Quantifying Progress Toward the Chesapeake Bay Program's Brook Trout Outcome
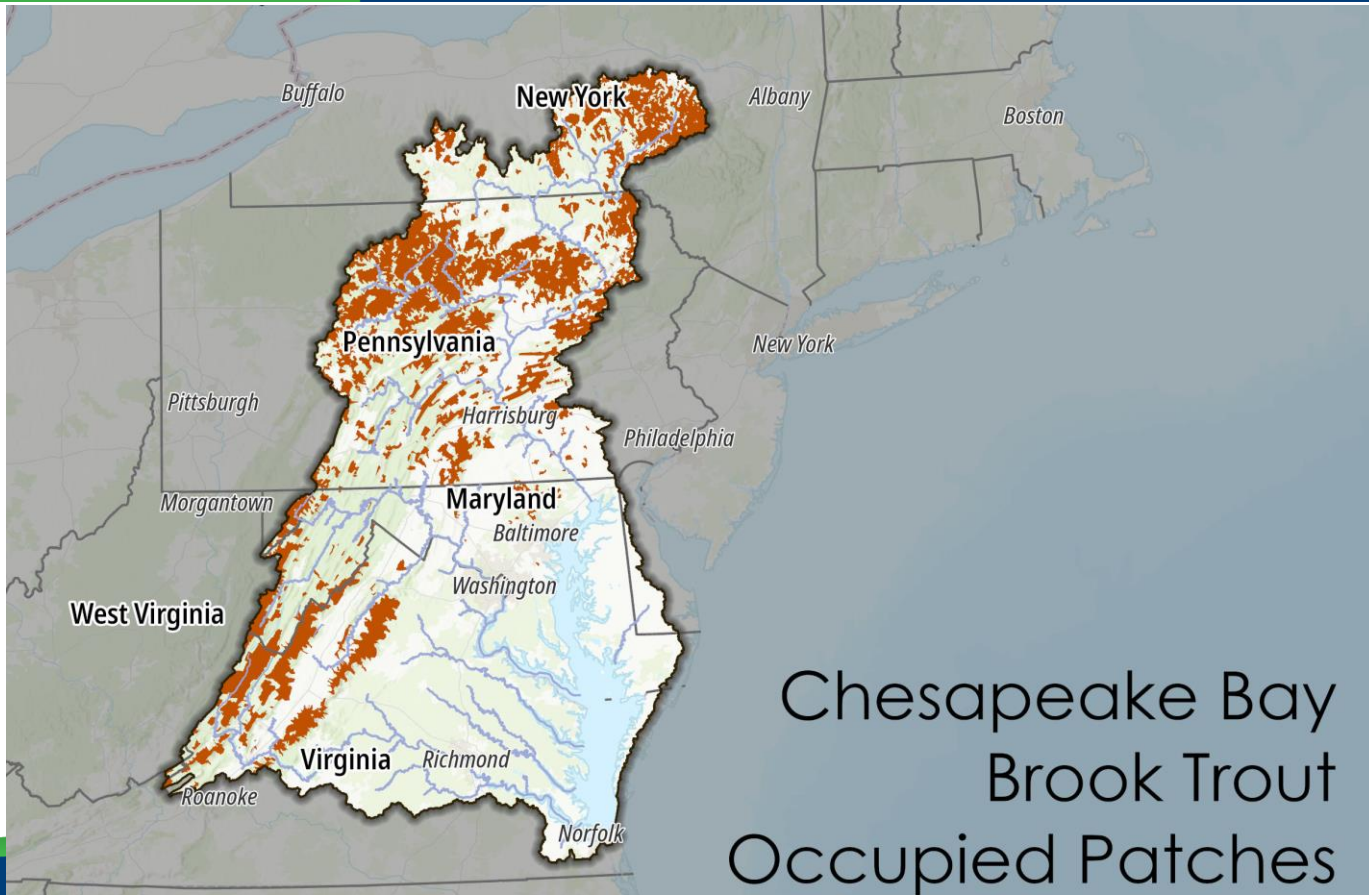
Through the Chesapeake Bay Watershed Agreement, *the Chesapeake Bay Program has committed to…*
