

Overview of Current BMP Crediting

STAC Workshop

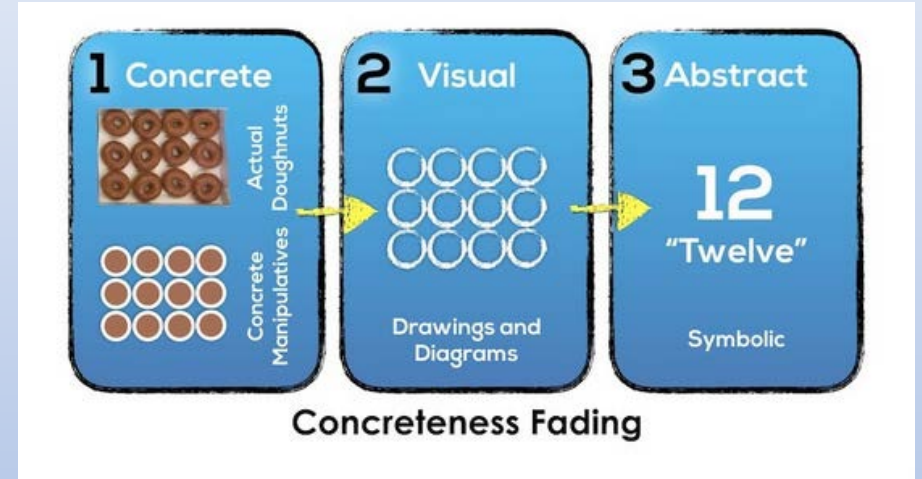
Evaluating an Improved Systems Approach to Crediting: Consideration of Wetland Ecosystem Services

March 22-23, 2022

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Overview

- Vital Habitat Goal
- Water Quality Approach
- Habitat Approach
- Tracking projects
 - Conserve and improve wetlands
 - Count existing wetland acres
 - Address duplication
 - Create new wetland habitats
- Planning projects
 - Target at a landscape perspective for species habitat, flood control, other eco-system services and co-benefits



Vital Habitats Goal

- **GOAL:** Restore, enhance and protect a network of land and water habitats to support fish and wildlife and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.
- **WETLANDS OUTCOME:** Continually increase the **capacity of wetlands** to provide water quality and habitat benefits throughout the watershed. **Create or reestablish 85,000 acres of tidal and non-tidal wetlands and enhance function of an additional 150,000 acres of degraded wetlands by 2025.** These activities may occur in any land use (including urban), but primarily occur in agricultural or natural landscapes.
- **BLACK DUCK OUTCOME:** Restore, enhance and preserve wetland habitats that **support a wintering population of 100,000 black ducks**, a species representative of the health of tidal marshes across the watershed. Refine population targets through 2025 based on best available science.

