

# Appendix 4-2: Water Year 2007 Permit-Level Data, Incentive Credits, and BMP Equivalent Point System and Plans

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## PERMIT LEVEL DATA AND INCENTIVE CREDITS

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The phosphorus concentrations and load data for individual farms within the Everglades Agricultural Area (EAA) basin for Water Year 2007 (WY2007) (May 1, 2006–April 30, 2007) are presented in this section in both tabular form and as a spatial distribution. Individual farms within the EAA are required to submit these permit-level data for any discharge structure as a condition of a Best Management Practices (BMP) permit issued in accordance with Chapter 40E-63, Part 1 (Rule 40E-63), Florida Administrative Code (F.A.C.). For the C-139 basin, submittal of permit-level data is not currently a mandatory requirement, but rather an optional method for individual farms to show farm-level compliance with phosphorus loads when the basin as a whole is out of compliance. The optional farm-level monitoring and farm-level compliance methodology for the C-139 basin is described in Part III of Rule 40E-63. Since the C-139 regulatory program began in WY2003, BMP permit holders in the basin have not requested the optional farm-level compliance method and therefore no data have been submitted.

**Table 1** identifies separate hydraulic drainage areas (e.g., individual farms) within the EAA basin. Drainage areas are identified according to the unit area or basin identification (ID) number. The table summarizes the area flow-weighted mean (FWM) total phosphorus (TP) concentration, observed unit area phosphorus load, and the rainfall adjusted unit area load for WY2007. **Table 1** has been updated to include five basins (East Beach Water Control District, East Shore Water Control District, Closter Farms, South Shore Drainage District, and South Florida Conservancy District) that historically discharged to Lake Okeechobee and where diversion of the majority of discharges to the Everglades was recently initiated in accordance with Everglades Forever Act requirements.

Permit-level data allows relative comparisons between farms, between water years for a single farm, and between water years and a baseline for a single farm. The South Florida Water Management District (SFWMD or District) uses such relative comparisons when considering individual farm Best Management Practices (BMP) performance with permittees. Factors that affect permit-level concentrations and loads were discussed in Chapter 3 of the *2006 South Florida Environmental Report – Volume I* (refer to *EAA Basin Permit-Level Monitoring Results*).

Permit-level data are used for compliance determination only if the EAA basin as a whole does not meet its compliance requirement. The permit-level results are not used to calculate TP reduction at the EAA basin level. The District conducts EAA basin-level monitoring; detailed results are presented in Appendix 4-1 of this volume.

**Table 1** lists the phosphorus data using the following column designations:

- *Basin ID* is a unique identifier for each hydraulic drainage area within a permit. It may represent one or more farms.
- *Early Baseline* indicates whether a farm qualifies for early baseline status by having implemented BMPs since January 1, 1994, initiated a discharge monitoring plan since January 1, 1993, and submitted specific information at the initial application period in 1992. A “Y” indicates an early baseline farm; “N” indicates that a farm does not qualify for early baseline status. If the EAA basin as a whole falls out of compliance, then the methodology applied to assess compliance at the farm level is different for early baseline and non-early baseline farms. These methodologies are described in Rule 40E-63, F.A.C.
- *Baseline Year* is the water year for which a farm established its base period load. For early baseline farms, the base period load is based on data collected between May 1, 1993, and April 30, 1994.
- *Rainfall Adjusted Unit Area Load* (pounds per acre, or lbs/ac):
  - Baseline is the TP load per unit area measured for the baseline year for a farm (includes 10-year base period rainfall adjustment). A baseline has not been calculated for two of the five Lake Okeechobee diversion basins. Three of the five Lake Okeechobee diversion basins have baselines remaining from the portions of those basins that have historically discharged into the EAA and were originally tracked in the permit-level data. A methodology to evaluate compliance at the permit level for the Lake Okeechobee diversion basins similar to that for the historic EAA areas does not exist. Development of a compliance methodology is planned for WY2008 (see Chapter 4 for detail on WY2008 EAA source control activities).
  - WY2007 is the TP load per unit area for the current water year for a farm (includes 10-year base period rainfall adjustment).
- *WY2007 Percent (%) TP Reduction* is the WY2007 load reduction for the farm compared to the baseline year.