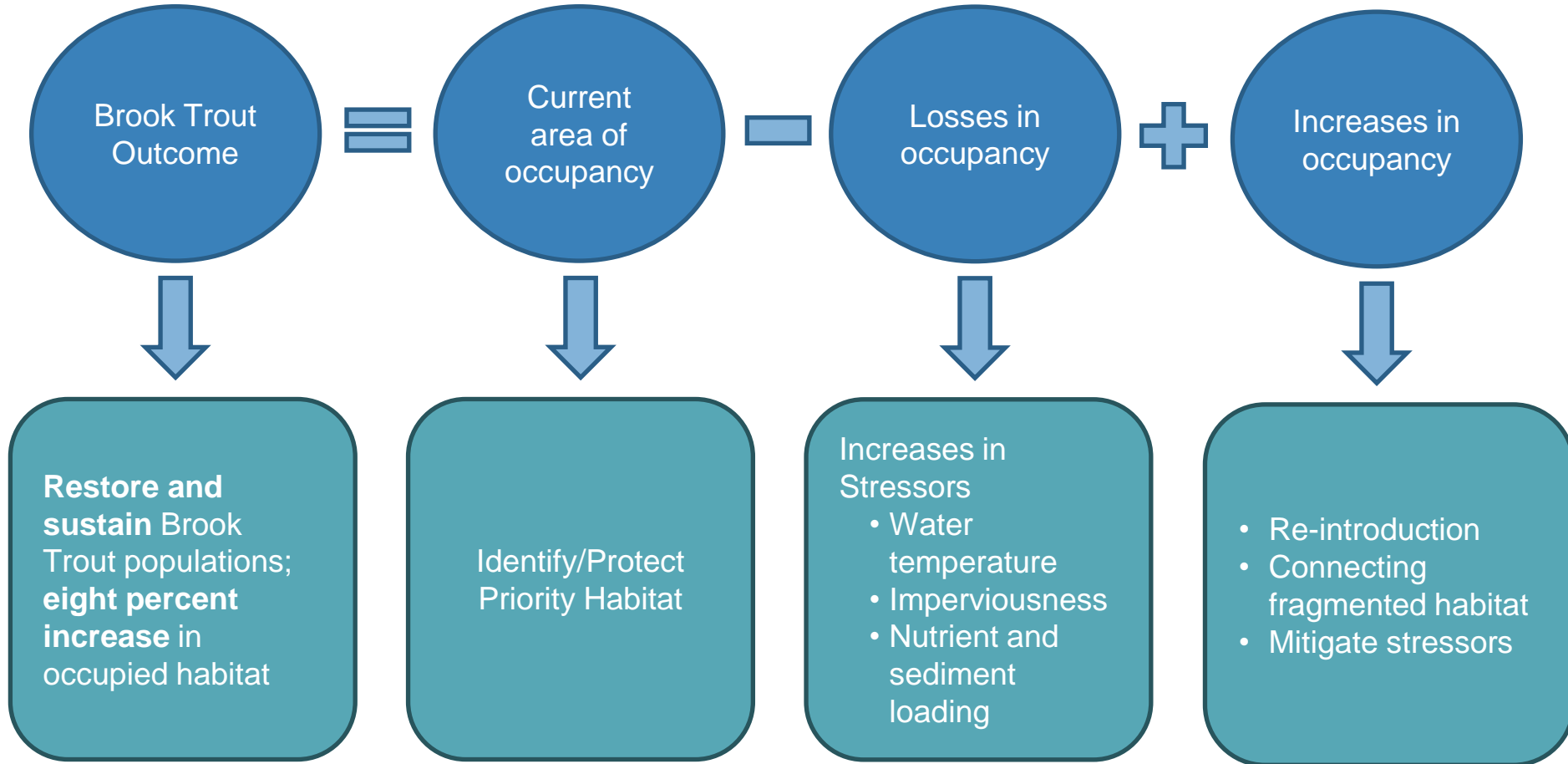
Goal: Vital Habitats - Restore, enhance and protect a network of land and water habitats to support fish and wildlife