Workgroups and Action Teams +

Black Duck Action Team

Brook Trout Action Team

Fish Passage Workgroup

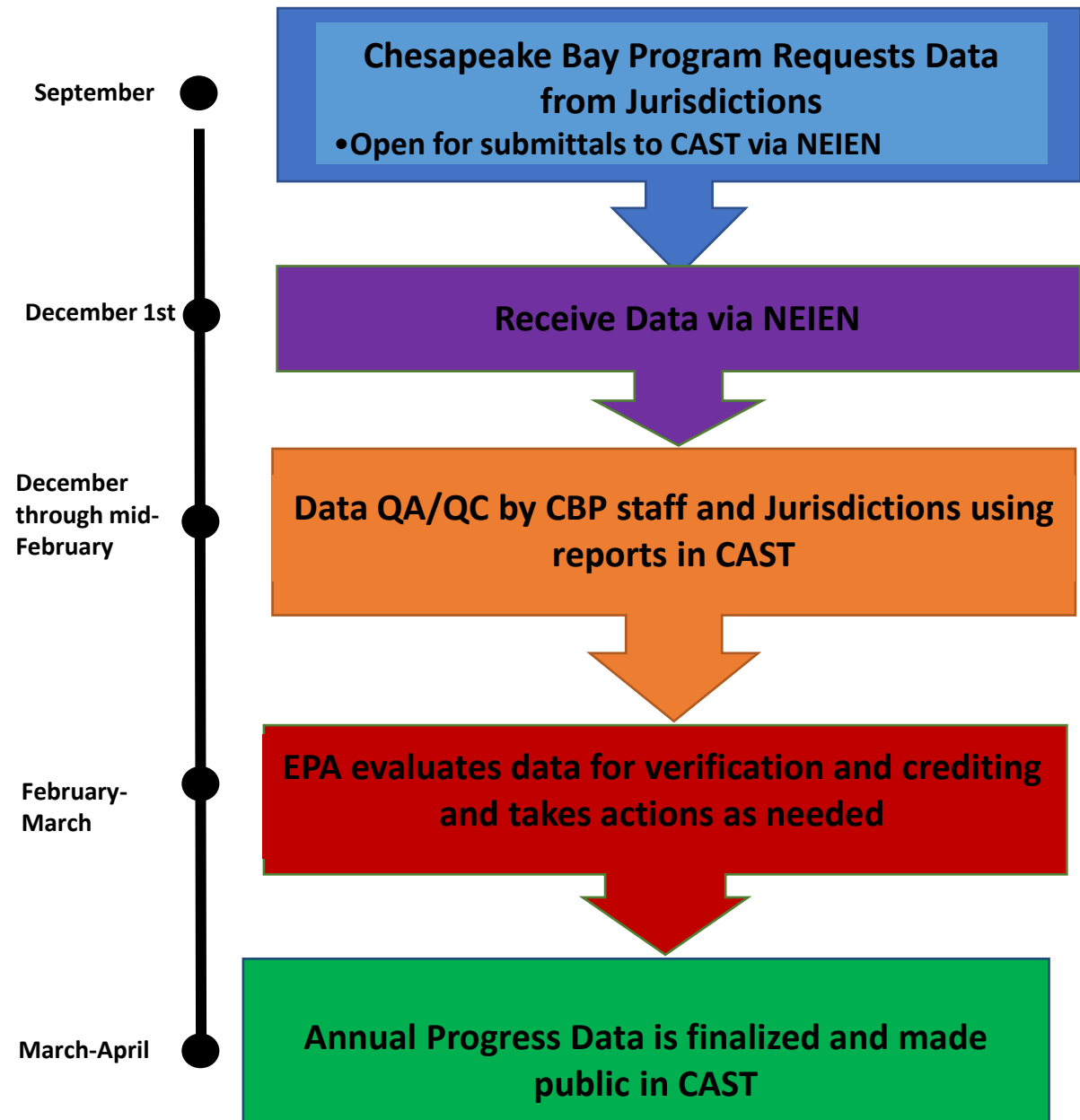
Stream Health Workgroup

Submerged Aquatic Vegetation Workgroup

Wetland Workgroup

Water Quality Wetland Tracking

- **Chesapeake Bay Program Progress data:** Jurisdictions report all BMPs implemented everywhere for July 1 to June 30 of each year. They may also update historical BMP implementation each year.
- Available in CAST as a YYYY Progress scenario that shows the BMPs and TN, TP, and TSS loads.



Data Submitted for Water Quality Goals

- Data submitted in the annual progress assessment for 2021
- These likely are not wetlands that are good habitat
 - Constructed wetland for septics
 - Urban wet ponds
- Accepting all others as new wetlands, which is not correct, then there are about 61,000 acres, or 45% of the goal, not considering tidal/nontidal.
- Wetland enhancement will not be credited in the next version of CAST

Submitted BMP	Sector	Unit	Amount
Wetland Restoration	Agriculture	acres	20,256
Wetland Creation	Agriculture	acres	1,516
Wetland Gains - Reestablished	Agriculture	acres	1,406
Wetland Gains - Established	Agriculture	acres	316
CREP Wetland Restoration	Agriculture	acres	25
Constructed Wetland Septic	Septic	systems	1
Wet Pond	Urban	acres	149,224
Wet Extended Detention	Urban	acres	42,969
Wet Ponds & Wetlands	Urban	acres	31,472
Constructed Wetland	Urban	acres	4,331
Wet Swale	Urban	acres	135
Wetland Rehabilitation	wetland	acres	1,489
Wetland Functional Gains - Enhanced	wetland	acres	502
Wetland Wildlife Habitat Management (not a credited practice)			1

Stream Restoration

- Stream Restoration projects are becoming more prevalent
- 1.4M feet of stream restoration plus those where the nutrient and sediment pounds are reported directly
- Wetlands are a part of some stream projects, but not reported separately
- Floodplain connectivity can be done in many ways, not necessarily by establishing wetlands and the habitat creation wetlands serves

Submitted BMP	Unit	Amount
Channel Bed Stabilization	feet	10,459
Channel Stabilization	feet	8,254
Stream Channel Stabilization	feet	198,121
Stream Restoration	feet	893,198
Stream Restoration Urban	Protocol 1 TN	15,043
Stream Restoration Urban	Protocol 1 TP	6,882
Stream Restoration Urban	Protocol 1 TSS	5,858,565
Stream Restoration Urban	Protocol 2 TN	5,858
Stream Restoration Urban	protocol 3 TN	156
Stream Restoration Urban	protocol 3 TP	23
Stream Restoration Urban	protocol 3 TSS	65,496
Streambank and Shoreline Protection	feet	290,147
Streambank Restoration	feet	3,450
Streambank Stabilization	feet	41,056

Water Quality Progress Reporters

Data are submitted to jurisdictions from:

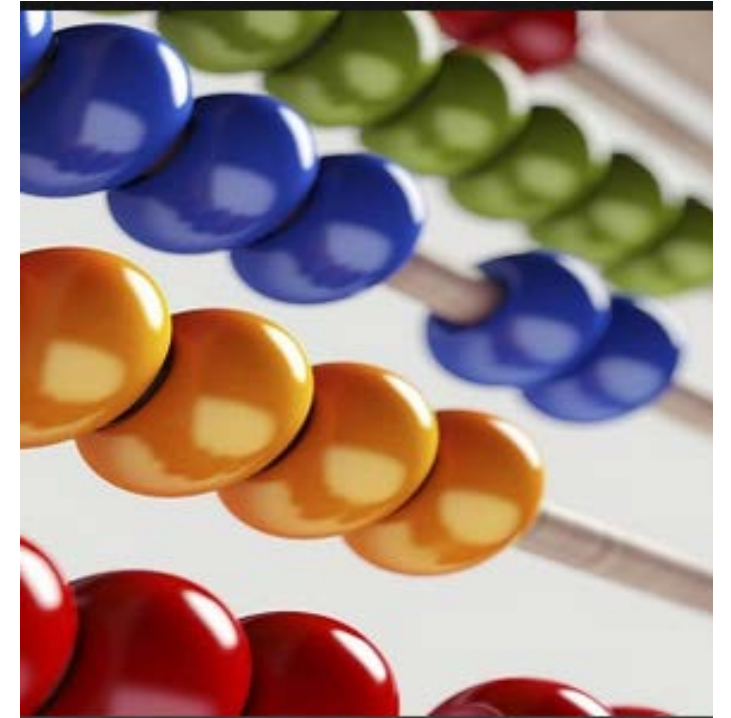
- Agricultural Research Service
- Architect Of The Capitol
- Armed Forces Retirement Home
- Army National Guard
- Casey Trees
- Central Intelligence Agency
- DDOT Urban Forestry Administration
- Delaware Department of Natural Resources and Environmental Control
- Department of Defense
- Department of Homeland Security
- Department of Interior
- Department of Transportation
- District Department of the Environment
- District Department of Transportation
- Federal Aviation Administration
- Federal Highway Administration
- Federal Law Enforcement Training Center
- Federal Railroad Administration
- General Services Administration
- Maryland Department of Agriculture
- Maryland Department of Natural Resources
- Maryland Department of the Environment
- Maryland State Highway Administration
- Maryland State Urban Land
- National Aeronautics and Space Administration
- National Institute of Health
- National Oceanic and Atmospheric Administration
- National Park Service
- National Security Agency
- Natural Resources Conservation Service
- Non-Federal
- Other Federal Land
- Pennsylvania Department of Environmental Protection
- Riversmart Homes
- Smithsonian Institution
- Upper Susquehanna Coalition
- US Army Corps of Engineers
- US Coast Guard
- US Department of Agriculture
- US Department of Air Force
- US Department of the Army
- US Department of the Navy
- US Department of Veterans Affairs
- US Environmental Protection Agency
- US Fish and Wildlife Service
- US Forest Service
- US Marine Corps
- US Postal Service
- West Virginia Department of Environmental Protection

Tracking Wetland and Black Duck Habitat

- Project initiated in Fall 2021 after discussion with the Management Board
- Purpose: Develop a tracking tool to assess progress towards the 2014 Chesapeake Bay Agreement's Vital Habitats' goal for the Wetland and Black Duck Outcome
- Includes tidal and nontidal areas of the Chesapeake Bay watershed
- Best management practices (BMPs) include preservation and creation of wetlands and habitat appropriate for black ducks in natural, urban, and agricultural areas.
- Data include
 - Information submitted to the National Environmental Information Exchange Network (NEIEN)
 - NRCS Easement information made available to USGS via a data sharing agreement between USDA and USGS
 - Direct communication with other entities, such as Ducks Unlimited and The Nature Conservancy, is another source of information

Data Elements (Draft List)

- Geographic location as latitude and longitude
- Funders (multiple including “voluntary”, null is okay)
- Wetland type as lotic or lentic
- Practice name
- Practice amount
- Practice unit
- Land use type
- Date implemented
- Date inspected
- Inspection status
- Project publicly accessible (yes or no)
- Project creates a recreation area (yes or no)
- Project meet FEMA Special Flood Hazard Area guidelines (yes or no)
 - If yes, Flood Exceedance probability (numerical, e.g.: 0.1 0.02)
- Presence of Rare, Threatened, Endangered species (yes or no)
- Increased presence of brook trout as a result of project (yes or no)
- Increased presence of black duck as a result of project (yes or no)



Geographic Location Attributes

Assign attributes using the reported latitude and longitude and GIS layers

- Does not require judgement on the part of the reporter
- Leads to greater consistency in data
- Allows for reanalysis of data based on changing knowledge of locational characteristics

