



**Maryland**  
Department of  
the Environment

# **Tracking Voluntary Wetland Enhancement Gains in Maryland**

**Denise Clearwater  
Wetlands and Waterways Program  
Maryland Department of the Environment**

**Presentation to Chesapeake Bay Program Wetlands  
Workgroup**

**February 15, 2022**



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**MD began comprehensive tracking of wetland gains in 1998, in response to Governor's goal to create, restore, enhance 60,000 acres of wetlands.**

**The 2000 Chesapeake Bay Agreement established a goal to restore 25,000 acres of wetlands by 2010.**

**Wetland Gain Goal in MD Coastal Bays – 10,000 acres**

**2014 Chesapeake Bay Agreement – establish 85,000 acre and enhance 150,000 acres by 2025**



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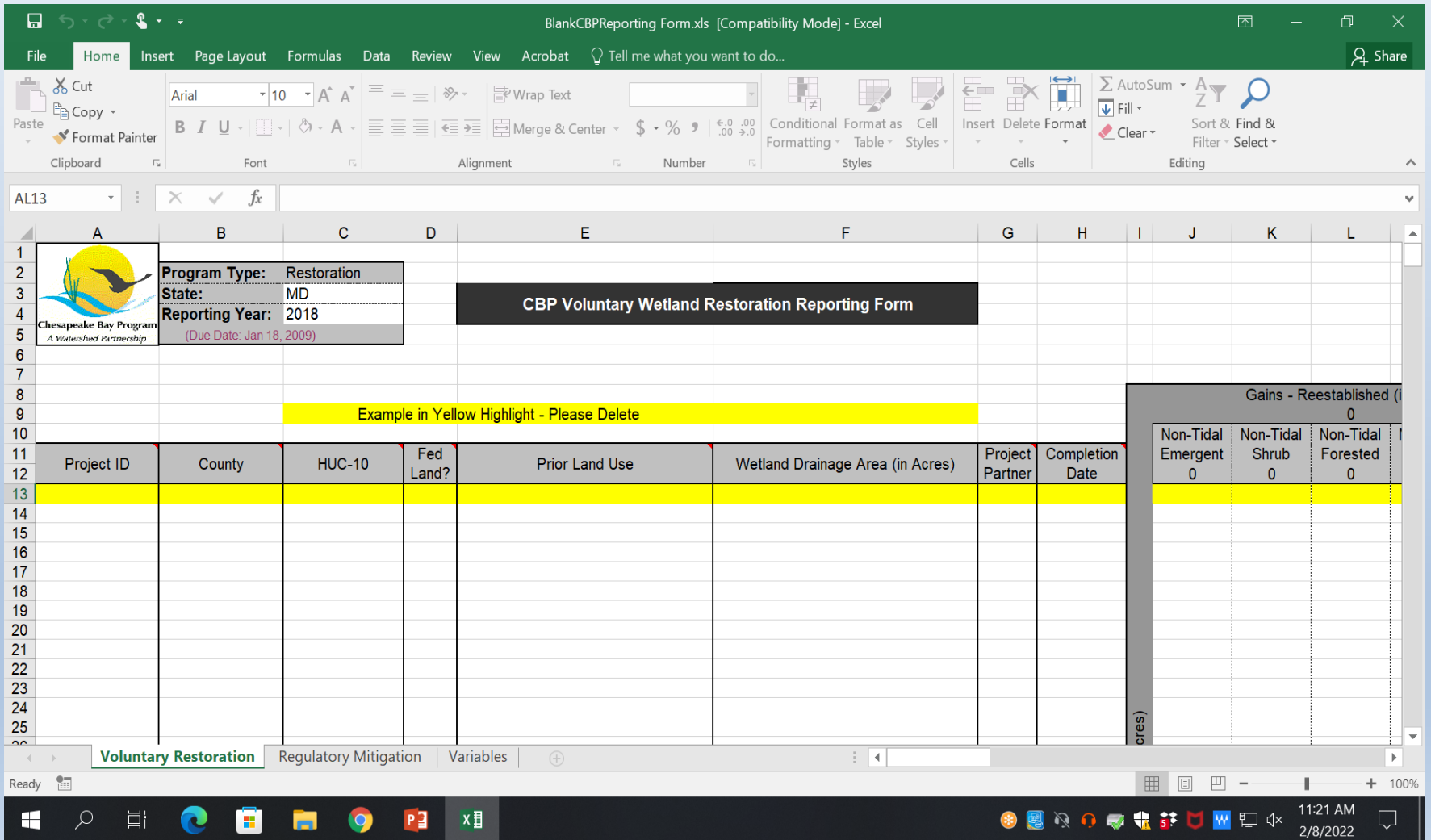
***Rehabilitation*** means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

