

Workplan for CAST 2021

Goal: Accommodate new data and methods with CAST 2021 for changes that have been approved by the Partnership up until COB Sept. 1, 2021

Outcome: A Partnership approved CAST 2021 model that uses the best available science, data, and information to inform and support our shared restoration efforts and collective decision-making processes, adhering to our principals of adaptive management

- * The tasks and actions (Tasks 1-8) below represent the priority issues that have been identified by the Partnership and will receive primary focus by the participating entities. Other tasks and actions can be added to this work plan as time and resources allow, and with Partnership approval. Note that not all issues may be fully addressed by the Partnership-established deadlines for updating CAST 2021. Tasks and actions may be applicable to future versions of CAST.
 - * **Timelines are the estimated completion dates (month & year) for the investigating body (e.g., CBP office technical staff) to make final presentations about options for the relevant source workgroups to consider.** Agreement about what will be included and excluded from CAST21 depends on votes of members of the workgroups and WQGIT. Approved data and method changes for CAST21 need to be finalized through the WQGIT by Sept. 1, 2021.
- **As each key action is considered and signed off by workgroups and the WQGIT, there will be no determination where and to what degree nutrient and sediment loads would be higher or lower than CAST 2019.** Additional key actions may be added to this workplan if the addition is approved by the WQGIT. CAST 2021 will accommodate all method and data changes approved through the Partnership by COB Sept. 1, 2021 and will be available for review, including loads, Nov. 1, 2021. Comments and questions from jurisdictions are due Dec. 1, 2021 with the final release of CAST21 scheduled for Jan. 1, 2022.

	Key Action	Participating Entities	Timeline* – Findings Presented to Lead Participating Entity for Decision	Status Updates
Task 2	Investigate alternatives to the current methods for forecasting agricultural land uses and animals and propose options for Partnership consideration. Particular attention will be paid to trends in acres of full-season soybeans and double-crops	Agriculture Workgroup , Land Use Workgroup, Watershed Technical Workgroup, WQGIT, CBPO technical staff	March, 2021	3/18/21 DECISION: The AgWG approved a path forward regarding CAST-21 Workplan Task 2: <i>Investigate alternatives to the current methods for forecasting agricultural land uses and animals and propose options for partnership consideration</i> . The AgWG achieved consensus to continue using the current projection method (Double Exponential Smoothing: Alpha = 0.8).
Task 3	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. To the extent that information becomes available that demonstrates that census-reported changes are not reflective of real change, explore mechanisms by which model inputs for CAST 2021 might be adjusted to counteract and propose options for Partnership consideration.	Agriculture Workgroup , Land Use Workgroup, Watershed Technical Workgroup, WQGIT, CBPO technical staff	Completed Feb., 2021	The AgWG acknowledges that investigation has not provided evidence to indicate that the 2017 Ag Census data is or is not reflective of on-the-ground change, therefore cannot recommend adjustment to CAST-21 model inputs at this time. The AgWG has exhausted its available resources to investigate this issue, but this decision does not preclude interested parties from pursuing further lines of inquiry and bringing information back to the workgroup for review.
Task 4	Investigate use of latest landcover and LiDAR imagery to better define changes in total agriculture areas and crop acres through time as well as all other source categories in the	Land Use Workgroup , Agriculture Workgroup, Forestry Workgroup, Urban	Aug., 2021	Classifications and mapping efforts for the 2017 land use dataset has been discussed, reviewed or updates provided at every meeting of Land Use WG, Forestry WG, 2/16/21 Wetland WG, AgWG, and WQGIT.

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	developed sector, forest, mixed open, and wetlands	Stormwater Workgroup, Wetlands Workgroup, Watershed Technical Workgroup, WQGIT, CBPO technical staff		The 4/15/21 AgWG focused on 14 prototype counties. The AgWG and interested parties are asked to review 2017 land use in prototype of CAST-21 with the 2017 land use currently in CAST-19 for the 14 test counties by 5/17/21. The 2013-2017 mapped changes in land use are available to inspect on Chesapeake Innovation Center's (CIC) web application. Corrections can be applied directly in the Viewer. Please send additional questions to Peter Claggett (PClagget@chesapeakebay.net). On 5/5/21, the Land Use Workgroup will be discussing 2013-2017 land use change data, methodology, and the comparison between CAST-19 and CAST-21.
Task 5	Investigate alternatives for estimating acres of double-crops and propose options for Partnership consideration	Agriculture Workgroup , Watershed Technical Workgroup, WQGIT, CBPO technical staff	Mar., 2021	CBPO consultation with USDA-NASS: Endorsed current method. Presentation to the AgWG 10/15/21 with request for feedback: None received. Methodology for computing double crops does not change; however, introduction of high-resolution landcover + cropland data layer (Task 4) + projections (Task 2) will affect acres of all crop types. Contact Olivia Devereux (olivia@devereuxconsulting.com) with questions related to her AgWG presentation