- *WY2007 TP Concentration* (parts per billion, or ppb) is the FWM concentration for the farm for WY2007.
- *WY2007 TP Unit Area Load* (pounds per acre, or lbs/ac) is the observed TP load per unit area for the current water year for a farm.

**Table 2** lists the Everglades Agricultural Privilege area-wide incentive credit schedule and tax credits earned to date for the EAA.

**Figures 1, 2, and 3** depict the spatial distribution of TP concentrations, rainfall adjusted unit area loads, and observed unit area loads found in the EAA. These figures are graphical representations of the **Table 1** data from individual permit holders. Each basin ID is mapped as a whole, and no information is available to account for localized variations within a basin.

**Table 1.** WY2007 permit-level data for the Everglades Agricultural Area (EAA) basin.

Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
26-001-01	767.8	Y	1994	2.12	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (66.8% Sampled)
26-002-01	897.8	N	2001	Unable to Calculate	0.00	Unable to Calculate	0.00	0.0	Pasture Area with no recorded flows
26-003-01	599.2	N	1999	0.27	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (0% Sampled)
26-004-01	4501.6	N	1999	1.22	0.69	44%	0.59	113.4	
26-006-01	1198.4	N	1998	1.19	0.27	78%	0.23	118.6	
26-007-01	653.3	N	1999	2.07	0.11	95%	0.09	59.4	
26-008-01	120.0	Y	1994	2.12	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (66.8% Sampled)
26-009-01	159.8	N	1999	0.74	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (0% Sampled)
26-010-01	1231.0	N	1995	1.81	0.28	84%	0.24	397.0	
26-010-02	9961.3	N	1995	5.83	0.66	89%	0.56	122.3	
50-002-01	5656.4	Y	1994	3.21	0.99	69%	1.01	203.4	
50-002-02	9285.4	Y	1994	2.90	1.14	61%	1.17	272.0	
50-003-01	242.0	Y	1994	0.40	1.21	-203%	1.41	276.8	
50-003-02	520.0	Y	1994	0.62	1.45	-135%	1.69	197.2	
50-003-03	117.6	N	1995	0.22	1.36	-510%	1.20	268.2	
50-003-04	320.0	Y	1994	0.91	1.32	-46%	1.54	233.5	
50-004-01	908.9	Y	1994	3.68	0.19	95%	0.20	63.8	
50-005-01	319.8	Y	1994	0.91	2.66	-194%	3.11	260.3	
50-005-02	232.9	Y	1994	0.06	0.39	-531%	0.46	297.3	
50-005-03	320.0	Y	1994	0.26	0.83	-225%	0.97	268.0	
50-005-04	309.6	Y	1994	1.49	0.54	64%	0.63	249.6	
50-005-05	747.0	Y	1994	1.95	0.33	83%	0.29	270.3	
50-005-06	502.0	Y	1994	1.56	0.90	42%	1.05	302.8	
50-006-01	397.2	Y	1994	4.53	1.14	75%	1.17	168.1	
50-006-02	359.3	Y	1994	5.50	1.00	82%	0.88	201.1	
50-006-03	640.3	Y	1994	3.55	0.64	82%	0.57	98.6	
50-007-01	6472.6	Y	1994	1.56	0.78	50%	0.69	83.2	
50-007-02	5716.7	Y	1994	15.11	3.15	79%	3.24	340.7	
50-008-01	7261.2	Y	1994	0.34	0.17	51%	0.14	55.1	
50-009-02	4271.8	Y	1994	3.57	1.05	71%	1.22	72.0	
50-009-03	965.3	Y	1994	4.15	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (0.7% Sampled)

Table 1. Continued.

Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
50-009-04	317.0	N	1999	5.19	1.10	79%	0.97	116.4	
50-009-05	1479.4	Y	1994	1.54	1.96	-27%	2.28	121.4	
50-010-01	784.2	N	1995	2.42	1.96	19%	1.73	391.1	
50-010-02	5327.1	N	1994	1.80	1.01	44%	1.03	150.6	
50-010-03	5826.3	Y	1994	1.31	0.31	77%	0.30	77.4	
50-010-04	7159.0	Y	1994	4.76	0.75	84%	0.66	101.9	
50-010-06	10487.3	N	2001	1.31	0.53	60%	0.45	111.3	South Florida Conservancy District <sup>1</sup>
50-011-01	1747.7	Y	1994	2.76	0.46	83%	0.40	89.4	
50-011-03	14337.8	Y	1994	5.79	2.14	63%	1.89	446.7	
50-011-04	4066.0	Y	1994	5.21	1.83	65%	1.62	233.5	
50-011-06	638.0	N	1999	0.02	0.16	-932%	0.13	39.9	
50-012-01	1021.5	Y	1994	4.06	2.24	45%	1.98	162.3	
50-013-01	1362.6	N	1997	2.98	1.07	64%	1.10	149.8	
50-014-01	1520.4	Y	1994	1.37	0.59	57%	0.69	395.6	
50-015-01	3276.4	Y	1994	2.62	0.55	79%	0.57	169.3	
50-015-02	2554.5	Y	1994	5.28	0.47	91%	0.49	180.9	
50-016-01	1497.3	Y	1994	15.11	2.82	81%	2.90	173.1	
50-017-01	895.0	Y	1994	3.22	0.61	81%	0.72	169.4	
50-018-01	5901.5	Y	1994	2.82	0.26	91%	0.27	70.7	
50-018-02	6594.0	Y	1994	3.54	0.37	90%	0.38	73.9	
50-018-03	9062.3	Y	1994	1.98	0.69	65%	0.71	123.5	
50-018-04	1913.1	Y	1994	3.88	0.37	91%	0.31	49.4	
50-018-05	1827.1	N	1995	3.64	0.62	83%	0.53	70.3	
50-018-06	1255.1	Y	1994	1.46	0.98	33%	0.84	112.5	
50-018-07	1117.4	Y	1994	2.12	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (66.8% Sampled)
50-018-08	3208.6	Y	1994	2.28	0.76	67%	0.65	161.8	
50-018-09	1736.6	Y	1994	4.22	0.79	81%	0.67	79.8	
50-018-10	8254.4	Y	1994	3.05	1.02	66%	0.90	147.0	
50-018-11	1871.1	Y	1994	19.73	1.29	93%	1.14	123.1	
50-018-12	1655.2	Y	1994	1.78	22.24	-1148%	22.85	1751.4	
50-018-13	594.3	Y	1994	0.40	9.98	-2394%	10.25	1266.0	
50-018-14	569.9	N	1994	2.21	1.22	45%	1.42	137.8	
50-018-15	757.3	Y	1994	1.12	1.34	-19%	1.56	199.3	
50-018-16	240.0	Y	1994	4.11	0.92	78%	1.08	72.2	
50-018-17	488.1	Y	1994	3.10	1.94	37%	2.26	580.1	
50-018-18	357.7	Y	1994	0.64	0.77	-20%	0.90	59.3	
50-018-19	314.3	Y	1994	35.32	2.13	94%	2.48	90.6	
50-018-20	380.6	Y	1994	3.59	0.44	88%	0.51	50.7	
50-018-22	4481.2	Y	1994	8.18	0.58	93%	0.49	74.5	

Table 1. Continued.

Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
50-018-23	2946.0	Y	1994	2.22	0.61	72%	0.52	77.4	
50-018-24	3800.3	Y	1994	1.96	0.59	70%	0.51	62.4	
50-018-25	3808.4	Y	1994	4.99	0.36	93%	0.41	85.4	
50-019-01	568.4	Y	1994	1.54	0.35	77%	0.41	106.1	
50-019-02	1210.0	Y	1994	1.38	0.46	67%	0.53	146.1	
50-019-03	1051.4	Y	1994	0.58	0.25	57%	0.29	140.7	
50-020-01	320.0	Y	1994	3.32	3.97	-20%	3.50	305.9	
50-021-01	2558.0	Y	1994	8.92	4.42	50%	3.90	429.3	
50-022-01	320.0	Y	1994	0.80	0.10	88%	0.11	39.0	
50-023-01	278.0	Y	1994	11.83	2.38	80%	2.10	504.8	
50-024-01	574.0	N	1995	6.43	0.48	92%	0.56	121.6	
50-025-01	823.7	Y	1994	3.68	1.84	50%	1.89	1138.8	
50-027-01	2771.8	Y	1994	2.40	1.10	54%	0.97	162.0	
50-027-02	798.5	Y	1994	1.22	0.41	66%	0.36	79.2	
50-027-03	1353.1	Y	1994	2.32	0.53	77%	0.47	269.6	
50-027-04	2520.0	Y	1994	2.10	1.55	26%	1.37	267.0	
50-028-01	220.0	Y	1994	14.54	0.42	97%	0.37	41.2	
50-029-01	530.6	Y	1994	4.30	1.96	54%	2.29	249.6	
50-030-01	446.1	Y	1994	14.14	0.62	96%	0.55	118.4	
50-031-01	1608.9	Y	1994	2.56	2.79	-9%	2.46	72.3	
50-031-02	1387.0	Y	1994	5.48	3.31	40%	2.92	317.2	
50-031-03	602.4	Y	1994	8.57	4.09	52%	3.61	288.4	
50-032-01	305.7	Y	1994	0.84	0.30	64%	0.35	87.6	
50-033-02	6196.8	N	1994	12.52	1.97	84%	2.02	368.3	East Beach Drainage District <sup>1</sup>
50-034-01	7897.1	Y	1994	1.68	0.72	57%	0.64	87.0	
50-034-02	600.5	Y	1994	3.37	0.24	93%	0.21	131.0	
50-034-03	4611.8	Y	1994	4.08	0.44	89%	0.51	92.2	
50-034-04	4138.0	Y	1994	1.54	1.71	-11%	1.99	163.6	
50-035-01	478.5	Y	1994	5.74	1.47	74%	1.30	221.4	
50-035-02	1634.3	N	1997	2.98	1.07	64%	1.10	149.8	
50-035-03	205.5	N	1999	8.71	5.34	39%	5.48	85.5	
50-037-01	1568.4	Y	1994	6.70	0.00	100%	0.00	0.0	Reported no off-site discharge consistent with ERP Permit.
50-038-01	1285.0	Y	1994	3.71	0.67	82%	0.69	186.8	
50-039-01	62.5	N	1995	4.01	0.38	91%	0.33	117.6	
50-039-02	143.1	N	1995	4.25	0.06	99%	0.05	133.6	
50-040-01	216.2	N	1995	1.40	0.26	81%	0.27	56.4	
50-040-02	498.6	N	1995	3.61	0.39	89%	0.40	86.9	
50-041-01	108.8	N	1998	2.69	0.57	79%	0.51	83.6	
50-041-02	300.4	N	1998	2.44	0.84	65%	0.98	81.4	

Table 1. Continued.

Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
50-042-01	320.0	N	1995	0.14	0.42	-194%	0.49	166.2	
50-044-01	2168.8	N	1996	5.02	2.85	43%	2.93	381.5	
50-045-01	281.8	N	1995	4.35	0.37	92%	0.32	238.2	
50-045-02	160.6	N	1995	1.41	0.83	42%	0.73	193.0	
50-046-01	35.0	N	1994	2.21	1.22	45%	1.42	137.8	
50-047-01	630.3	N	1996	1.46	0.87	40%	0.77	124.7	
50-047-02	640.0	N	1995	0.84	1.16	-37%	1.02	143.3	
50-047-03	1832.0	N	1997	0.44	0.82	-88%	0.72	126.0	
50-047-04	198.5	N	1996	0.68	0.16	76%	0.14	41.4	
50-047-05	314.0	N	1997	0.55	0.88	-61%	0.78	109.5	
50-047-07	3494.2	N	1996	0.67	0.81	-21%	0.83	146.8	
50-047-08	1557.7	N	1996	0.96	1.51	-57%	1.34	104.6	
50-048-01	1185.1	N	1995	1.25	2.18	-75%	1.93	131.4	
50-048-02	640.0	N	1995	0.36	0.21	42%	0.24	184.9	
50-051-01	811.4	N	1995	0.97	0.16	84%	0.14	44.2	
50-053-01	148.9	N	1995	5.16	1.77	66%	1.56	579.8	
50-054-01	9682.8	N	1996	1.16	1.63	-41%	1.67	316.1	
50-054-02	960.0	N	1996	0.50	4.80	-867%	4.93	712.8	
50-054-03	1227.2	N	1996	0.35	0.56	-59%	0.58	193.8	
50-054-04	3684.3	N	1996	0.82	1.31	-59%	1.35	111.1	
50-055-01	392.9	N	1997	0.86	0.21	75%	0.19	58.8	
50-055-02	810.4	N	1999	0.45	0.53	-16%	0.46	118.2	
50-055-03	2871.2	N	1996	0.74	0.31	59%	0.27	79.6	
50-055-04	2871.2	N	1995	1.44	0.09	94%	0.08	147.2	
50-056-01	849.8	N	1996	0.98	1.36	-38%	1.29	180.6	
50-058-01	157.0	N	1995	0.02	0.00	100%	0.00	0.0	
50-059-01	11522.9	N	1996	2.35	1.59	33%	1.63	451.3	
50-059-02	1767.6	N	1997	1.07	0.44	59%	0.45	87.4	
50-059-03	709.5	N	1996	1.65	0.69	58%	0.71	123.0	
50-059-04	306.1	N	1996	1.14	1.08	5%	1.11	145.3	
50-060-01	8137.2	N	1995	0.18	0.22	-26%	0.20	34.6	
50-060-02	7613.8	N	1995	0.75	0.52	30%	0.46	69.7	
50-061-01	639.5	N	1995	1.44	0.09	94%	0.08	147.2	
50-061-03	3434.3	N	1995	0.76	0.39	49%	0.46	96.7	
50-061-05	313.7	N	1995	1.89	1.02	46%	1.19	123.9	
50-061-06	237.0	N	1995	1.68	0.13	92%	0.15	108.5	
50-061-07	318.2	N	1995	1.24	0.58	53%	0.68	70.8	
50-061-08	375.2	N	1999	1.76	0.17	90%	0.18	111.9	
50-061-10	23800.3	N	1996	0.58	0.53	8%	0.45	82.8	
50-061-11	12571.0	N	1995	0.77	0.36	53%	0.42	62.5	
50-061-12	730.0	N	1995	2.55	1.33	48%	1.55	252.3	

Table 1. Continued.

Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
50-061-13	1059.6	N	1995	1.16	0.44	62%	0.51	37.1	
50-061-15	6760.2	N	1995	1.91	0.40	79%	0.40	69.0	
50-061-17	1598.1	N	1995	12.22	5.86	52%	6.02	517.9	
50-061-18	1555.1	N	1995	9.82	1.35	86%	1.19	69.1	
50-061-20	156.1	N	1994	1.80	1.01	44%	1.03	150.6	
50-061-22	3739.3	N	1996	0.49	0.09	82%	0.08	93.2	
50-062-01	4625.8	N	1996	0.20	0.39	-101%	0.46	92.9	
50-062-02	10754.2	N	1996	0.46	0.38	17%	0.45	93.4	
50-062-03	1188.3	N	1996	0.54	0.39	28%	0.45	84.0	
50-062-04	901.2	N	1996	0.26	0.45	-76%	0.53	143.5	
50-062-05	5249.6	N	1996	0.41	0.95	-131%	1.11	206.9	
50-062-09	7658.9	N	1997	0.22	0.34	-56%	0.40	134.2	
50-062-10	8772.4	N	1997	0.72	0.31	56%	0.28	74.0	
50-062-11	1276.6	N	1996	0.44	0.40	10%	0.47	84.7	
50-063-01	9792.2	N	1996	0.45	0.52	-16%	0.61	148.5	
50-064-01	898.7	N	1997	2.98	1.07	64%	1.10	149.8	
50-064-03	145.0	N	1997	2.98	1.07	64%	1.10	149.8	
50-064-04	1150.4	N	1997	2.98	1.07	64%	1.10	149.8	
50-065-02	938.1	N	1995	3.64	0.54	85%	0.47	220.8	
50-065-03	3751.7	N	1997	2.98	1.07	64%	1.10	149.8	
50-065-05	929.8	N	1997	2.98	1.07	64%	1.10	149.8	
50-065-06	453.9	N	1997	2.98	1.07	64%	1.10	149.8	
50-065-07	513.0	N	1995	3.92	0.78	80%	0.68	203.6	
50-065-08	628.0	N	1997	2.98	1.07	64%	1.10	149.8	
50-065-10	792.3	N	1995	1.55	0.15	90%	0.13	45.3	
50-066-01	1233.6	N	1995	2.13	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (59.9% Sampled)
50-067-01	1143.9	N	1996	0.40	0.43	-9%	0.37	55.0	
50-067-02	10257.1	N	1996	0.94	0.57	39%	0.49	80.7	
50-067-03	681.6	N	1996	1.02	0.65	37%	0.56	50.5	
50-067-04	3819.5	N	1996	0.55	0.36	34%	0.31	70.5	
50-067-05	7322.6	N	1996	0.42	0.44	-6%	0.38	67.8	
50-067-06	1277.2	N	1999	0.49	0.28	42%	0.24	35.2	
50-067-07	1975.5	N	1999	0.54	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (68.7% Sampled)
50-067-09	1277.7	N	1999	0.54	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (53.4% Sampled)
50-067-10	2551.8	N	1999	1.21	1.25	-3%	1.07	71.0	
50-067-11	6179.0	N	1999	0.85	0.38	56%	0.32	57.1	
50-067-13	685.3	N	1997	2.29	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (0% Sampled)