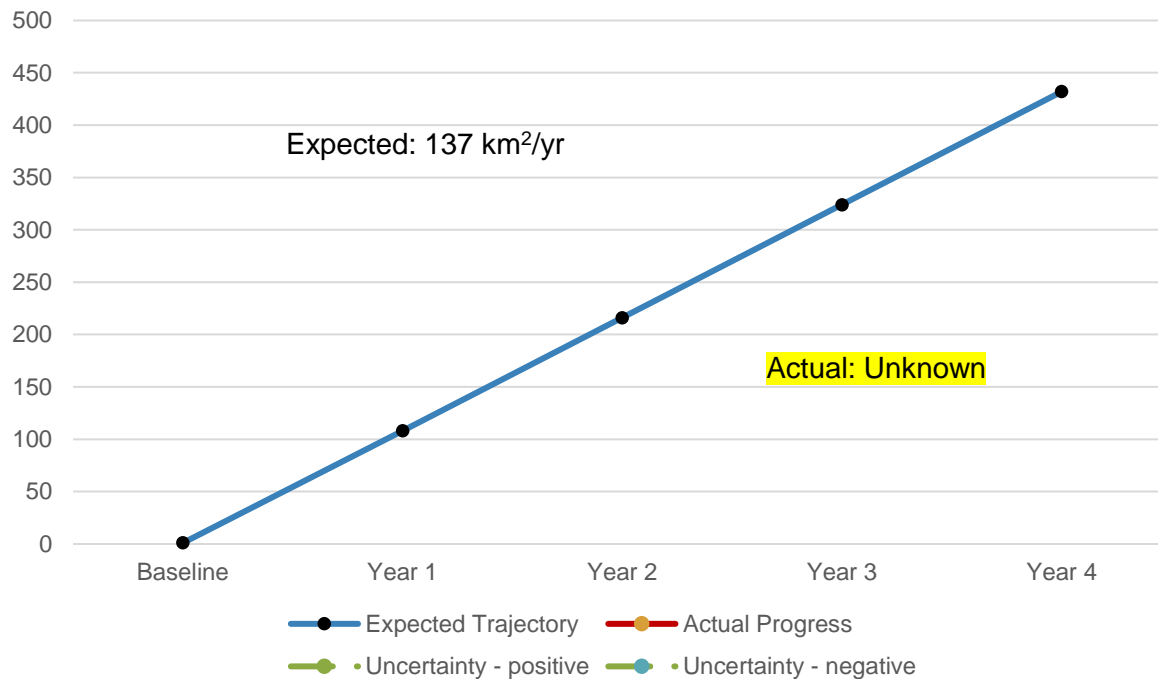
Outcome: Restore and sustain naturally reproducing brook trout populations in Chesapeake headwater streams with an eight percent increase in occupied habitat by 2025.