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				on incorporating land use data into CAST by 5/17/21. A decision regarding double-cropping methodology will be asked for on the 5/21/21 AgWG call.
Task 6	Consider additions to current methods for “crediting” Nutrient Management on soybeans and propose options	Agriculture Workgroup, Watershed Technical Workgroup, WQGIT, CBPO technical staff	May, 2021	Discussed at AgWG Ad Hoc since Dec. then moved to AgWG, the most recent 4/15/21 meeting. Send questions and comments regarding the Supplemental Nitrogen Nutrient Management BMP on full-season soybeans to Loretta Collins (lcollins@chesapeakebay.net) by 5/6/21. AgWG Coordinator is pulling together documentation. A decision regarding the Supplemental Nitrogen Nutrient Management BMP on full-season soybeans will be asked for on the 5/20/21 call.
Task 7	Accommodate with CAST21 QA/QC historic and current layer population data for Hillandale Farms, Spring Grove, PA.	Agriculture Workgroup, Watershed Technical Workgroup, WQGIT, CBPO technical staff	May, 2021	Last discussed at the 2/11/21 AgWG Ad-Hoc. PA DEP and CBP office obtaining layer production data (1978-2020) from Hillandale + CAFO permit information. Also need determination from Hillandale and NASS if and when population data was reported to NASS for 5-year Ag Census or annual reports. There will be a meeting between CBP office and PA DEP 4/27/21.

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Task 8	Build in Partnership-approved products of the BMP Verification Ad-Hoc Action Team as it relates to credit duration	Relevant source workgroup (Agriculture, Forestry, Urban Stormwater, Wetlands), BMP Verification Ad-Hoc Action Team , Watershed Technical Workgroup, WQGIT, CBPO technical staff	June, 2021	Last met 4/9/21 for vote among members about credit durations for Barnyard Runoff Control and Loafing Lot Management. Proposed change in extension of credit durations is tabled at this time for these BMP categories. Group is also considering credit durations of forestry practices.

<p>Task 1</p>	<p>Continue with updates to data and methods for the following that typically occur every two years – as well as other proposals agreed-to and approved by the CBP Partnership:</p> <ul style="list-style-type: none"> • New or updated BMPs, their effectiveness values, and implementation costs • Revised reported BMP history from jurisdictions • State-specific land use data, especially where it relates to land use by agency type <p>Developed Sector</p> <ul style="list-style-type: none"> • County-level and/or Census zone population, housing, and employment projections • MS4 area boundaries • Zoning information • Construction acres • The number of septic systems and their projections, related to sewer service area boundaries • Rapid infiltration basin load data • Large monitored onsite septic system load data • CSO connections and pass-through data <p>Agriculture Sector</p> <ul style="list-style-type: none"> • Manure nutrient concentrations • Manure or litter mass produced per animal • Permitted/Non-permitted animal fractions • Soil phosphorus data by crop type and county – for Phase 7 	<p>Relevant source workgroup (Agriculture, Forestry, Land Use, Urban Stormwater, Wastewater Treatment, Wetlands), BMP Expert Panels, BMP Verification Ad-Hoc Action Team, Watershed Technical Workgroup, WQGIT, Jurisdictions, CBPO technical staff</p>	<p>Aug., 2021</p>	<ul style="list-style-type: none"> • BMPs currently in Expert Panels or workgroups include Mortality Management, Oyster Restoration, and a Non-Urban Stream Restoration EPEG. • Next discussion of the model procedures cut-off and back-out will be at the Watershed Technical WG meeting 5/6/21. • CBO office working on USDA-NASS crop yield data • Soil phosphorus data provided by WV and, eventually, NY
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	<ul style="list-style-type: none">• AAPFCO for fertilizer sales and use data for farm (crop) and non-farm (urban turfgrass) entities – as well as other supplemental sources of data• USDA-NASS crop yield data + other bushels per acre• Biosolid and spray irrigation mass and nutrient concentration applications• Harvested forest areas			
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