



Chesapeake Bay Restoration

2021 Progress Scenario BMP Excess

Jeff Sweeney
EPA, Chesapeake Bay Program Office
Watershed Technical Workgroup
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2021 Progress BMP Excess

- The excess analysis used detailed (land-river segment) Submitted-Versus-Credited reports for the 2/11/22 version of the 2021 Progress scenario.
- The tables presented are summaries from that data.
 - Top table identifies excess for different unit types.
 - Bottom table shows excess for individual CBP BMP categories for the top 15 categories with excess (w/ the exception of DC where there is no excess).



2021 Progress BMP Excess

- The many individual cover crop categories are summed to Cover Crops, Commodity Cover Crops, and Cover Crops w/ Fall Nutrient.
- The upland benefit acres are included in the list of BMPs.
- Excess only includes the amount in the CB watershed with the exception of Manure Transport which is full county.
- “Available BMP Domain” = “Amount Credited” and means the reported implementation units exceed the amount available for the BMP in the domain. This is a reported 100% implementation level.



2021 Progress BMP Excess

Key Issues Among States

- Animal Waste Management Systems
 - Broilers, layers, pullets, turkeys, beef, and dairy
 - AUs in NY, PA, MD, VA, WV, and DE
- Mortality Composters
 - Broilers, layers, pullets, turkeys, and hogs for slaughter
 - AUs in PA, MD, VA, WV, and DE
- Nutrient Management Core N and Core P
 - Acres in NY, PA, MD, VA, and DE
- Commodity Cover Crops and Cover Crops
 - Acres in PA, MD, VA, WV, and DE
- Tillage Management – Continuous High, Low Residue, and Conservation
 - Acres in MD and DE
- Wet Ponds and Wetlands
 - Acres for DOD (PA), NASA (MD), Other Federal (MD)



CB Watershed 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	9,767,603	5,364,554	4,403,048	55%
AllLandBMPs		Acres	16,883,633	16,257,346	626,287	96%
ManureTransport	AllAnimals	dry tons	295,522	274,338	21,185	93%
AllLandBMPs		Feet	4,203,881	4,196,953	6,928	100%
AllLandBMPs		Systems	71,562	70,534	1,029	99%
AllLandBMPs		Lbs	671,878	671,878	0	100%
AllLandBMPs		Oysters Harv	40,567,797	40,567,797	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Mortality Composters	broilers	Animal Units	2,423,976	244,494	2,179,482	10%
Animal Waste Management System	broilers	Animal Units	5,825,259	4,166,291	1,658,968	72%
Animal Waste Management System	pullets	Animal Units	217,014	6,048	210,966	3%
Animal Waste Management System	dairy	Animal Units	427,617	291,678	135,939	68%
Nutrient Management Core N		Acres	2,611,961	2,495,423	116,539	96%
Nutrient Management Core P		Acres	2,512,544	2,396,521	116,023	95%
Animal Waste Management System	layers	Animal Units	131,919	25,662	106,257	19%
Commodity Cover Crop		Acres	323,309	247,603	75,706	77%
Tillage Management-Low Residue		Acres	356,162	293,306	62,856	82%
Animal Waste Management System	turkeys	Animal Units	149,612	87,913	61,699	59%
Tillage Management-Conservation		Acres	875,239	816,054	59,185	93%
Tillage Management-Continuous High Residue		Acres	1,965,372	1,907,075	58,297	97%
Wet Ponds and Wetlands		Acres	226,465	202,365	24,100	89%
Cover Crop		Acres	1,071,495	1,051,036	20,459	98%
Animal Waste Management System	beef	Animal Units	69,563	51,597	17,966	74%