Chesapeake Bay
Brook Trout
Occupied Patches

Brook Trout Outcome $=$ **Current area of occupancy** $-$ **Losses in occupancy** $+$ **Increases in occupancy**

Restore and sustain Brook Trout populations; **eight percent increase** in occupied habitat

Identify/Protect Priority Habitat

Increases in Stressors
- Water temperature
- Imperviousness
- Nutrient and sediment loading

- Re-introduction
- Connecting fragmented habitat
- Mitigate stressors

Expected and Actual Progress:

Expected: 137 km^2/yr

Actual: Unknown

Chart axis (y): 0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500

Chart axis (x): Baseline, Year 1, Year 2, Year 3, Year 4

Legend: Expected Trajectory — Actual Progress — •Uncertainty - positive — •Uncertainty - negative

Project Objective:

Trout Unlimited (TU) and the Eastern Brook Trout Joint Venture (EBTJV) will work with the EPA Data Center Team, the Ches. Bay Program Brook Trout Workgroup, and other partners and stakeholders currently collecting data to populate a database to better evaluate progress on the <u>CBP brook trout outcome</u>*.

*8% increase in occupied brook trout habitat by 2025.

Project Goals:
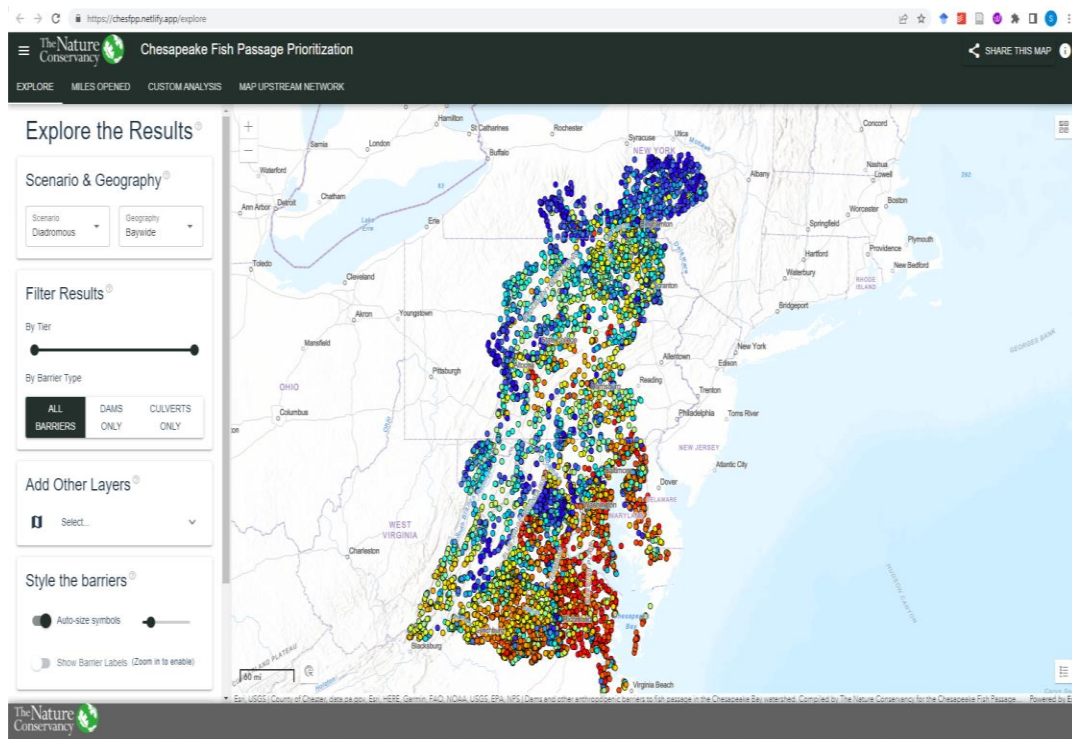
1) Identify opportunities for cross-GIT collaborations with other Ches. Bay Program teams

2) Strengthen communication and coordination with other stakeholders

3) Collect and compile existing data from stakeholders and analyze monitoring and implementation data necessary to adequately track progress

4) Work with Ches. Bay Program EPA Data Center Team to develop a tracking/reporting application.

Identify opportunities for cross-GIT collaborations with other Ches. Bay Program teams

- Held meetings with 7 other GITs/workgroups.
- Identified initial list of common areas of interest.
- Strongest connections with fish passage workgroup, healthy watersheds GIT, and climate resilience workgroup.
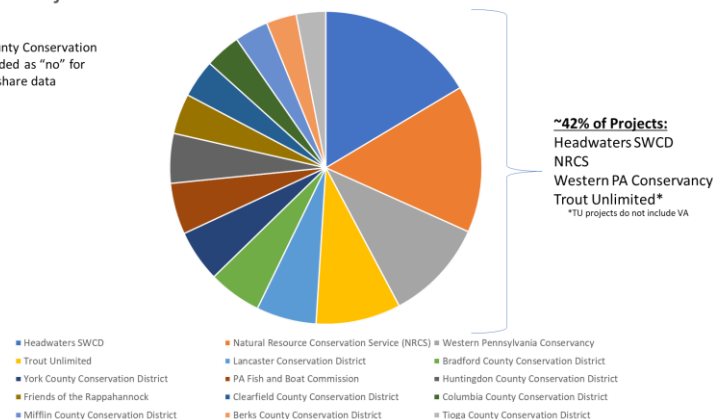
- Initial survey of potential stakeholders (102 groups) in the Bay watershed – Non-profits, county conservation districts, watershed associations, etc.
  - 40 groups completed surveyed
  - Identified rough number and types of restoration projects
- Identified core group of 15 (~80% of projects) stakeholders to pursue for additional data collection.