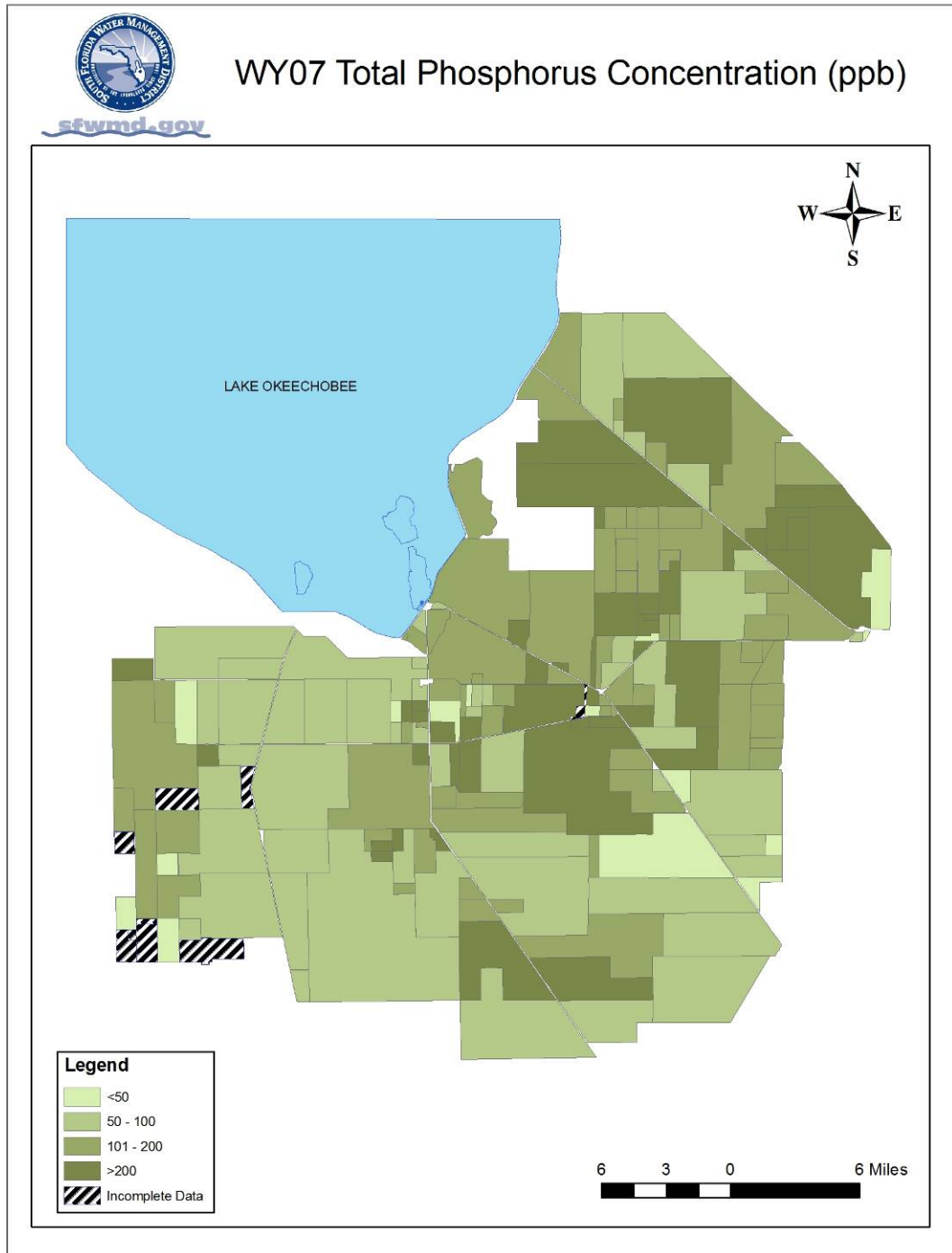


Table 1. Continued.

