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# Chesapeake Assessment Scenario Tool

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## New to CAST?

Rapidly develop scenarios for reducing nitrogen, phosphorus, and sediment with varying best management practices to streamline environmental planning.  
Register for increased functionality and to stay updated.

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## RESOURCES

### DEVELOP A PLAN

Get answers to your questions about how to use CAST to develop a plan.

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### SOURCE DATA

Download data tables including information on load sources and agencies, BMPs, animals, geographic references and delivery factors.

[View Source Data](#)

### BMPS

View information on best management practices (BMPs) including calculations, a quick reference guide, and protocol and expert panel reports.

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### MAP TOOLS & SPATIAL DATA

View geographical information and shapefiles.

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Download BMP costs data and view cost profiles for each state and Chesapeake Bay Watershed.

[Learn More](#)

### TRACK PROGRESS

View helpful information on verification, river trends, how to submit progress data via NEIEN, and modeling Federal facilities.

[Track Progress](#)

# CAST-21 Input Data

URBAN STORMWATER WORKGROUP

JULY 20, 2021

OLIVIA DEVEREUX, DEVEREUX  
CONSULTING, INC.

# Outline



Accessing the information



Data Types



Deadlines



Date Most Recently Submitted by State



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The following information is available below:



- [Phase 3 WIP BMP Information](#)
- [Trends Over Time](#)
  - BMPs
  - Loads
  - Wastewater
  - Nutrients Applied
  - Animal Units
  - Septic
- [Tributary Summaries](#)
- [River Trends](#)
- [Progress Reporting](#)
  - Phase 6 NEIEN Appendix
  - Codes List and Tables
  - NEIEN Submission Instructions
  - Document Exchange Template
  - NEIEN Schema
  - CAST data update frequency
- [Verification](#)
  - Chesapeake Bay Basinwide BMP Verification Framework
  - Jurisdictions' BMP tracking and reporting leads
  - Chesapeake Bay Program Grant Guidance
  - Jurisdictional Quality Assurance Project Plans (QAPPs)
- [Federal Agencies](#)
  - Federal Facility User Guide for Frequently Asked Questions
  - Annual Progress Reporting Templates
  - Milestones



## Phase 3 WIP BMP Information

BMP information for each Bay jurisdiction in Phase 3 WIPs were synthesized into charts to assess BMP effectiveness, BMP cost-effectiveness, and overall costs. The charts are available at the link below. View the most effective nitrogen and phosphorus BMPs in the WIP3 as measured by percent of total reduction in the BMP Effectiveness charts. Determine the most cost-effective nitrogen and phosphorus BMPs in the WIP3 as measured by cost/year to reduce a pound of each nutrient in the BMP Cost-Effectiveness charts. Costs of all BMPs for the most recent annual progress year and WIP3 by state and sector are presented in the Overall Costs charts.

[View WIP BMP Charts](#)[Compare Planning Targets](#)



## Progress Reporting

As of December 2010, all BMP information submitted to the Chesapeake Bay Program Office must be in a format compatible with the National Environmental Information Exchange Network (NEIEN) protocols that dictate the use of BMP-specific fields and units. Such information is utilized by CAST for the estimation of nutrient and sediment loads generated by different source areas within the Chesapeake Bay watershed.

### National Environmental Exchange Network (NEIEN)

BMP information is submitted by the major jurisdictions to the Chesapeake Bay Program Office using NEIEN. NEIEN protocols dictate the use of BMP-specific fields and units. Such information is utilized by CAST for the estimation of nutrient and sediment loads generated by different source areas within the Chesapeake Bay watershed.

- [Phase 6 NEIEN Appendix](#) (includes BMP credit duration)
- [USDA Practices, NEIEN, and CAST BMPs](#)
- [Codes List Tables](#)
- [NEIEN Submission Instructions](#)
- [Document Exchange Template](#)
- [NEIEN Schema](#)
- [CAST Data Update Frequency](#)



### TMDL Tracking Reports



## Verification

The 2010 Chesapeake Bay [TMDL](#) for Nitrogen, Phosphorus and Sediment set allocations for the Bay. Major jurisdictions create Watershed Implementation Plans for how to achieve the allocations. The Phase III Watershed Implementation Plans are under development and [Interim Expectations](#) have been established. BMPs are expected to be verified. Information on verification is below.

- [Chesapeake Bay Basinwide BMP Verification Framework](#)



Data Description	Data Source	DC	DE	MD	NY	PA	VA	WV
Planning BMPs not eligible for credit in progress	Expert Panel reports subject to Partnership approval	NA	NA	NA	NA	NA	NA	NA
Costs	Research and evaluation - CAST Team or Expert Panels	2019	2019	2019	2019	2019	2019	2019
New and updated BMPs, including planning BMPs that will become eligible for progress.	Jurisdictions	NA	NA	NA	NA	NA	NA	NA
Construction. If none submitted, the default is calculated as: 2021 Construction = 1.29*(2022 developed acre - 2021 developed acres)	Jurisdictions	2020	2020	2017	none	2020	2020	2020
State-specific land use data, especially where it relates to land use by agency type	Jurisdictions	2020	2020	2020	2020	2020	2020	2020
Harvested forest. Default for harvested forest = 1.5% for forest land if none submitted	Jurisdictions	NA	none submitted, uses CBP default	2013	none submitted, uses CBP default	none submitted, uses CBP default	2020	2020

# Urban Data from Jurisdictions

# BMPs

## Planning BMPs

- Anytime

## New and approved BMPs

- Methods need to be approved by 9/1/2021 for CAST-21.