- **Physiographic province**

- A physiographic boundary layer will be used to assign a physiographic province

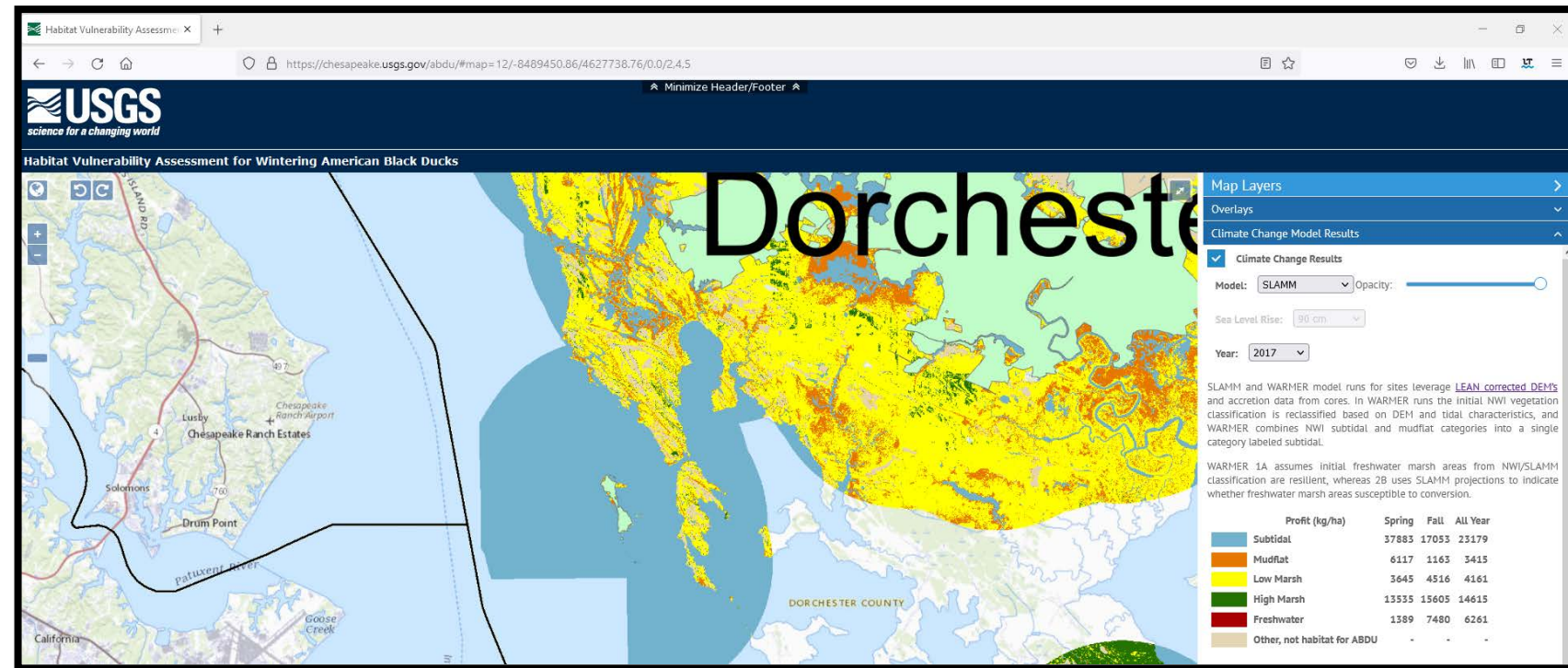
- **Subaquatic vegetation (SAV) proximity in units of miles**

- The Virginia Institute of Marine Science (VIMS) SAV geographic layer will be used to assign proximity to this black duck food source.

- **Tidal or nontidal**

- A look-up service will be developed using the tidal/nontidal boundary used in the development of the Habitat Vulnerability Assessment for Wintering Black Ducks USGS online tool

3/22/2022



<https://chesapeake.usgs.gov/abdu/#map=11/-8442055.9/4614592.28/0.0/2,4,5>

Functionality

The system shall:

- Allow for on-line access with data stored in the cloud requiring no new hardware purchases
- Allow users to upload tables in a standard format with both required and optional data fields.
- Allow users to generate pre-defined reports of practice, programs (funders and voluntary), geography, years, and other parameters. Reports shall be made available as downloadable Microsoft Excel files.
- Allow an upload of data from NEIEN by an administrative user once, annually for as long as NEIEN is used by the Water Quality team.
- Allow replacement of GIS data including physiographic region, SAV, and tidal/nontidal areas to update all data attributes that rely on those data.



Practices

There are multiple practices that support wetland and black duck habitat.

- Wetland Creation – Floodplain & Headwater
 - Headwater is primarily groundwater discharge at nick points
 - Floodplain is 1st and 2nd order streams with broader wetlands
- Wetland Restoration – Floodplain & Headwater
- Wet Ponds and Wetlands (Urban)
- Wetland Enhancement which indicates Wetland Functional Gains. (No longer a water quality credit, may be hard to incentivize)
- Wetland Rehabilitation
- NRCS Easement conservation practices
- Stream and shoreline restoration-floodplain reconnection, wetlands, living shorelines
- Stream buffers
- Additional practices may be included in the tracking tool.