***Enhancement*** means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.



MDE began contacting agencies and organizations involved with wetland restoration

Federal Agencies	State agencies	Private organizations	Multi-entity
Natural Resources Conservation Service	MD Dept. of Environment	Ducks Unlimited	Coastal Bays Program
U.S. Fish and Wildlife Service	MD Department of Natural Resources	Chesapeake Wildlife Heritage	
U.S. Army Corps of Engineers	MD Department of Agriculture	The Nature Conservancy	





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7																				
8			Gains - Established (in Acres)						Functional Gains - Enhanced (in Acres)						Functional Gains - Rehabilitated (in Acres)					
9			5						10						0					
10			Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal		Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal		Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal	Non-Tidal
11			Emergent	Shrub	Forested	Other			Emergent	Shrub	Forested	Other			Emergent	Shrub	Forested	Other		Emergent
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Voluntary Restoration Regulatory Mitigation Variables

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8		Functional Gains - Rehabilitated (in Acres)						Protection - Long-term (in Acres)						Protection - Short-term (in Acres)					Change Type
9		0						0						0					<~~Totals
10		Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal		Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal		Non-Tidal	Non-Tidal	Non-Tidal	Non-Tidal	Tidal	Wetland Type
11		Emergent	Shrub	Forested	Other			Emergent	Shrub	Forested	Other			Emergent	Shrub	Forested	Other		<~~Totals
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Voluntary Restoration Regulatory Mitigation Variables

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County	Federal ID#	Project Name (preferred)	Partners	Program/ funding source	Previous Land Use	Wetland Type	Project Type (See below)	Wetlands (ac.)	Watershed	Lat/Long (optional)	Drainage Area to project	Date completed Mo/year

### Project types

Creation = wetland where one did not exist

Restoration = re-establishment of former wetland

Rehabilitation = return to original functions in existing wetland. Includes actions to bring back previous hydrology.

Enhancement = improvement to selected function in existing wetland





# Enhancement/Rehabilitation Gains

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## Modifications to Hydrology

**Ditch plugs in forested wetlands (credited as rehabilitation)**

- **May or may not be obvious. Often shown as high acreages, suggested existing rather than new resources. Existing land use is forested. NRCS 657.**
- **Stormwater facilities (credited, but not as wetland acreage). Used in early years for State gain reporting.**



# Enhancement/Rehabilitation Gains

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## Modifications to Hydrology cont.

**Floodplain reconnection- may only be counted once, e.g. stream restoration Generally not uniquely reported. Outcomes may range from new acreage, rehabilitation, enhancement, to loss**

**Water level management in wetlands for waterfowl.  
Needed from Wildlife units.**

**Levee breaches - Pocomoke**



# Enhancement/Rehabilitation Gains

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## Vegetation Management

### Phragmites eradication

Challenge to track due to multi year treatment  
No longer track as gain

**Nutria eradication > 180,000 acres between 2003-2014**



# Enhancement/Rehabilitation Gains

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## **Vegetation Management cont.**

**Other vegetation management actions: woody vegetation removal in Delmarva Bays, bog turtle habitat**

**Other: Thin layer dredge disposal**



# Reporting for State Use, Chesapeake Bay TMDL Crediting, other CBP Gains

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## Challenges in Reporting:

### What Counts: (Bay TMDL)

**Acreage Gain: Creation (establishment) and Restoration (re-establishment)**

**Functional Gain: Restoration (Rehabilitation)**

### What Does Not Count: (Bay TMDL)

**Gain in some functions with possible decline in others:  
Enhancement**

**Acreage or functional gain under other BMP category**



## **Other Potential Sources**

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### **Credits from Other BMPs**

- **Tidal Wetland Gains - Shoreline stabilization**
- **Enhancement/Rehabilitation -Stream restoration (generally not reported separately)**
- **Riparian forest buffer (hydric soils)**
- **Stormwater wetlands (need size, not area treated)**

### **Non-BMPs**

#### **Wildlife Enhancements**



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## **State Use:**

**Establishment, Re-establishment, Rehabilitation,  
Enhancement**

**Rehabilitation and Enhancement Combined in Summary  
Reporting**

## **Result:**

**Different Numbers from State vs. TMDL vs. Other CBP Goal  
Reporting**



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## **Challenge of Accurate Numbers**