New York 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	227,915	171,145	56,771	75%
AllLandBMPs		Acres	1,195,791	1,159,857	35,934	97%
AllLandBMPs		Feet	45,990	45,990	0	100%
AllLandBMPs		Lbs	12,600	12,600	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Animal Waste Management System	dairy	Animal Units	131,056	84,786	46,270	65%
Nutrient Management Core P		Acres	120,209	114,884	5,324	96%
Nutrient Management Core N		Acres	120,209	114,884	5,324	96%
Nutrient Management N Timing		Acres	100,531	96,707	3,824	96%
Nutrient Management P Placement		Acres	103,887	100,063	3,824	96%
Nutrient Management P Rate		Acres	104,673	100,849	3,824	96%
Nutrient Management N Placement		Acres	104,779	100,955	3,824	96%
Nutrient Management P Timing		Acres	100,130	96,306	3,824	96%
Nutrient Management N Rate		Acres	104,901	101,077	3,824	96%
Access Area-Streamside with Exclusion Fencing	dairy	Animal Units	35,826	32,649	3,177	91%
Access Area-Streamside with Exclusion Fencing	beef	Animal Units	12,000	9,330	2,671	78%
Access Area-Streamside with Exclusion Fencing	other cattle	Animal Units	13,374	10,804	2,570	81%
Advanced Sweeping Technology - 1 pass/12 weeks		Acres	3,868	1,773	2,095	46%
Access Area-Streamside with Exclusion Fencing	horses	Animal Units	10,759	9,330	1,430	87%
Animal Waste Management System	other cattle	Animal Units	3,109	2,784	325	90%



Pennsylvania 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	1,693,115	1,267,451	425,664	75%
AllLandBMPs		Acres	3,833,138	3,771,774	61,364	98%
ManureTransport	AllAnimals	dry tons	174,116	153,613	20,502	88%
AllLandBMPs		Feet	2,803,962	2,803,962	0	100%
AllLandBMPs		Systems	24,562	24,562	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Animal Waste Management System	broilers	Animal Units	1,155,141	923,530	231,611	80%
Animal Waste Management System	layers	Animal Units	123,107	17,337	105,770	14%
Mortality Composters	broilers	Animal Units	131,212	52,238	78,973	40%
Commodity Cover Crop		Acres	110,614	70,859	39,754	64%
Manure Transport	layers	dry tons	11,109	340	10,770	3%
Nutrient Management Core N		Acres	542,751	533,893	8,858	98%
Nutrient Management Core P		Acres	542,093	533,793	8,300	98%
Animal Waste Management System	pullets	Animal Units	8,541	2,063	6,478	24%
Cover Crop		Acres	341,524	338,149	3,375	99%
Manure Transport	broilers	dry tons	17,178	14,590	2,588	85%
Manure Transport	layers	dry tons	4,126	1,751	2,375	42%
Animal Waste Management System	hogs for slaughter	Animal Units	28,612	26,947	1,665	94%
Manure Transport	pullets	dry tons	5,801	4,309	1,492	74%
Manure Transport	turkeys	dry tons	2,426	1,102	1,324	45%
Manure Transport	broilers	dry tons	1,296	97	1,199	7%



Maryland 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	3,474,577	1,734,035	1,740,542	50%
AllLandBMPs		Acres	6,596,489	6,428,085	168,404	97%
AllLandBMPs		Feet	750,697	744,004	6,693	99%
ManureTransport	AllAnimals	dry tons	73,729	73,047	682	99%
AllLandBMPs		Systems	17,691	17,645	46	100%
AllLandBMPs		Lbs	181,663	181,663	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Mortality Composters	broilers	Animal Units	1,005,180	80,652	924,528	8%
Animal Waste Management System	broilers	Animal Units	2,276,005	1,547,905	728,099	68%
Animal Waste Management System	dairy	Animal Units	108,534	39,601	68,933	36%
Nutrient Management Core N		Acres	1,060,990	1,028,035	32,956	97%
Nutrient Management Core P		Acres	1,060,990	1,028,035	32,956	97%
Commodity Cover Crop		Acres	165,444	137,450	27,994	83%
Animal Waste Management System	beef	Animal Units	33,134	15,901	17,233	48%
Cover Crop		Acres	434,426	420,197	14,229	97%
Tillage Management-Continuous High Residue		Acres	647,072	634,570	12,502	98%
Advanced Sweeping Technology - 2 pass/week		Acres	16,260	4,388	11,872	27%
Advanced Sweeping Technology - 1 pass/4 weeks		Acres	11,186	1,610	9,576	14%
Urban Shoreline Management		Feet	69,946	63,253	6,693	90%
Dry Detention Ponds and Hydrodynamic Structures		Acres	59,643	53,060	6,583	89%
Filtering Practices		Acres	14,646	10,541	4,106	72%
Tillage Management-Conservation		Acres	194,122	190,371	3,750	98%