Data Upload Template

AutoSave Off Data Upload Olivia Devereux OD

File Home Insert Page Layout Formulas Data Review View Help ACROBAT Team

Undo Paste Copy Format Painter Font Alignment Number Styles Cells Editing Analysis Sensitivity

PRACTICE ID	BMP NAME	LAND USE	UNIT	PRACTICE AMOUNT	PROJECT NAME	DATE INSTALLED	DATE INSPECTED	INSPECTION STATUS	PROJECT FUNDERS	LATITUDE	LONGITUDE	WETLAND TYPE	PROJECT PUBLICLY ACCESSIBLE	RECREATION AREA	SPECIAL FLOOD HAZARD	FEMA FLOOD EXCEDANCE AMOUNT	PRESENCE OF RTE	PRESENCE OF BROOK TROUT	PRESENCE OF BLACK DUCK
1	Wetland Wildlife Habitat Management	ag	ac	5	wetland functional gains	2/25/2020			USFS	38.378291	-76.495682	Lotic	Yes	Yes		0.02	Yes	Yes	Yes
2	Constructed Wetland	ms4cssnonregulated	Acres Treated	19	Urban Skeeters	6/30/1999	6/1/2009	Passed	FWS	38.378291	-76.495682	Lentic	No	No	No		No	No	No
3	Constructed Wetland Elevated Mound	ag	acres	1	North Shore	7/2/2010	7/1/2020	Failed	Ducks Unlimited	38.378291	-76.495682	Lentic	No	No	No		No	No	No
5	Constructed Wetland Septic	septic	Systems	3	septicseoenhance	8/7/2015			private	38.378291	-76.495682		No	No	No				
6	Constructed Wetland Shallow Pressure	ms4cssnonregulated	acres treated	4		4/5/2016			USFS	38.378291	-76.495682		No	No	No				
7	CREP Wetland Restoration	ag	acres	5		8/31/2020			USDA	38.378291	-76.495682	Lentic	No	No	No				
8	Headwater CREP Wetland Restoration	ag	Acres	1.2		9/1/2020			USDA	38.378291	-76.495682	Lentic	Yes	No	No				
3	Headwater Wetland Creation	ag	Acres	1.6		3/2/2010	7/6/2020	Passed	USDA	38.378291	-76.495682	Lentic	No	No	No				
10	Headwater Wetland Gains - Established	ag	AC	0.6		3/3/2011	7/7/2021	Passed	USDA	38.378291	-76.495682	Lentic	No	No	No		Yes	Yes	
11	NRCS Easement Conservation Practices	ag	Non-Tidal Emergent Area	28	Bog Turtle Species Enhancement	9/4/2013			USDA	38.378291	-76.495682		No	No	No		No		Yes
12	Stream and shoreline restoration	shore	kilometers	2.4		6/5/2016			USDA	38.378291	-76.495682		No	No	No		No		Yes
13	Stream buffers	stream	miles	0.54		1/6/2021	7/10/2020	Passed	USDA	38.378291	-76.495682		No	No	No		No		Yes

Partners for supplying data

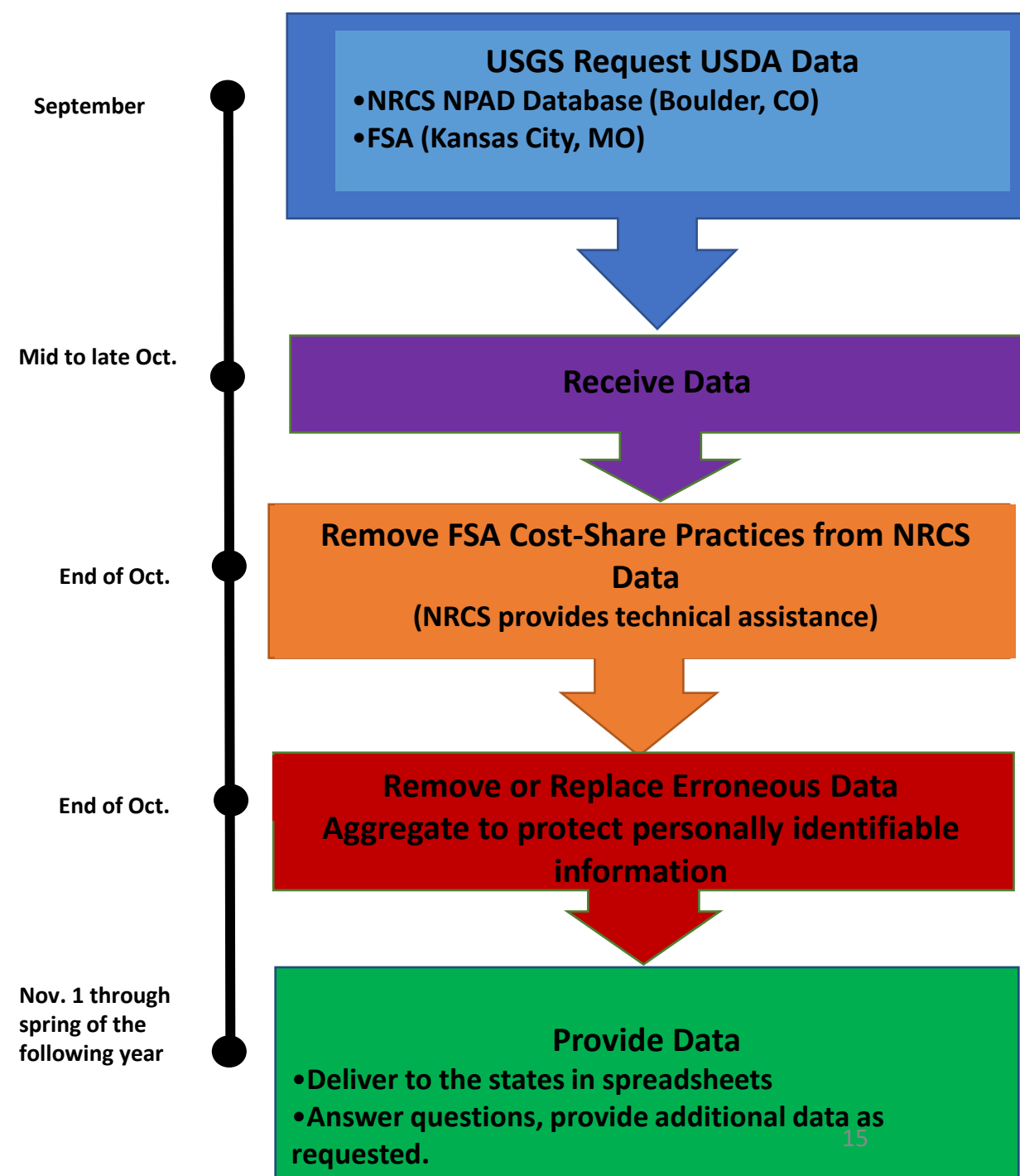
- States
- Local governments
- Federal agencies including FWS, USDA, USFS
- Nongovernmental organizations, such as Ducks Unlimited, The Nature Conservancy
- Others, to be identified
- Copying data in NEIEN-one data pull annually
- USGS/USDA ACEP program

