Chesapeake Bay Program
Science. Restoration. Partnership.

CAST-19

The Chesapeake Assessment Scenario Tool, or CAST, is a free, web-based tool that estimates what the most cost-effective, and relevant, best management practices are in reducing nitrogen, phosphorus and sediment pollution for a given geographic area. Users can run simulations for various scenarios that are relevant to their communities to identify what pollution prevention strategies make the most sense, given their available resources. CAST has recently been updated to a new version, CAST-19.

What's new in CAST-19?

CAST-19 features a wealth of new data, including:

- Updated information from the 2017 U.S. Department of Agriculture Census, which has been incorporated into information on land use, crop yields and animal populations.
    - It also includes the use of an updated method for integrating land cover data with census data.
- Actual and projected data from 2013 – 2025 on land use acres, septic systems and sewer service areas. This also includes data on MS4 areas in Virginia only.
- Sales of fertilizer in both agricultural and urban areas.

CAST-19 features the following updates:

- Consistency in wastewater year with best management practice year (July 1 – June 30) for all jurisdictions.
- A calculation change that now includes agency for loads reduced in stream beds and banks.
- Updated nitrogen fixation rates for "other haylage; grass silage and green chop" and inputs for over-winter crops.
- Projections from the 2017 U.S. Department of Agriculture Census for 2018 and beyond. Previously, projections were only included from 2013 and beyond. Please note that the mapped land use continues to project from 2013 and beyond.
- What best management practices have been submitted, including during the Bay TMDL critical period.
- Best management practice costs from 2010 dollars to 2018 dollars.
- Fully crediting the biofilter best management practice, correcting a previous error.

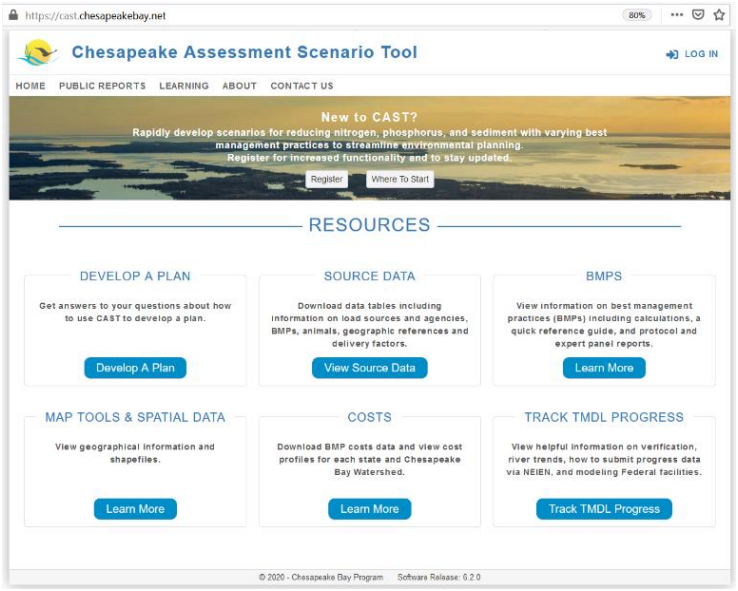
The following best management practices are now approved for planning and are available for annual reporting:

- Agricultural stormwater management.
- Conservation landscaping practices.
- Septic effluent – advanced.
- Septic secondary treatment – advanced.
- Septic denitrification – advanced.

Changes in pollutant loads

Annual progress scenarios will be run using CAST-19. The previous version of CAST, which is how the best management practices in each jurisdiction's Phase III WIP were calculated, is no longer available for use. However, CAST-19 offers the ability to re-run these scenarios so progress can be compared between the Phase III WIPs and annual progress runs.

Jurisdictions may note that their pollutant loads have increased in CAST-19. This is due to the addition of crop acre data from the 2017 U.S. Department of Agriculture Census, which accounts for approximately 60% of the nitrogen, phosphorus and sediment increases. For more information, detailed data are available on CAST-19 at: https://cast.chesapeakebay.net/Shiny/misc/castver/.



Screenshot of the CAST-19 homepage.

Why has CAST been updated?

The Chesapeake Bay Program suite of modeling tools were first launched in 1982 and have undergone several revisions over the past 38 years to incorporate new science, data and information as it becomes available to refine its ability to help understand how pollution-reducing practices and policies can impact water quality and living resources at the regional and local levels. At the start of the 2017 milestone development process, the Water Quality Goal Implementation Team agreed that assumptions set at the beginning of the milestone period would remain constant over the two-years. At the end of that time, the Chesapeake Bay Program would update the model with any new information, data or best management practice efficiencies for future progress runs. Additionally, past and present progress runs would also be assessed using the updated model. Planning for CAST-19 updates began in 2018 and were approved by the Water Quality Goal Implementation Team in fall 2019.

CAST-19
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