Virginia 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	981,794	737,964	243,830	75%
AllLandBMPs		Acres	3,925,689	3,775,733	149,956	96%
AllLandBMPs		Systems	21,182	20,199	983	95%
AllLandBMPs		Feet	384,728	384,493	235	100%
AllLandBMPs		Oysters Harv	40,567,797	40,567,797	0	100%
ManureTransport	AllAnimals	dry tons	17,635	17,635	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Animal Waste Management System	pullets	Animal Units	206,196	1,933	204,263	1%
Nutrient Management Core P		Acres	649,056	584,851	64,205	90%
Nutrient Management Core N		Acres	649,071	584,909	64,162	90%
Animal Waste Management System	broilers	Animal Units	454,070	427,316	26,755	94%
Commodity Cover Crop		Acres	35,487	29,070	6,417	82%
Animal Waste Management System	dairy	Animal Units	25,825	22,178	3,647	86%
Access Area-Streamside with Exclusion Fencing	beef	Animal Units	110,126	106,886	3,240	97%
Nutrient Management P Placement		Acres	110,513	107,726	2,787	97%
Precision Intensive Rotational/Prescribed Grazing		Acres	255,580	252,871	2,709	99%
Mortality Composters	hogs for slaughter	Animal Units	2,428	270	2,158	11%
Off Stream Watering Without Fencing		Acres	295,276	293,320	1,956	99%
Forest Harvesting Practices		Acres	71,164	69,412	1,751	98%
Nutrient Management N Timing		Acres	142,260	141,048	1,212	99%
Mortality Composters	turkeys	Animal Units	7,269	6,103	1,166	84%
Cover Crop		Acres	154,541	153,488	1,053	99%



West Virginia 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	437,777	361,296	76,480	83%
AllLandBMPs		Acres	274,426	273,436	990	100%
AllLandBMPs		Systems	1,421	1,421	0	100%
AllLandBMPs		Feet	74,017	74,017	0	100%
ManureTransport	AllAnimals	dry tons	4,297	4,297	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Animal Waste Management System	turkeys	Animal Units	121,124	60,321	60,803	50%
Mortality Composters	broilers	Animal Units	20,025	13,086	6,939	65%
Mortality Composters	turkeys	Animal Units	7,455	4,223	3,232	57%
Access Area-Streamside with Exclusion Fencing	beef	Animal Units	24,524	22,080	2,444	90%
Mortality Composters	layers	Animal Units	2,003	496	1,507	25%
Commodity Cover Crop		Acres	5,871	4,935	936	84%
Access Area-Streamside with Exclusion Fencing	other cattle	Animal Units	6,883	6,296	587	91%
Animal Waste Management System	dairy	Animal Units	476	61	415	13%
Mortality Composters	pullets	Animal Units	601	209	391	35%
Animal Waste Management System	pullets	Animal Units	1,909	1,765	145	92%
Barnyard Runoff Control		Acres	317	292	26	92%
Loafing Lot Management		Acres	69	50	19	72%
Access Area-Streamside with Exclusion Fencing	dairy	Animal Units	821	810	10	99%
Cover Crop		Acres	1,303	1,294	9	99%
Access Area-Streamside with Exclusion Fencing	goats	Animal Units	28	25	4	87%



Delaware 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	2,952,424	1,092,663	1,859,761	37%
AllLandBMPs		Acres	1,009,732	823,293	186,439	82%
AllLandBMPs		Feet	3,744	3,744	0	100%
AllLandBMPs		Systems	6,706	6,706	0	100%
ManureTransport	AllAnimals	dry tons	25,746	25,746	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Mortality Composters	broilers	Animal Units	1,220,472	51,788	1,168,684	4%
Animal Waste Management System	broilers	Animal Units	1,705,188	1,032,685	672,503	61%
Tillage Management-Low Residue		Acres	127,180	64,325	62,856	51%
Tillage Management-Conservation		Acres	111,637	56,202	55,435	50%
Tillage Management-Continuous High Residue		Acres	92,545	46,749	45,796	51%
Animal Waste Management System	dairy	Animal Units	19,052	2,379	16,673	12%
Nutrient Management Core N		Acres	140,196	134,958	5,238	96%
Nutrient Management Core P		Acres	140,196	134,958	5,238	96%
Nutrient Management P Rate		Acres	133,638	128,832	4,806	96%
Barnyard Runoff Control		Acres	2,818	497	2,321	18%
Grass Buffer Upland N Benefit		Acres	19,275	17,396	1,879	90%
Cover Crop		Acres	134,126	132,333	1,793	99%
Animal Waste Management System	hogs and pigs for breeding	Animal Units	1,287	167	1,120	13%
Commodity Cover Crop		Acres	3,580	2,977	604	83%
Animal Waste Management System	beef	Animal Units	1,155	724	430	63%