This requires outreach and persistent effort!

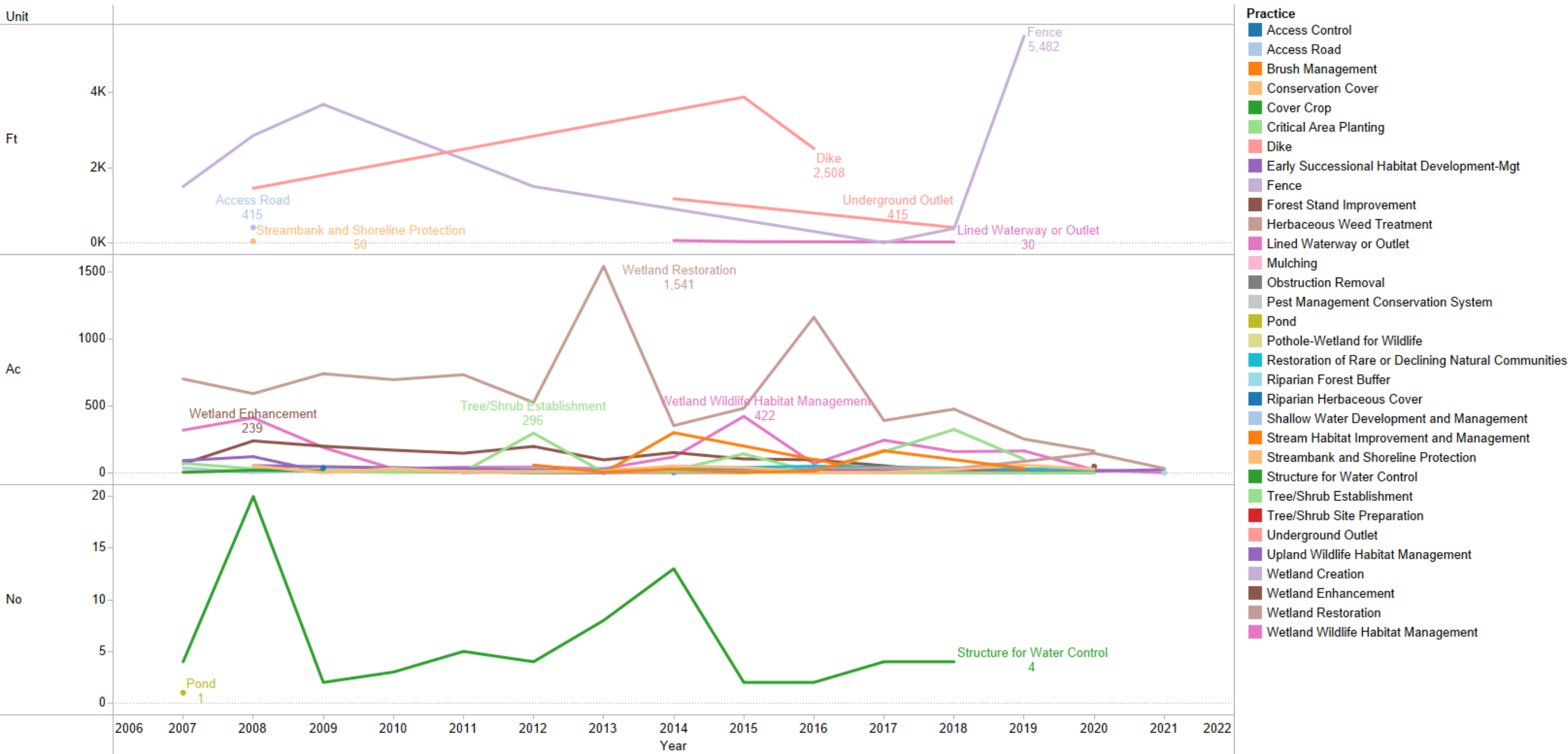
USDA: Potential Data Source

- **USGS** works with USDA to acquire practice data for conservation practices including Agricultural Conservation Easement Program (ACEP)
 - ACEP protects the agricultural viability and related conservation values of eligible land by limiting nonagricultural uses which negatively affect agricultural uses and conservation values, protect grazing uses and related conservation values by restoring or conserving eligible grazing land, and **protecting and restoring and enhancing wetlands on eligible land.**

