clicking on a record so it is highlighted in blue, the clicking the "Zoom to" button will zoom the map to the location of the highlighted record. Press "Shift" or "Ctrl" on your keyboard while clicking on records to select multiple records. Click the "Clear selection" button to deselect all records. Click the "Refresh" button if changes were just made to the data (a BMP was added, edited, or deleted) and they don't instantly update the attribute table. The "Refresh" button should update all the data to reflect the most current changes. Click and drag the top of the attribute table up or down to change it's size and click the tab with the arrow to minimize it.
- **Map Viewer.** Click and drag the map viewer to pan to the desired location. Zoom in and out either with the "+" and "-" icons in the top left corner of the map viewer or by using a scroll wheel on a mouse. Click the house icon to return the map to the default view. If GPS is enabled on your device, you can also click the "My Location" icon to zoom and pan the map

BMP Types

- Created general BMP types consistent with Bay reporting templates
- More detailed BMP types and associated data is requested to comply with jurisdiction annual reporting templates

| | | | |
|--|--|--------------------------------------|--------------------------------|
| Alternative crops | Filter strip | Permeable pavement | Stream restoration |
| Bioretention (underdrain or no underdrain) | Impervious surface disconnection/reduction | Ponds (wet, dry, extended detention) | Street sweeping |
| Bioswale | Infiltration | Proprietary practice (describe) | Tree planting and preservation |
| Conservation landscaping | Land conversion/retirement | Septic/sewer (describe) | Rainwater harvesting |
| Erosion and sediment control | Open channel | Shoreline erosion control | Wetlands |
| Filtering system | Other stormwater treatment (describe) | | |

NPS BMP Reporting challenges

- Parks staff report a variety of BMPs implemented on their park landscapes that may not be available in the state reporting templates. Examples of BMP types reported:
 - No mow zones
 - Septic system upgrades
 - Alternative crops
- Park staff report projects completed in partnership with jurisdictions, especially in DC. These are not shown in CAST as NPS BMPs.
- Annual data calls to ensure parks staff are updating the database

Pollutant Reduction Goals

- Submitted BMP data from the database in 2021
 - Waiting on CAST 2021 progress run to evaluate
- 2021 EPA Federal Agency Evaluation Progress Evaluation Report
 - NPS progress based on NPS data available in 2019, before database was complete
 - Federal Planning Goals section – different methodologies presented (EPA Default Method, Phase III WIP, WIP 3 Final CAST scenario)
 - Next steps for selecting Planning Goal?

Pollutant Reduction Goals

Table 3-7. NPS Percent Reductions Required, 2019-2025 (%)

| Jurisdiction | TN | | TP | |
|------------------------------------|--------------------|----------------------|--------------------|----------------------|
| | EPA Default Method | WIP 3 Final Scenario | EPA Default Method | WIP 3 Final Scenario |
| MD Patuxent River Basin | 2.9% | 3.7% | 4.6% | 23.9% |
| MD Potomac River Basin | 1.0% | 1.8% | 2.6% | 7.7% |
| MD Western Shore of Chesapeake Bay | 2.5% | 0.1% | 2.3% | 0.7% |
| PA Potomac River Basin | 0.0% | 3.8% | 0.0% | 11.2% |
| PA Susquehanna River Basin | 0.5% | 2.7% | 0.0% | 19.4% |
| VA James River Basin | 7.2% | 7.0% | 6.3% | 17.0% |
| VA Potomac River Basin | 7.3% | 4.1% | 6.5% | 8.1% |
| VA Rappahannock River Basin | 4.2% | 2.6% | 2.0% | 7.6% |
| VA York River Basin | 7.8% | 7.1% | 4.4% | 12.2% |
| DC Potomac River Basin | 4.4% | 3.5% | 6.8% | 3.7% |
| WV Potomac River Basin | 0.0% | 0.8% | 6.1% | 11.3% |



GIS DATABASE DEMONSTRATION

Christina Davis, Wood

Questions and Answers



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NPS Questions

- How are other agencies tracking and reporting BMPs especially in more rural areas?
- Is EPA planning to provide clearer guidance on planning goals? The EPA method and WIP methods do not agree in many subwatersheds/states