District of Columbia 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllLandBMPs		Acres	4,350	4,350	0	100%
AllLandBMPs		Feet	18,507	18,507	0	100%
AllLandBMPs		Lbs	477,615	477,615	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Advanced Sweeping Technology - 1 pass/12 weeks		Acres	140	140	0	100%
Advanced Sweeping Technology - 1 pass/2 weeks		Acres	51	51	0	100%
Advanced Sweeping Technology - 1 pass/4 weeks		Acres	190	190	0	100%
Advanced Sweeping Technology - 1 pass/8 weeks		Acres	149	149	0	100%
Advanced Sweeping Technology - 1 pass/week		Acres	11	11	0	100%
Advanced Sweeping Technology - 2 pass/week		Acres	1	1	0	100%
Bioretention/raingardens - A/B soils, underdrain		Acres	134	134	0	100%
Bioretention/raingardens - C/D soils, underdrain		Acres	69	69	0	100%
Bioswale		Acres	32	32	0	100%
Conservation Landscaping Practices		Acres	4	4	0	100%
Dry Detention Ponds and Hydrodynamic Structures		Acres	217	217	0	100%
Erosion and Sediment Control Level 2		Acres	225	225	0	100%
Filtering Practices		Acres	1,757	1,757	0	100%
Impervious Surface Reduction		Acres	23	23	0	100%
Infiltration Practices w/o Sand, Veg. - A/B soils, no underdrain		Acres	29	29	0	100%



Federal Facilities



Department of Defense 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
DOD	PA	AIIBMPs	Acres	26,994	5,523	21,471	20%
DOD	VA	AIIBMPs	Acres	8,605	8,299	306	96%
DOD	MD	AIIBMPs	Acres	5,512	5,416	96	98%
DOD	NY	AIIBMPs	Acres	23	13	10	57%
DOD	MD	AIIBMPs	Feet	57,187	57,187	0	100%
DOD	VA	AIIBMPs	Feet	11,817	11,817	0	100%
DOD	PA	AIIBMPs	Feet	9,408	9,408	0	100%
DOD	DC	AIIBMPs	Acres	301	301	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
DOD	PA	Wet Ponds and Wetlands	Acres	23,911	2,921	20,990	12%
DOD	PA	Stormwater Performance Standard-Stormwater Treatment	Acres	336	143	192	43%
DOD	VA	Advanced Sweeping Technology - 1 pass/12 weeks	Acres	456	272	184	60%
DOD	PA	Dry Detention Ponds and Hydrodynamic Structures	Acres	1,618	1,463	155	90%
DOD	MD	Stormwater Performance Standard-Stormwater Treatment	Acres	2,499	2,405	93	96%
DOD	PA	Stormwater Performance Standard-Runoff Reduction	Acres	372	308	64	83%
DOD	VA	Advanced Sweeping Technology - 1 pass/4 weeks	Acres	340	277	63	81%
DOD	PA	Infiltration Practices w/ Sand, Veg. - A/B soils, no underdrain	Acres	57	7	50	12%
DOD	VA	Nutrient Management Plan Low Risk Lawn	Acres	1,290	1,257	33	97%
DOD	PA	Forest Harvesting Practices	Acres	12	0	12	0%
DOD	VA	Stormwater Performance Standard-Runoff Reduction	Acres	1,022	1,011	11	99%
DOD	NY	Infiltration Practices w/ Sand, Veg. - A/B soils, no underdrain	Acres	16	8	9	47%
DOD	VA	Advanced Sweeping Technology - 1 pass/week	Acres	31	22	9	72%
DOD	PA	Dry Extended Detention Ponds	Acres	47	41	6	88%
DOD	VA	Advanced Sweeping Technology - 2 pass/week	Acres	7	3	4	45%



