

CLOSING OUT CAST-21 WORKPLAN

Jeff Sweeney and Helen Golimowski

June 27, 2022

DIFFERENCES BETWEEN UPDATING CAST AND MODEL PHASE CHANGE

CAST 21

- UPDATE TO THE STEADY-STATE MODEL
- A NEW VERSION OF CAST WITHIN PHASE 6 IS ALWAYS ADDING NEW DATA AND METHODS OVER TIME
- NO CHANGES TO THE TMDL PLANNING GOALS

Phase 7

- NEXT VERSION OF THE DYNAMIC WATERSHED MODEL
- PHASE 7 CAN HAVE DIFFERENT DATA SOURCES AND METHODS
- THE PHASE 7 MODEL WILL BE RE-CALIBRATED TO MONITORED LOADS
- CHANGES TO THE WIP PLANNING TARGETS WITH RECALIBRATION

ISSUES RESOLVED IN CAST-21

UPDATED LAND USE

- The Land Use WG + WQGIT endorsed the use of the high-resolution landcover/land use change data (2013–2017) as the “best available data” to inform CAST-21.
- Reservations related to timber harvest acres = Phase 7
- *Decision: 8/4/21*

UPDATED SEPTIC

Septic systems and sewer service areas were updated 2013–2025.

UPDATED BMP LEVELS

- BMPs submitted by jurisdictions were updated to various extent, e.g., back to 1985.
- Affects land use acres, implementation levels, the amount of nutrients applied to the land = load reductions.

ISSUES RESOLVED IN CAST-21

AG LAND USE FORECASTING

- Investigated alternatives to the current methods for forecasting agricultural land uses, paying particular attention to trends in acres of full-season soybeans and double-crops.
- Used latest land cover and LiDAR imagery to define changes in total agriculture areas and crop acres through time (as well as changes to acres for the developed sector, forest, mixed open, and wetlands).
- *Decision: 3/18/21*

TREE BMPS

- Tree BMPs are now credited for 15 years prior to the date of the aerial imagery in the land use. These BMPs include forest buffers, tree planting, and forest planting.
- *Decision: 8/21/21*

**ISSUES
RESOLVED IN
CAST-21**

DOUBLE-CROP ACRES

- Verified with NASS methods for estimating acres of double-crops
- No alternatives proposed

BMP VERIFICATION

Built in approved products of the BMP Verification Ad-Hoc Action Team and Watershed Technical WG addressing BMP credit durations, back-out, etc.

**ISSUES
RESOLVED IN
CAST-21**

STATE SPECIFIC UPDATES

- **Maryland** biosolids were updated. The amount for other jurisdictions is simply carried forward for all future years.
- **Pennsylvania** updated their combined sewer overflow reductions.
- **Virginia's** insignificant facilities wastewater data were updated for 2014-2020.
- **West Virginia** corrected errors in their 2020 wastewater data.
- **Virginia and West Virginia's** harvested forest acres were updated for 2021.
- **Maryland's** 2013 to 2021 harvested forest acres were updated.
- Construction acres were updated for 2021 in **all states** except Maryland.
- **New York** updated construction acres for 2016-2021.
- The split between **Pennsylvania's** permitted and nonpermitted feeding space was updated.



ISSUES RAISED BUT NO CONSENSUS

HILLANDALE FARMS

Accommodate QA/QC'd historic and current layer population data for Hillandale Farms, Spring Grove, PA.

NUTRIENT MANAGEMENT ON SOYBEANS

- Task = Consider additions to current methods for “crediting: Nutrient Management on soybeans and propose options
- The AgWG was asked to endorse application of a non-zero reduction efficiency for the Supplemental Nitrogen Nutrient Management BMP on the full-season soybean load source (rate, timing, and/or placement).
- No consensus – 2 Endorse, 8 Not Endorse, 1 Hold, 4 Not Present, 4 No Vote
- Decision: AgWG 6/17/21

FERTILIZER DATA

- Agricultural and urban fertilizer sales data were updated to include information reported to American Plant Food Control Officials (AAPFCO) through 2016.
- Includes corrections in CAST-21 to inaccurate 2013-2014 agriculture fertilizer data in CAST-19
- USDA-NASS crop yield data was updated through 2020 in CAST-21.

URBAN FERTILIZER

- Additional urban fertilizer sales data changed turfgrass application rates for the years 2013 through 2025.
- Evaluated alternative processing methods for turfgrass nutrient application rates but no consensus to use alternative

ISSUES RAISED FOR NEXT VERSION OF CAST – SPRING 2024



AG FERTILIZER DATA

Seek data from states on fertilizer sales reported to AAPFCO as well as alternative data sources.

Continue to investigate, may be Phase 7 task



URBAN FERTILIZER DATA

Evaluate alternative processing methods and seek new fertilizer data sources.

Continue to investigate, may be Phase 7 task



USE OF PRIVATE INDUSTRY DATA

Fall 2021- Discussions regarding use of private industry data **on-going in Agriculture Workgroup and Watershed Technical Workgroup**



NUTRIENT APPLICATION CALCULATION

The Agriculture Modeling Team is beginning to work on updating the nutrient application calculations

PHASE 7 ISSUES

AG CENSUS CHANGE

Investigate 2012-2017 Ag Census change for crop types “Cropland in cultivated summer fallow” and “Cropland idle or used for cover crops or soil improvement but not harvested and not pastured or grazed” and attempt to determine if reported increases are reflective of on-the-ground change.