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/>
3/22/2022



NRCS ACEP WRP Practices

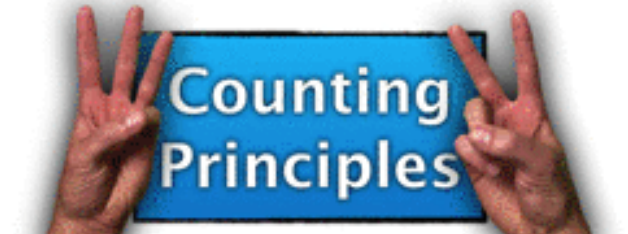


Duplication

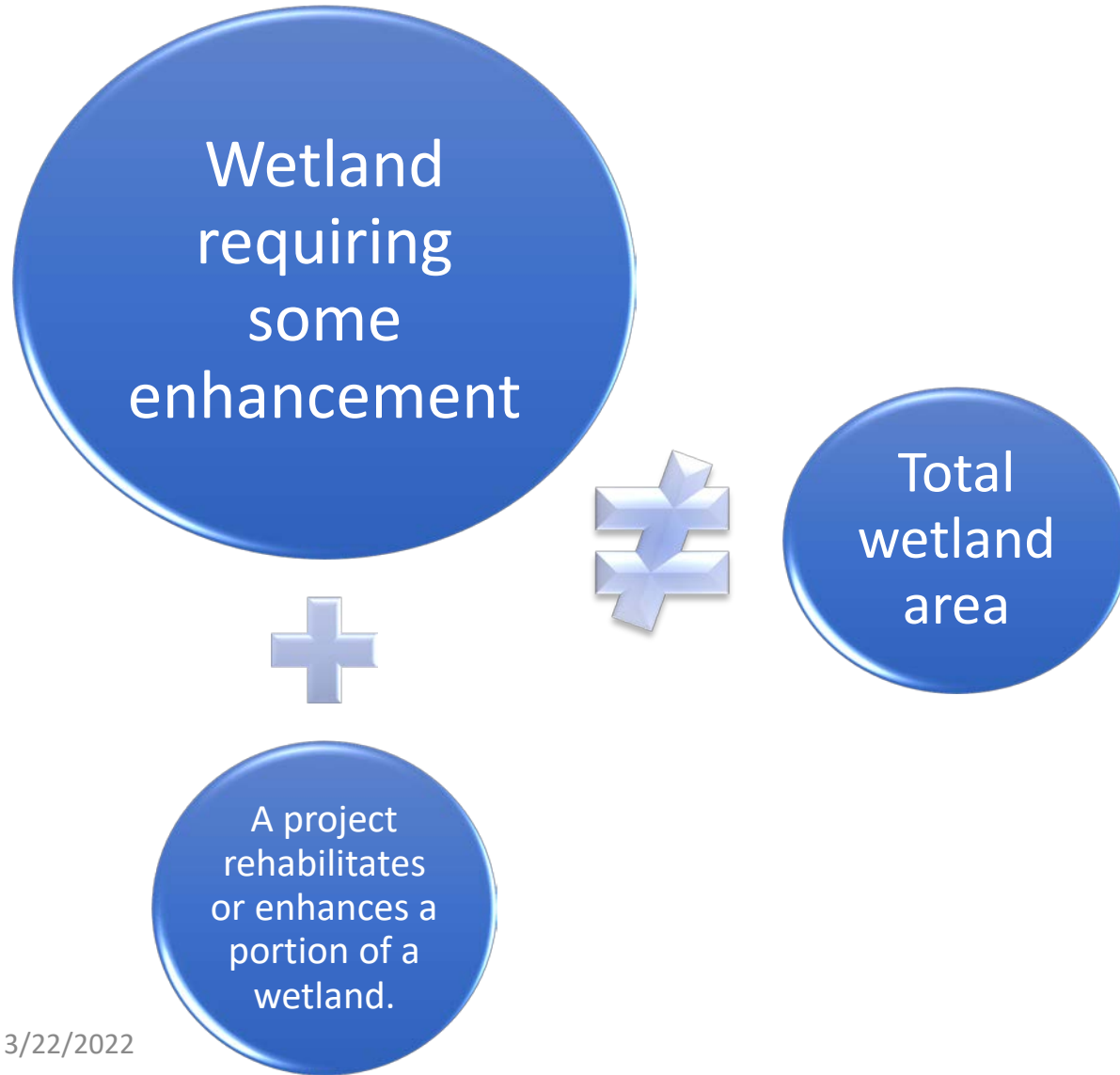
- Minimizing duplication is important for data accuracy
- It is expected that for projects that have multiple partners, the lead agency will provide data.
- The tracking system will include the ability to report all project partners to help identify and reduce the duplication of records.