GSA 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
GSA	MD	AllBMPs	Acres	210	175	35	84%
GSA	DC	AllBMPs	Acres	125	125	0	100%
GSA	PA	AllBMPs	Acres	0	0	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
GSA	MD	Dry Extended Detention Ponds	Acres	150	115	35	77%
GSA	DC	Bioretention/raingardens - A/B soils, underdrain	Acres	0	0	0	100%
GSA	MD	Bioretention/raingardens - A/B soils, underdrain	Acres	2	2	0	100%
GSA	MD	Bioretention/raingardens - C/D soils, underdrain	Acres	1	1	0	100%
GSA	DC	Bioretention/raingardens - C/D soils, underdrain	Acres	9	9	0	100%
GSA	DC	Bioswale	Acres	0	0	0	100%
GSA	DC	Dry Detention Ponds and Hydrodynamic Structures	Acres	3	3	0	100%
GSA	MD	Dry Detention Ponds and Hydrodynamic Structures	Acres	8	8	0	100%
GSA	MD	Filtering Practices	Acres	1	1	0	100%
GSA	DC	Filtering Practices	Acres	21	21	0	100%
GSA	DC	Infiltration Practices w/o Sand, Veg. - A/B soils, no underdrain	Acres	0	0	0	100%
GSA	DC	Permeable Pavement w/o Sand, Veg. - A/B soils, no underdrain	Acres	0	0	0	100%
GSA	PA	Sewer Connection	Acres	0	0	0	100%
GSA	MD	Sewer Connection	Acres	1	1	0	100%
GSA	DC	Stormwater Performance Standard-Runoff Reduction	Acres	90	90	0	100%



NASA 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
NASA	MD	AIIBMPs	Acres	603	349	254	58%
NASA	VA	AIIBMPs	Acres	235	68	167	29%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
NASA	MD	Wet Ponds and Wetlands	Acres	539	302	237	56%
NASA	VA	Advanced Sweeping Technology - 1 pass/12 weeks	Acres	204	44	160	22%
NASA	MD	Stormwater Performance Standard-Stormwater Treatment	Acres	47	33	14	70%
NASA	VA	Erosion and Sediment Control Level 2	Acres	7	0	7	0%
NASA	MD	Dry Detention Ponds and Hydrodynamic Structures	Acres	5	2	2	50%
NASA	MD	Dry Extended Detention Ponds	Acres	7	7	1	90%
NASA	MD	Bioretention/raingardens - A/B soils, underdrain	Acres	0	0	0	100%
NASA	VA	Filtering Practices	Acres	1	1	0	100%
NASA	VA	Forest Buffer	Acres	2	2	0	100%
NASA	VA	Forest Planting	Acres	1	1	0	100%
NASA	VA	Impervious Surface Reduction	Acres	10	10	0	100%
NASA	MD	Stormwater Performance Standard-Runoff Reduction	Acres	4	4	0	100%
NASA	VA	Stormwater Performance Standard-Runoff Reduction	Acres	9	9	0	100%
NASA	VA	Urban Forest Buffer Upland Benefit	Acres	2	2	0	100%



National Park Service 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
NPS	VA	AllBMPs	Feet	3,722	3,722	0	100%
NPS	DC	AllBMPs	Feet	850	850	0	100%
NPS	DC	AllBMPs	Acres	68	68	0	100%
NPS	VA	AllBMPs	Acres	34	34	0	100%
NPS	PA	AllBMPs	Acres	4	4	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
NPS	VA	Bioretention/raingardens - A/B soils, underdrain	Acres	1	1	0	100%
NPS	DC	Bioretention/raingardens - A/B soils, underdrain	Acres	10	10	0	100%
NPS	DC	Bioswale	Acres	0	0	0	100%
NPS	VA	Dry Detention Ponds and Hydrodynamic Structures	Acres	3	3	0	100%
NPS	DC	Filtering Practices	Acres	34	34	0	100%
NPS	VA	Forest Buffer	Acres	1	1	0	100%
NPS	VA	Forest Planting	Acres	25	25	0	100%
NPS	VA	Impervious Surface Reduction	Acres	0	0	0	100%
NPS	PA	Impervious Surface Reduction	Acres	3	3	0	100%
NPS	VA	Permeable Pavement w/ Sand, Veg. - A/B soils, no underdrain	Acres	0	0	0	100%
NPS	DC	Permeable Pavement w/o Sand, Veg. - A/B soils, no underdrain	Acres	0	0	0	100%
NPS	DC	Stormwater Performance Standard-Runoff Reduction	Acres	22	22	0	100%
NPS	PA	Tree Planting - Canopy	Acres	1	1	0	100%
NPS	VA	Tree Planting - Canopy	Acres	1	1	0	100%
NPS	DC	Tree Planting - Canopy	Acres	2	2	0	100%