DOUBLE-CROP ACRES

Investigate alternatives for estimating acres of double-crops and propose options for Partnership consideration

BMP VERIFICATION

Continue to build in Partnership-approved products about BMP verification as it relates to credit durations, point locations of BMPs, etc.



WHAT DOES NOT CHANGE IN CAST-21

WIP Loads

- The official Phase III WIPs are those loads from the CAST version in which they were developed.

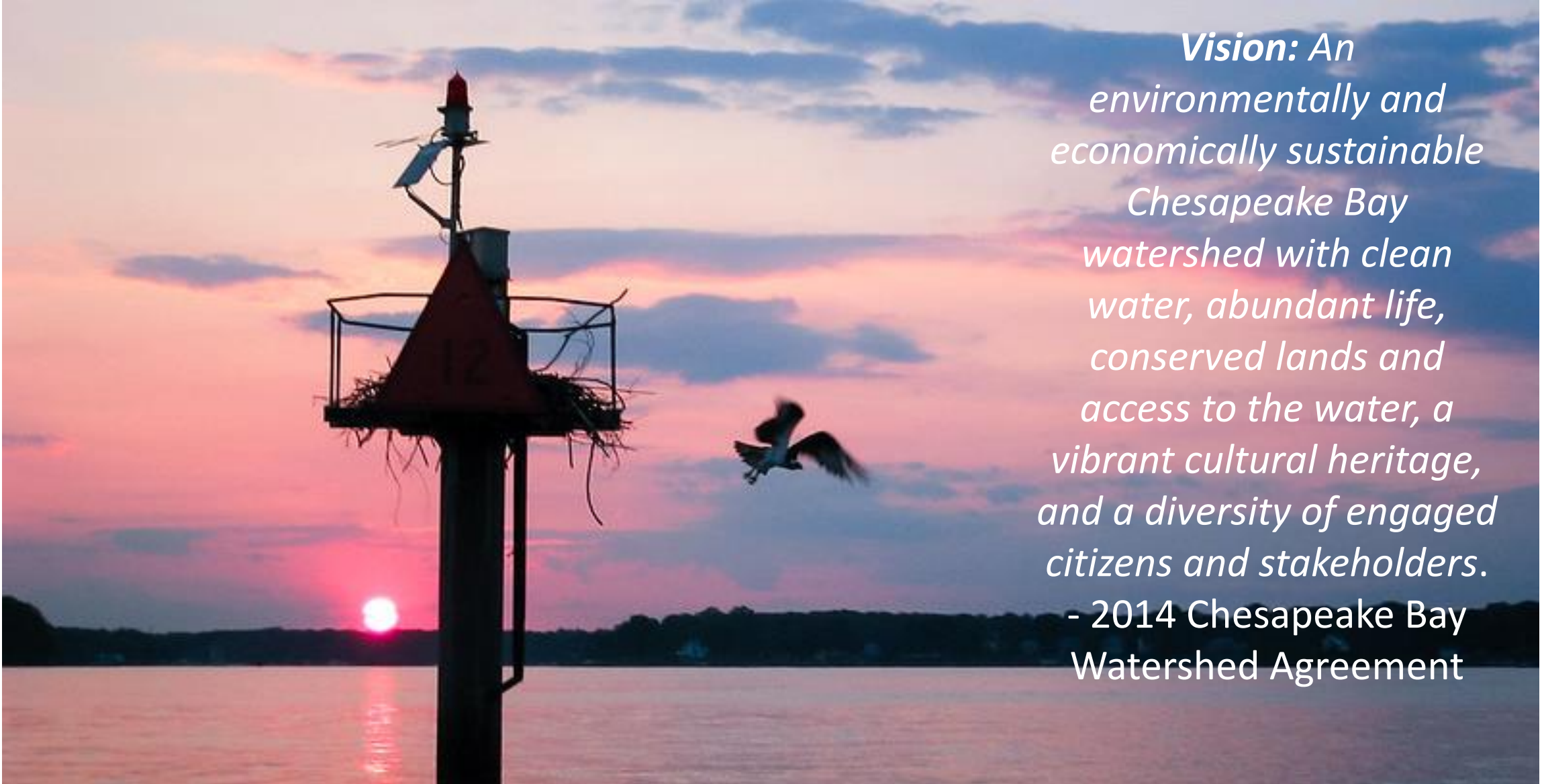
2025 Planning Targets

- The 2025 Phase III Planning Targets do not change.

WHAT DOES CHANGE IN CAST-21

The 2023 Milestone Goals Change

- The 2009 Progress scenario loads change since the entire history of BMP implementation is re-run with each new version of CAST.
 - With the 2009 starting point adjustment, the trajectory to the 2025 planning target endpoint shifts.
 - As we get closer to 2025, the effect of this shift is less than earlier years.
 - The milestone goal steps up with each cycle (60% at the 2017 mid-point, 80% in 2021, 90% in 2023, 100% in 2025).
- Use the CAST planning [target tool](#) to compare public scenarios.



***Vision:** An environmentally and economically sustainable Chesapeake Bay watershed with clean water, abundant life, conserved lands and access to the water, a vibrant cultural heritage, and a diversity of engaged citizens and stakeholders.*

- 2014 Chesapeake Bay Watershed Agreement