Conservation

Understanding that the count for a set group of objects stays the same no matter whether they are spread out or close together.

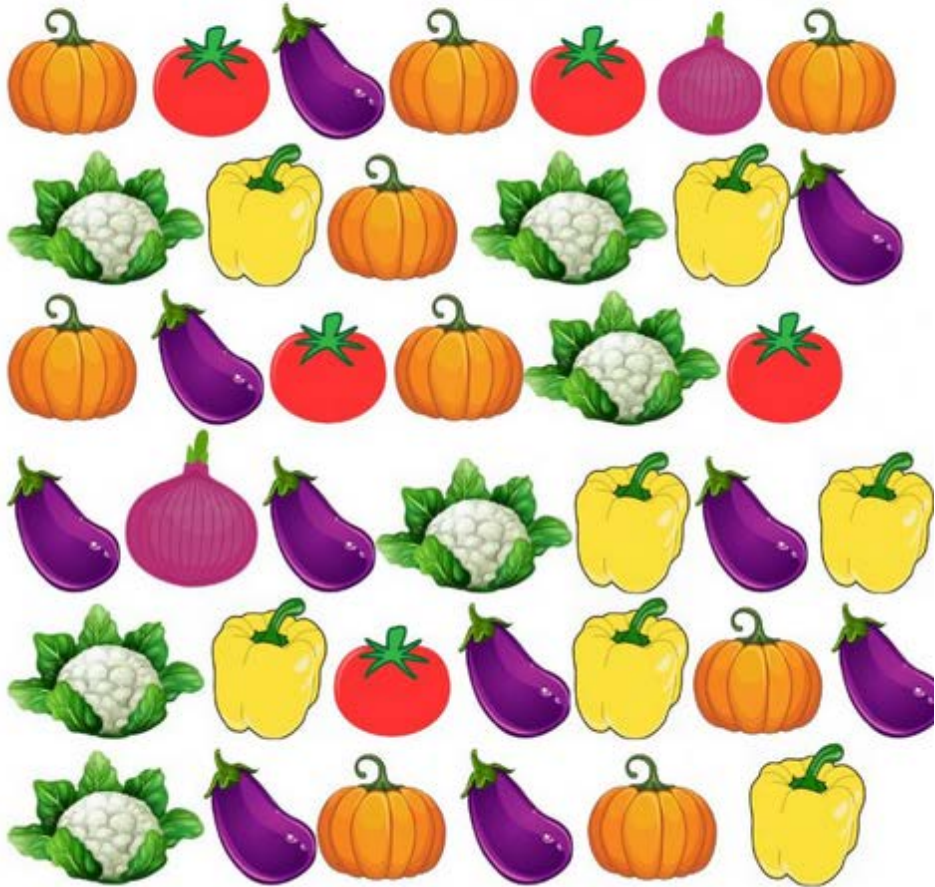


Counting the Entire Wetland Area



Handling Data

A vegetable seller has the following vegetables in his cart. Help him by counting the vegetables. Write the number correctly in the list.



Q1. Count the vegetables and write the correct number in the list below.

brinjal	
pumpkin	
tomato	
cauliflower	
Bell pepper	
onion	

Tracking Projects Is a Partial Solution to Quantifying Progress toward Outcomes

- With these data, progress toward achieving the wetland and black duck outcome **can be quantified in terms of acres of wetland improvements classified by several types**, stream and shoreline improvement practices, proximity to food source, and geographic location over time. Project funders also can be identified.
- However, data to assess the capacity of these wetlands to achieve functional gains **cannot be assessed fully** using data in the practice tracking tool.
- Instead, we will be counting project acres, locations, and attributes of functional gains.
 - Further data analysis using the data tracked in the tool *plus* habitat characteristics determined outside this tool will be required to assess wetland functional gains.
- Planning can be informed by data from the project tracking tool.

Integrates with Many Chesapeake Bay Goals



Conclusions

- The Wetland Tracking System will track progress toward achieving the Wetland and Black Duck Outcomes
- The data will allow for further analysis for planning new projects, and where to target the right project to the right location
- Some functional gains can be tracked
- Data will have gaps, but the system can evolve over time
- Ultimately, tracking can help incentive wetland goals and show the impact of wetlands