Smithsonian 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Smithsonian	DC	AllBMPs	Acres	51	51	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Smithsonian	DC	Bioretention/raingardens - A/B soils, underdrain	Acres	10	10	0	100%
Smithsonian	DC	Bioretention/raingardens - C/D soils, underdrain	Acres	0	0	0	100%
Smithsonian	DC	Dry Detention Ponds and Hydrodynamic Structures	Acres	3	3	0	100%
Smithsonian	DC	Filtering Practices	Acres	36	36	0	100%
Smithsonian	DC	Stormwater Performance Standard-Runoff Reduction	Acres	2	2	0	100%
Smithsonian	DC	Tree Planting - Canopy	Acres	0	0	0	100%



US Fish and Wildlife 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
USFWS	MD	AllBMPs	Feet	25,600	25,600	0	100%
USFWS	MD	AllBMPs	Acres	2	2	0	100%
USFWS	PA	AllBMPs	Acres	1	1	0	100%
USFWS	VA	AllBMPs	Acres	0	0	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
USFWS	MD	Bioretention/raingardens - A/B soils, underdrain	Acres	2	2	0	100%
USFWS	MD	Dirt & Gravel Road Erosion & Sediment Control - Driving Surface Aggregate	Feet	4,500	4,500	0	100%
USFWS	MD	Dry Extended Detention Ponds	Acres	0	0	0	100%
USFWS	PA	Filtering Practices	Acres	1	1	0	100%
USFWS	VA	Impervious Surface Reduction	Acres	0	0	0	100%
USFWS	MD	Non Urban Stream Restoration	Feet	21,100	21,100	0	100%
USFWS	VA	Wet Ponds and Wetlands	Acres	0	0	0	100%



US Forest Service 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
USFS	VA	AllBMPs	Acres	52	26	26	50%
USFS	VA	AllBMPs	Feet	2,640	2,640	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
USFS	VA	Non Urban Stream Restoration	Feet	2,640	2,640	0	100%
USFS	VA	Wetland Rehabilitation	Acres	26	26	0	100%
USFS	VA	Wetland Rehabilitation Upland Benefit	Acres	26	0	26	0%



Other Federal Land 2021 Progress BMP Excess

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Other Federal	VA	AllBMPs	Acres	822	46	776	6%
Other Federal	MD	AllBMPs	Acres	191	131	60	69%
Other Federal	DC	AllBMPs	Feet	9,395	9,395	0	100%
Other Federal	VA	AllBMPs	Feet	1,613	1,613	0	100%
Other Federal	DC	AllBMPs	Acres	184	184	0	100%
Other Federal	MD	AllBMPs	Feet	4	4	0	100%

Agency	Geography	BMPFullName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Other Federal	VA	Forest Harvesting Practices	Acres	776	0	776	0%
Other Federal	MD	Tree Planting - Canopy	Acres	79	48	31	61%
Other Federal	MD	Wet Ponds and Wetlands	Acres	88	58	29	66%
Other Federal	VA	Bioretention/raingardens - A/B soils, underdrain	Acres	4	4	0	100%
Other Federal	DC	Bioretention/raingardens - A/B soils, underdrain	Acres	4	4	0	100%
Other Federal	MD	Bioretention/raingardens - A/B soils, underdrain	Acres	5	5	0	100%
Other Federal	DC	Bioretention/raingardens - C/D soils, underdrain	Acres	1	1	0	100%
Other Federal	VA	Bioswale	Acres	0	0	0	100%
Other Federal	DC	Bioswale	Acres	2	2	0	100%
Other Federal	MD	Bioswale	Acres	4	4	0	100%
Other Federal	MD	Dry Detention Ponds and Hydrodynamic Structures	Acres	12	12	0	100%
Other Federal	DC	Dry Detention Ponds and Hydrodynamic Structures	Acres	71	71	0	100%
Other Federal	VA	Filtering Practices	Acres	2	2	0	100%
Other Federal	MD	Filtering Practices	Acres	4	4	0	100%
Other Federal	DC	Filtering Practices	Acres	32	32	0	100%