## BMP Costs

- Updated periodically by EPA via a contract

## New BMPs

Impervious disconnection BMP will no longer be applied to pervious land

Urban stream restoration protocol #5 will be added

Default urban stream restoration will become invalid for reporting for progress where the implementation date is after the Expert Panel's specified date.

Wetland BMPs updates

Oyster BMPs (Expert Panel report yet to be finalized)

Agricultural Ditch panel recommendations will be implemented

- New ditch BMPs released to NEIEN for progress submission
- Water control structures efficiency = 0

Agricultural Animal Mortality EP (Expert Panel report yet to be finalized)



## New Method

Use the mapped land use for the agricultural acres instead of the Agricultural Census acres.

Mapped developed and natural acres will not be adjusted to accommodate the acres from the Agricultural Census. Keeps the total area truer to the land cover.

Approved by the Agricultural Workgroup May 2021

# Data Types (not including agriculture)

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## Atmospheric deposition

- Updated as part of the calibration only using the CMAQ model and regressions of observed deposition

## Land use and populations

- Harvested forest and construction acres updated annually by jurisdictions
- Other land use data is updated in Milestone years for new versions of CAST

## Wastewater all updated annually for current year and in milestone years for new versions of CAST:

- Biosolid
- Agricultural spray irrigation mass and nutrient applications
- Septics
- Rapid Infiltration Basins
- WWTP data

# CAST-21 Release Schedule

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## CAST-21 Release Schedule

- September 1, 2021 - All data and methods approved
- November 1, 2021 - CAST-21 Beta release
- December 1, 2021 – Jurisdictional comments due
- January 1, 2022 - Final CAST-21 release

Update Frequency	Data Type	Data Description	Data Source	DC	DE	MD	NY	PA	VA	WV
Annually for current year and every two years for historic data	Agricultural	Animals in permitted/non-permitted feeding space, number or percent	Jurisdictions	2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21	2013 or earlier; 2014 in CAST-19; 2016 available for CAST-21
Every two years	Agricultural	AAPFCO fertilizer sales - These data are also used for urban.	CAST Team		none submitted, uses CBP default	none submitted, uses CBP default	none submitted, uses CBP default	none submitted, uses CBP default	2017	2017
Every two years	Agricultural	Animal fraction of county in land-river segments	Jurisdictions		NA	2013	2013	2013	2013	2013
Every two years	Agricultural	Animals per animal unit	Jurisdictions		NA	2013	2013	2013	2013	2013
Every two years	Agricultural	Manure or litter mass produced per animal (minimum of three-year trend needed to alter trend in modeled manure or litter production)	Jurisdictions		NA	2013	2013	2013	2013	2013
Every two years	Agricultural	Nutrient concentration for animals (minimum of three-year trend needed to alter trend in modeled nutrient concentrations)	Jurisdictions		NA	2013	2013	2013	2013	2013
Every two years	Agricultural	Soil phosphorus data by crop type and county. It has not been updated since the calibration.	CAST or Modeling Team	2014	2014	2014	2014	2014	2014	2014
Every two years	Agricultural	USDA-NASS annual poultry sales data.	CAST Team	2018	2018	2018	2018	2018	2018	2018
Every two years	Agricultural	USDA-NASS annual crop yield data or other sources. These data are only for certain crops. The majority of the crops are from the Ag Census and incorporated in the next version of CAST.	CAST Team	2016/2017	2016/2017	2016/2017	2016/2017	2016/2017	2016/2017	2016/2017
Every two years	Agricultural	USDA-NASS Census of Agriculture - every five years there is a new census. Crop acres, animal numbers, crop yield, e.g. bushels per acre. Crop yield data are used to calculate the nitrogen and phosphorus amount to meet crop need.	CAST Team	2017	2017	2017	2017	2017	2017	2017
Every two years	Atmospheric Deposition	Atmospheric deposition is updated as part of the calibration only. We have all the data for real and allocation air (RA and AA) through 2010. It has not been updated since the calibration.	CMAC model and regression of observed deposition (Grimm, IPSI, 2017) Modeling Team	2013	2013	2013	2013	2013	2013	2013
Anytime	BMPs	Planning BMPs not eligible for credit in progress	Partnership approval	NA	NA	NA	NA	NA	NA	NA
Every two years	BMPs	Costs	Research and evaluation - CAST Team or Expert Panels	2019	2019	2019	2019	2019	2019	2019
Every two years	BMPs	New and updated BMPs, including planning BMPs that will become eligible for progress.	Jurisdictions	NA	NA	NA	NA	NA	NA	NA

<https://cast.chesapeakebay.net/Home/TMDLTracking#progressReportingSection>

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- USDA Practices, NEIEN, and CAST BMPs
- Codes List Phase 6
- Codes List Tables Phase 6
- NEIEN Submission Instructions
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[TMDL Tracking Reports](#)

# CAST data updates



# Questions?

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