**Multiple partners for same project. Must cross check**

**Dates (multiple years)**

**Acreages**

**Identifiers**

**Project/wetland type**

**Category of project – may require follow up questions**





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Wetland Gains-Reestablished

	H	I	J	K	M	N	O	P	Q	R	S	AC	AD	AE	
	EMAIL	BMP_ID	BMP_NAME	BMP_CIMD	NORTH	MD	EAST	LAT	LONG	County	Watershed	ADDR	BMP Size	RUNOF	BUILT_DATE
1	Gregorio.Sandi@maryland.gov											1800 Washington Blvd.			
2															
3															
4															
5															
6															
7															
8	Denise.Clearwater@maryland.gov	Back Creek	Tidal shoreline-gain							24003	02060004		0.25	10/1/2005	
9	Denise.Clearwater@maryland.gov	Carroll Creek-a	Wetland Gains-Reestablished							24021	02070009		1.5	5/1/2005	
10	Denise.Clearwater@maryland.gov	Carroll Creek-b	Wetland Gains-Reestablished							24021	02070009		1.5	5/1/2005	
11	Denise.Clearwater@maryland.gov	FWS-4440	Wetland Rehabilitation							24019	02060007		3.1	9/30/2005	
12	Denise.Clearwater@maryland.gov	Hart Miller Island	Wetland Gains-Established							24005			95	12/31/2005	
13	Denise.Clearwater@maryland.gov	MD-13-8-1a	Wetland Gains-Reestablished							24021	02070009040		12.4	4/15/05	
14	Denise.Clearwater@maryland.gov	MD-13-8-1b	Wetland Gains-Established							24021	02070009040		2	4/15/05	
15	Denise.Clearwater@maryland.gov	MD-13-8-2	Wetland Gains-Reestablished							24019	02060008010		12.4	4/15/05	
16	Denise.Clearwater@maryland.gov	MD-13-8-3	Wetland Gains-Reestablished							24021	02070009060		5	4/15/05	
17	Denise.Clearwater@maryland.gov	MD-13-8-4	Wetland Gains-Reestablished							24021	02070009060		19	4/15/05	
18	Denise.Clearwater@maryland.gov	MD-13-8-5	Wetland Gains-Reestablished							24019	02060007010		2	4/15/05	
19	Denise.Clearwater@maryland.gov	MD-13-8-6	Wetland Gains-Reestablished							24021	02070008010		8	4/15/05	
20	Denise.Clearwater@maryland.gov	MD-13-8-7	Wetland Gains-Reestablished							24043	02070004400		8.8	4/15/05	
21	Denise.Clearwater@maryland.gov	MD-37-2	Wetland Gains-Reestablished							24037	02060002180		10.6	6/1/05	
22	Denise.Clearwater@maryland.gov	MD-51-1	Wetland Functional Gains - Enhanced							24033	02060006020		5	6/30/05	
23	Denise.Clearwater@maryland.gov	MD-56-11	Wetland Functional Gains - Enhanced							24035	02060002180		130	10/10/05	
24	Denise.Clearwater@maryland.gov	MD-56-14-1	Wetland Functional Gains - Enhanced							24041	02060005220		4	7/15/05	
25	Denise.Clearwater@maryland.gov	MD-56-14-2	Wetland Functional Gains - Enhanced							24041	02060005220		2	12/1/05	
26	Denise.Clearwater@maryland.gov	MD-56-14-3	Wetland Functional Gains - Enhanced							24041	02060005220		7	10/5/05	
27	Denise.Clearwater@maryland.gov	MD-56-16-1	Wetland Functional Gains - Enhanced							24045	02060008060		4	10/15/05	
28	Denise.Clearwater@maryland.gov	MD-56-16-2	Wetland Functional Gains - Enhanced							24045	02060008060		2	7/26/05	
29	Denise.Clearwater@maryland.gov	MD-56-16-3	Wetland Functional Gains - Enhanced							24045	02060008060		5	10/15/05	

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## **MD Statewide Gains since 1998 – 2020 (not limited to TMDL)**

**Restoration (Re-establishment) 11,933**

**Creation: (Establishment) 1,745**

**Enhancement+ Rehabilitation: 203,108**



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**For more information, contact:**

**Denise Clearwater  
Special Projects Coordinator  
Wetlands and Waterways Program  
Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230  
[denise.clearwater@maryland.gov](mailto:denise.clearwater@maryland.gov)**