Discussion



2021 Progress BMP Excess

- Animal Waste Management Systems
 - Broilers, layers, pullets, turkeys, beef, and dairy
 - AUs in NY, PA, MD, VA, WV, and DE
- Mortality Composters
 - Broilers, layers, pullets, turkeys, and hogs for slaughter
 - AUs in PA, MD, VA, WV, and DE



BMP Excess – Animal Unit BMPs

- Check the accuracy of permitted versus non-permitted animals for relevant animal BMPs
 - Animal Waste Management System
 - Mortality Composters
 - Access Area-Streamside with Exclusion Fencing
 - Dairy Precision Feeding and/or Forage Management
 - Poultry Litter Amendments (alum, for example)
- Provide CBP office with splits between AU in and out of the CB watershed for counties that straddle the border



Animals Per System & Mortality Fraction

	Animal count per system	AUs per system	Mortality fraction
beef	22	19.3	0.06
dairy	84	113.5	0.06
other cattle	43	12.9	0.06
swine	74	20.0	0.06
horses	7	7.0	0.06
layers	1,720	6.9	0.1
turkeys	3,744	97.7	0.07
broilers	198,096		0.05
DE		1,446.1	
MD		1,208.4	
NY		1,112.4	
PA		1,109.3	
VA		1,129.2	
WV		772.6	

Broiler populations
rooted in production
numbers according
to Poultry Litter
Expert Panel report



BMP Excess – Cover Crops

- Cover Crops and Commodity Cover Crops
 - Acres in PA, MD, VA, WV, and DE
- Cover Crops and Cover Crops w/ Fall Nutrients apply to Cropland = Double Cropped Land, Full Season Soybeans, Grain with and w/o Manure, Other Agronomic Crops, Silage with and w/o Manure, Small Grains and Grains, Specialty Crop High and Low
- Commodity Cover Crops apply to Double Cropped Land and Small Grains and Grains



BMP Excess – Cover Crops

- All cover crop types are mutually exclusive. Only one type can be on a representative acre. Excess would be the sum of all acres of all types of Cover Crops in a [county] compared to the available acres in the county.
- Commodity Cover Crops apply to Double Cropped Land and Small Grains and Grains
 - This type of cover crop is harvested in the spring and cannot receive nutrients in the fall.
 - Winter cereal grains such as winter wheat, rye, barley, and Triticale (that continue to grow in the spring) are not considered Commodity Cover Crops unless there are records that nutrients are not applied in the fall.
 - These types of winter cereal grains are captured in the Census of Agriculture which is why the model benefits (for no fall nutrients) only apply to Double Cropped Land and Small Grains and Grains.



BMP Excess – Nutrient Management

- Nutrient Management Core N and Core P
 - Acres in NY, PA, MD, VA, and DE

<i>Agriculture Practices</i>	Duration	Unit	Geography	Geography
Nutrient Application Management Core Nitrogen	annual	Acres	2,495,423	31.2%
Nutrient Application Management Rate Nitrogen	annual	Acres	682,001	8.5%
Nutrient Application Management Placement Nitrogen	annual	Acres	332,914	4.2%
Nutrient Application Management Timing Nitrogen	annual	Acres	322,498	4.0%
Nutrient Application Management Core Phosphorus	annual	Acres	2,396,521	30.0%
Nutrient Application Management Rate Phosphorus	annual	Acres	320,750	4.0%
Nutrient Application Management Placement Phosphorus	annual	Acres	289,153	3.6%
Nutrient Application Management Timing Phosphorus	annual	Acres	96,306	1.2%

- Each of the of supplemental acres cannot be more than the core



BMP Excess – Nutrient Management

- Nutrient Management Core N and Core P
 - Acres in NY, PA, MD, VA, and DE
- Understand how to report core versus supplemental
- All Nutrient Management categories are model “annual” practices
 - Annual verification w/ assessment of compliance
 - Need to keep track of acres in plans that are active versus dropped out w/ determination of compliance level w/ QAPP procedures about how levels are calculated.



