## Method to Model Wet Pond Retrofits in CAST

1) Create Profile in CAST.

2) Create a scenario for the existing conditions of the wet pond. Give this scenario a name that reflects that it is pre-restoration (e.g. BMP T1).

CENARIOS											
My Scenarios 🔊									View D	ocumenta	tion
Add New Scenarie Clear Fil	ters										
Ssenario Name	1	Scenario Status		T	Date Modified ↓		E	dit	Run	Delete	
BMP T1		Run Finished			2019-03-07 01:44:13 PM		(	ð		0	
BMP T2		Run Finished			2019-03-07 01:42:49 PM		(	e.		0	
Shared Scenarios ( Clear Filters Refresh	Ð										
Scenario Name	▼ Se	cenario Status	T	Author	T	Dat	e Modified				
1984 Progress	R	un Finished		CBP Adn	nin	201	8-07-10 08:48:3	3 PM			ł
1985 Progress	Run Finished CBP Admin 2018-07-10 08:54:18 PM										
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3) Enter pre-restoration scenario parameters. These should include, a) 2017 as a base year, b) Historic Trends as the Base Condition, c) 2017 Wastewater Data Set, d) Official BMPs, and e) Cost Profile of Maryland.

Lastly, enter 'Land River Segment indicating if in or out of CBWS' as the geographic area. First, find the phase 5.3.2 model land river segment your pond is located in at this URL if you don't know it (https://goo.gl/csCbrp). Then, use the crosswalk table at this URL (https://goo.gl/MwBUC8) to get the corresponding segment ID for the phase 6 model. This phase 6 ID will be the geographic area for your CAST model run. Press Save when finished.

Scenario Name * (?)	Base Year * 🍞		Base Condition * 👔
BMP Time 1	2017	•	Historic Trends 🔹
Scenario Description *	Wastewater Data Se	t* 🥐	
Test Run	2017		•
	BMPs Available * ?	)	
	Official BMPs		•
	Cost Profile * 🍞		
	Maryland		•
(Max. characters 500)			
Geographic Scale * 🕐			
Land River Segment indicating if in or out of CBWS			
Geographic Area *			
Search			
MD-H24021PM3 3040 3340(CBWS) MD-H24021PM4_3340_3341(CBWS) MD-H24023PU_4720_4750(CBWS) MD-H24023PU_4720_4750(CBWS) PA-H42013SJ2_2530_2820(CBWS) PA-H42013SJ3_2260_2230(CBWS) PA-H42013SJ3_2250_2230(CBWS) PA-H42013SW3_1870_1800(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H42027SW1_1570_1640(CBWS) PA-H42027SW1_1570_1640(CBWS) PA-H42027SW1_580_440(CBWS) PA-H42043SL3_1960_2080(CBWS) PA-H42043SL3_1960_2080(CBWS) PA-H42043SL4_2050_2CT0(CBWS)	MD-H24021P	M1_3510_4000(CBWS	)

4) Press edit under the scenario you just created and navigate to the developed BMPs tab. Under developed BMPs, pick Stormwater performance Standard- Stormwater Treatment, filling out the parameters and acre feet storage of EXISTING water quality treatment. Click save when finished.

Metadata	Invalid BMPs	Land Policy BMPs	Developed BMPs	Septic BMPs	Natural BMPs	Agriculture BMPs	Animal BMPs	Manure	Transp	ort BMF	Ps
eloped	Load Sou	Irce Pre-BMP	(?)						Vie	ew Doc	umentatior
Load S	ource Edit BN	/P						×		Acres	
gency Typ	e: Non Fi <sup>*Require</sup>	d field									
		Geographi	c Scale * 🕐	Land River Segn	nent indicating if in	or out of CBWS	•				721.50
gency Typ	e: Federa	Geograph	ic Area * ⑦	MD-H24021PM1	_3510_4000(CBW	(S)	•				0.00
			Agency * 💿	Non-Federal			•				721 50
ownload I	Load Sc		BMP * 🕐	Stormwater Perfe	ormance Standard	-Stormwater Treatmen	t 🔻				121.30
		Seconda	ry BMP * ⑦	Stormwater Perfe	ormance Standard	-Stormwater Treatmen	t 🔻				
P Data	Subn	Load	Source * ⑦	MS4 Developed			•				
dd BMP	Clear Fi		Unit * 🕐	Acres Treated			•			Edit	Delete
rigency		1	Amount * 🕐	100						Eult	Delete
		Impervi	ous Acres *	50							
Non-Fede	eral		Acre-Feet *	1						Ø	0
							Source	Canaal			
							Save	Cancel	1 - 1	of 1 ite	ims O
			© 2019 - Chesa	aneake Bay Progra	am Software Re	elease: 5.7.1					
			0.2010 011000	, entre bay i rogn	Contrato ra						

5) Going back to the home page, click "Add a new scenario", then click "Copy Scenario without BMPs", picking the scenario you just created.