% Total Projects

Only Tioga County Conservation District responded as "no" for willingness to share data

~42% of Projects:
Headwaters SWCD
NRCS
Western PA Conservancy
Trout Unlimited*
*TU projects do not include VA

- Headwaters SWCD
- Natural Resource Conservation Service (NRCS)
- Western Pennsylvania Conservancy
- Trout Unlimited
- Lancaster Conservation District
- Bradford County Conservation District
- York County Conservation District
- PA Fish and Boat Commission
- Huntingdon County Conservation District
- Friends of the Rappahannock
- Clearfield County Conservation District
- Columbia County Conservation District
- Mifflin County Conservation District
- Berks County Conservation District
- Tioga County Conservation District

- Original EBTJV dataset (2016) will be used as baseline brook trout data and updated EBTJV dataset (expected 2023) will be used as comparison to quantify gains/losses.

- Developed database template to collect project type and location data from stakeholders along with additional metrics that may be useful for explaining brook trout gains/losses.

  - Survey123 and Excel templates

  - Held webinars to introduce data entry process for stakeholders

- Datasets from NFWF, USFWS, USFS, Partners Program data, etc.

- Currently compiling data.
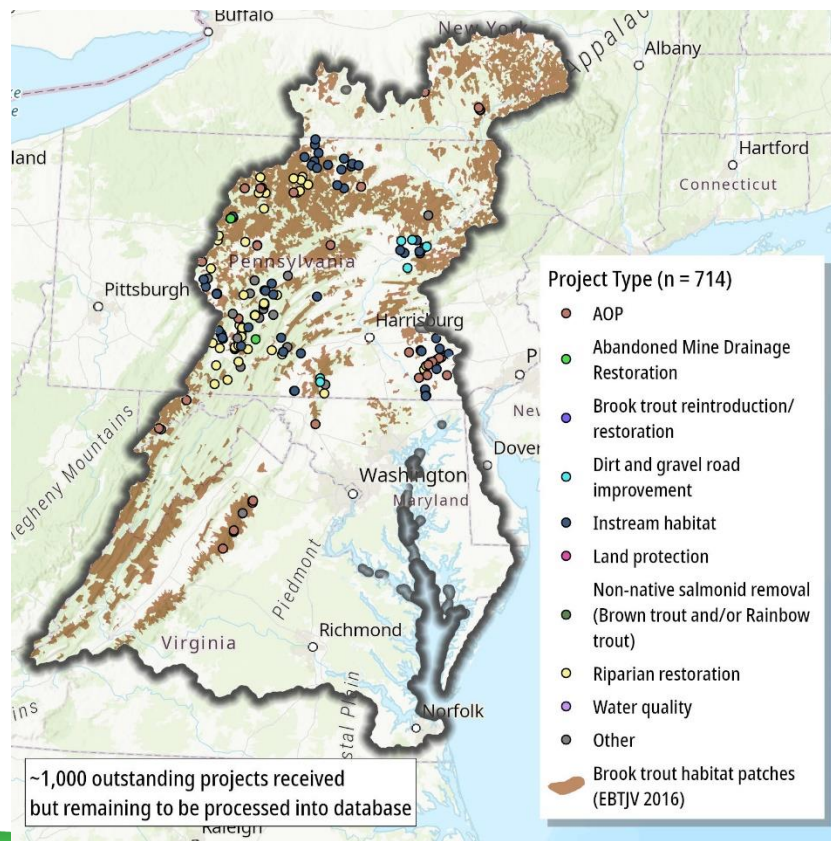
Stakeholder Data Compilation

- Specific on-the ground project type and location and other relevant information on restoration projects

- Brook trout monitoring data associated with on-the-ground projects

- Chesapeake Bay watershed ONLY

- Only projects **completed between 2016 and 2022.**

Project Types	
Instream Habitat	Abandoned Mine Drainage
Riparian Restoration	Dirt and Gravel Road Improvement
Aquatic Organism Passage	Brook Trout Reintroduction
Land Protection	Non-native Salmonid Removal

Project Locations to Date

- We've received project locations from several groups, including USFS, USFWS, Trout Unlimited, Western Pennsylvania Conservancy, and several county conservation districts.