BMP Excess – Tillage Management

- Tillage Management – Continuous High, Low Residue, and Conservation
 - Acres in MD and DE
- All Tillage Management categories are model “annual” practices
 - Annual verification through surveys, inspections, data sources
 - Should not be reporting previous year acres according to protocols – to be discussed at WTWG in the future.



Reducing BMP Excess

- Look for potential multiple counting among BMPs and BMP sources
- It's imperative that data sources, localities, state agencies, etc. understand the Bay Program definitions of BMPs,
 - What is a "system", Commodity Cover Crop, Riparian Forest Buffer, etc.
- For model "annual" BMPs, implementation should not be carried over from previous year according to protocols. This topic needs considerable review in the future at the WTWG.
- Follow verification guidance on minimum sample sizes (confidence levels) and spatially expanding survey and inspection data.
- Essential that BMP reporting as in the CB watershed versus out – is accurate for all BMPs at the county scale.



Reducing BMP Excess

- Follow protocols for Resource Improvement BMPs – Appendix H Chesapeake Bay Program Resource Improvement Practice Definitions and Verification Visual Indicators Report.
- Credit durations could be too long – CBPO needs more data on results of inspections, inventories, compliance levels, actions taken if not in compliance, etc.
 - For most BMPs, credit durations are the common means for dropping BMPs from the accounting that are no longer there or functional when farmland is lost. Best means would be verification.
- Remember the “Submitted Versus Credited” report is after NEIEN processing (CAST inputs versus outputs). Understand BMP losses through NEIEN processing and address issues that may be chronic.



Moving Forward

- For all BMPs of interest, please provide the CBP office with alternative data to substantiate a greater domain to apply the BMP to.
- CBPO can provide sorted submitted-versus-credited reports at land-river segment scale.
- CBP office can work with you on this:
 - Land cover data for developed land categories, total area in agriculture, forests
 - Raw Ag Census, land use after land use-change BMPs
 - Excess can be quantified for any year, 1985 – 2021 and at multiple scales
 - Help with understanding Bay Program rules for forecasts, CAST processing, additive versus multiplicative BMPs, distribution of BMPs among land uses, etc.



CB Watershed 2021 Progress BMP Excess

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
AllAnimalBMPs	AllAnimals	Animal Units	9,767,603	5,364,554	4,403,048	55%
AllLandBMPs		Acres	16,883,633	16,257,346	626,287	96%
ManureTransport	AllAnimals	dry tons	295,522	274,338	21,185	93%
AllLandBMPs		Feet	4,203,881	4,196,953	6,928	100%
AllLandBMPs		Systems	71,562	70,534	1,029	99%
AllLandBMPs		Lbs	671,878	671,878	0	100%
AllLandBMPs		Oysters Harv	40,567,797	40,567,797	0	100%

BMPFullName	AnimalName	Unit	AmountSubmitted	AvailableBMPDomain	Excess	PercentCredited
Mortality Composters	broilers	Animal Units	2,423,976	244,494	2,179,482	10%
Animal Waste Management System	broilers	Animal Units	5,825,259	4,166,291	1,658,968	72%
Animal Waste Management System	pullets	Animal Units	217,014	6,048	210,966	3%
Animal Waste Management System	dairy	Animal Units	427,617	291,678	135,939	68%
Nutrient Management Core N		Acres	2,611,961	2,495,423	116,539	96%
Nutrient Management Core P		Acres	2,512,544	2,396,521	116,023	95%
Animal Waste Management System	layers	Animal Units	131,919	25,662	106,257	19%
Commodity Cover Crop		Acres	323,309	247,603	75,706	77%
Tillage Management-Low Residue		Acres	356,162	293,306	62,856	82%
Animal Waste Management System	turkeys	Animal Units	149,612	87,913	61,699	59%
Tillage Management-Conservation		Acres	875,239	816,054	59,185	93%
Tillage Management-Continuous High Residue		Acres	1,965,372	1,907,075	58,297	97%
Wet Ponds and Wetlands		Acres	226,465	202,365	24,100	89%
Cover Crop		Acres	1,071,495	1,051,036	20,459	98%
Animal Waste Management System	beef	Animal Units	69,563	51,597	17,966	74%