Save Copy Existing Scenario Without BMPs Cancel	View Docum	entatio
Required field	Version: CAST-	2017d
Scenario Name * 🕜	Base Year * ⑦ Base Condition * ⑦	
	Select Base Year    Select Base Condition	v
Scenario Description *	Wastewater Data Set * 🕜	
	Select Wastewater Data Set	•
	BMPs Available * 🕜	
	Select BMPs Available	•
	Cost Profile * 👩	
	Select Cost Profile	•

6) Change the Scenario Name to something that reflects it is the Post Restoration Scenario, and click save.

7) Under this second scenario, add in the exact same BMP information as before, except for the 'acre feet', which should be adjusted to account for increased treatment volume attained after the retrofit.

Edit BMP			×
Required field			
Geographic Scale * ⑦	Land River Segment indicating if in or out of CBWS	•	
Geographic Area * 🕐	MD-H24021PM1_3510_4000(CBWS)	•	
Agency * ⑦	Non-Federal	•	
BMP * ⑦	Stormwater Performance Standard-Stormwater Treatment	•	
Secondary BMP * ⑦	Stormwater Performance Standard-Stormwater Treatment	•	
Load Source * ⑦	MS4 Developed	•	
Unit * 🕐	Acres Treated	•	
Amount * ⑦	100		
Impervious Acres *	50		
Acre-Feet *	4		
		Save	Cancel 1

8) Navigate back to the scenarios tab and run both pre and post restoration scenarios.

9) Under the "Results Tab" click "Compare Scenarios" and select the same geographic scale as the scenarios were run in. Then, select the two scenarios you just created in the drop down menus.

Geographic Scale *		
Land River Segment indicating if in or out of CBWS		
Geographic Area *		
Search		
MD-H24021PM3_3040_3340(CBWS) MD-H24021PM4_3340_3341(CBWS) MD-H24023PU2_4720_4750(CBWS) MD-H24023PU3_4451_4450(CBWS) PA-H42013SU_2_550_2820(CBWS) PA-H42013SU_2_550_2820(CBWS) PA-H42013SW3_1870_1800(CBWS) PA-H42013SW3_1870_1800(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H42027SW1_1560_1460(CBWS) PA-H4203SL8_2080_2050(CBWS) PA-H42043SL8_2080_2050(CBWS) PA-H42043SL9_2050_2270(CBWS)	MD-H24021PM1_3	4000(CBWS)
Agency *		
Select Agencies		
Scenario 1*		
BMP Time 1	•	
Scenario 2*		
BMP Time 2	▼	
Scenario 3		
Select Scenario	▼	
Scenario 4		

10) In the result of this, click on the loads tab to compare the difference in loads between the two scenarios. Use the difference in Edge of Stream values (highlighted values below) as the load reduction achieved via adding treatment volume to your wet pond. For example, there is a difference of 222 lbs of Nitrogen between scenario 1 and 2 in the below example.

Nitrogen Loads (Ibs/yr) 💿						
Load Source	BMP Time 1 (Edge of Stream)	BMP Time 2 (Edge of Stream)	BMP Time 1 (Edge of Tide)	BMP Time 2 (Edge of Tide)		
Sector: Agriculture						
	23,336.24	23,336.24	15,145.38	15,145.38		
Sector: Developed						
	7,393.21	7,192.61	4,816.94	4,686.24		
Sector: Natural						
	16,128.77	16,107.92	10,523.68	10,510.09		
<ul> <li>Sector: Septic</li> </ul>						
	6,705.93	6,705.93	4,369.15	4,369.15		
<ul> <li>Sector: Wastewater</li> </ul>						
	0.00	0.00	0.00	0.00		
	<mark>- 53,564.16</mark>	53,34 <mark>2.71</mark>	34,855.16	34,710.87		

11) Save screen shots of the compare scenarios pages showing differences in loads as a pdf. Upload this pdf with your Trust Fund Application in <u>Grants Gateway</u> under the "FieldDoc Documents" file upload.