- Work is underway to format these datasets and insert them into our database

Project Type (n = 714)
- AOP
- Abandoned Mine Drainage Restoration
- Brook trout reintroduction/restoration
- Dirt and gravel road improvement
- Instream habitat
- Land protection
- Non-native salmonid removal (Brown trout and/or Rainbow trout)
- Riparian restoration
- Water quality
- Other
- Brook trout habitat patches (EBTJV 2016)

~1,000 outstanding projects received but remaining to be processed into database

Work with Ches. Bay Program EPA Data Center Team to develop a tracking/reporting application.

- Compiled stakeholder data will be integrated into Habitat GIT tracking application for future reporting on brook trout related projects.

HABITAT TRACKER

- Habitat Tracker is a data management system to collect and organize data related to the habitat goals and outcomes

- Information can be aggregated and made available to show progress toward the Wetland and Black Duck Outcomes, and how the projects relate to the other 29 Outcomes

- habitat-tracker.net

GOALS	OUTCOMES
Sustainable Fisheries Goal	Blue Crab Abundance Outcome
	Blue Crab Management Outcome
	Oyster Outcome
	Forage Fish Outcome
	Fish Habitat Outcome
Vital Habitats Goal	Wetlands Outcome
	Black Duck
	Stream Health Outcome
	Brook Trout
	Fish Passage Outcome
	Submerged Aquatic Vegetation (SAV) Outcome
	Forest Buffer Outcome
	Tree Canopy Outcome
Water Quality Goal	2017 Watershed Implementation Plans (WIP) Outcome
	2025 WIP Outcome
	Water Quality Standards Attainment and Monitoring Outcome
Toxic Contaminants Goal	Toxic Contaminants Research Outcome
	Toxic Contaminants Policy and Prevention Outcome
Healthy Watersheds Goal	Healthy Watersheds Outcome
Stewardship Goal	Citizen Stewardship Outcome
	Local Leadership Outcome
	Diversity Outcome
Land Conservation Goal	Protected Lands Outcome
	Land Use Methods and Metrics Development Outcome
	Land Use Options Evaluation Outcome
Public Access Goal	Public Access Site Development Outcome
Environmental Literacy Goal	Student Outcome
	Sustainable Schools Outcome
	Environmental Literacy Planning Outcome
Climate Resiliency Goal	Monitoring and Assessment Outcome
	Adaptation Outcome

BMP SUMMARY REPORT

Geography	Year Installed	BMP Type	Land Use	Amount	Unit	Recent Inspection Year	NEIEN Credit Duration	Expiration Year
DE	2021	Wetland and Buffer Restoration, Wetland Restoration	Natural	6.000	acres	2021	15	2036
MD	2014	Constructed Wetland and Elevated Mound	Natural	6.500	acres	2014	10	2024
MD	2015	Constructed Wetland and Elevated Mound	Natural	38.500	acres	2015	10	2025
MD	2016	Constructed Wetland and Elevated Mound	Natural	14.500	acres	2016	10	2026
MD	2017	Wetland Rehabilitation	Natural	6.000	acres	2017	15	2032
MD	2017	Constructed Wetland and Elevated Mound	Natural	34.000	acres	2017	10	2027
MD	2020	Wetland Rehabilitation	Natural	7.500	acres	2020	15	2035
MD	2020	Wetland Rehabilitation	Agriculture	7.500	acres	2020	15	2035
MD	2015	Wetland Rehabilitation	Natural	8.200	acres	2015	15	2030
MD	2017	Wetland and Buffer Restoration, Wetland Restoration	Natural	18.000	acres	2017	15	2032
MD	2020	Constructed Wetland and Elevated Mound	Natural	11.200	acres	2020	10	2030
MD	2021	Constructed Wetland and Elevated Mound	Natural	27.500	acres	2021	10	2031
MD	2021	Wetland Rehabilitation	Natural	34.000	acres	2021	15	2036
MD	2019	Constructed Wetland and Elevated Mound	Natural	24.500	acres	2019	10	2029
MD	2018	Constructed Wetland and Elevated Mound	Natural	4.000	acres	2018	10	2028