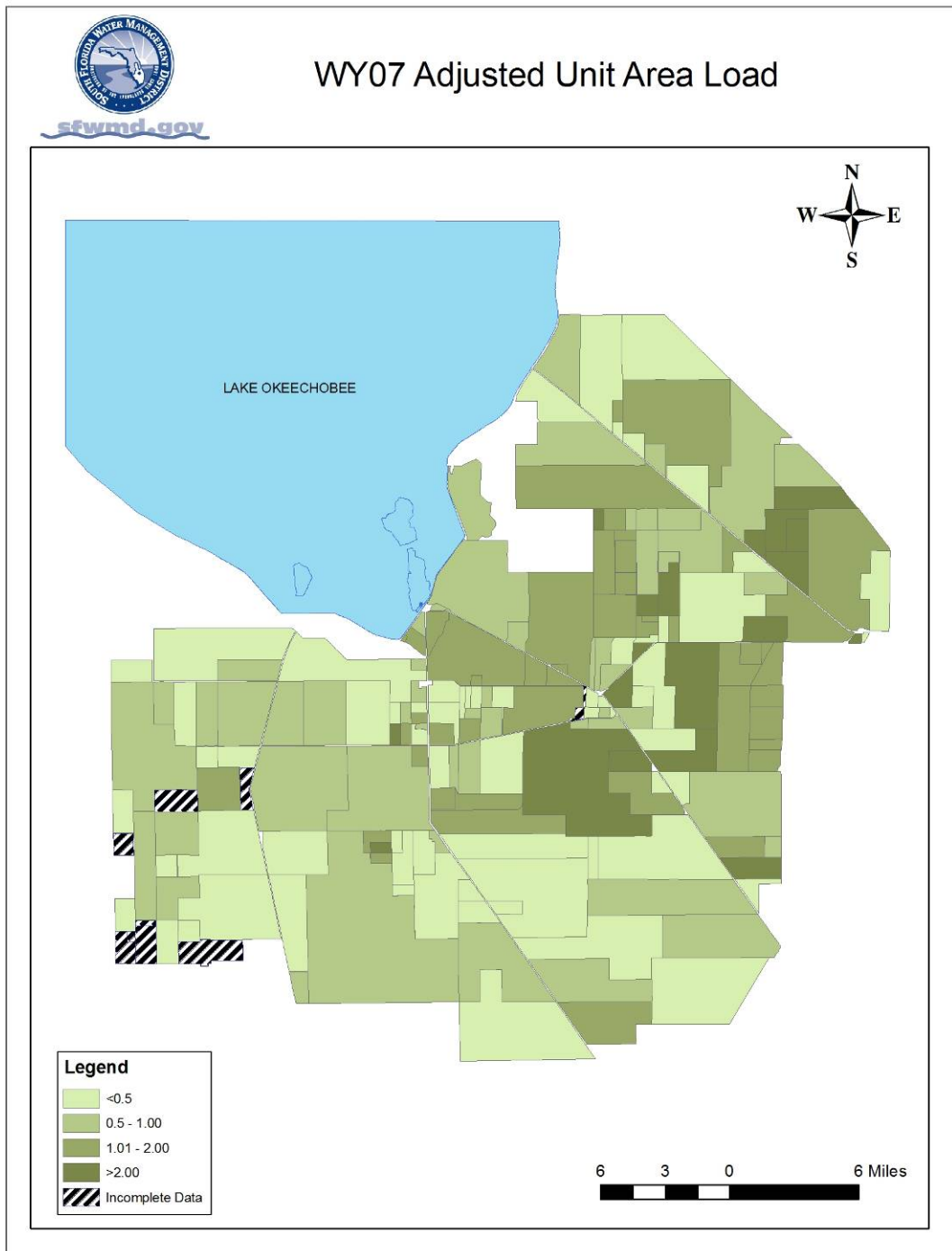
Basin ID	Basin Acreage	Early Baseline	Baseline Year	Rain Adjusted Unit Area Load (lbs/ac)		WY2007 % TP Reduction	WY2007 Unit Area Load (lbs/ac)	WY2007 TP Conc. (ppb)	Comments
				Baseline	WY2007				
50-068-01	2615.8	N	1996	1.13	0.92	19%	0.94	190.7	
50-069-01	317.5	N	1996	1.06	0.34	68%	0.39	206.6	
50-070-01	245.0	N	1995	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	Unable to Calculate	< 75% annual load sampled (61.1% Sampled)
50-070-02	244.0	N	1995	3.09	0.91	71%	0.81	247.2	
50-073-01	67.8	N	2001	Baseline Year	0.00	Unable to Calculate	0.00	0.0	Not used for agriculture; has on-site retention area and does not discharge
50-077-01	3168.0				0.71		0.83	132.4	715 Farms (Closter Farms) <sup>2</sup>
50-078-01	71.6	N	1999	8.71	0.94	89%	1.10	195.3	
50-080-01	8108.5				0.69		0.80	186.2	East Shore Drainage District <sup>2</sup>
50-081-01	210.0	N	2004	0.66	0.86	-31%	1.01	73.4	
50-081-02	4845.5	N	1994	1.31	0.55	58%	0.47	127.4	South Shore Drainage District <sup>2</sup>
50-082-01	484.5	N	1995	9.82	0.89	91%	1.03	37.1	
50-061-23	#N/A	N	1995	0.77	0.98	-26%	1.14	236.4	

**Notes:**

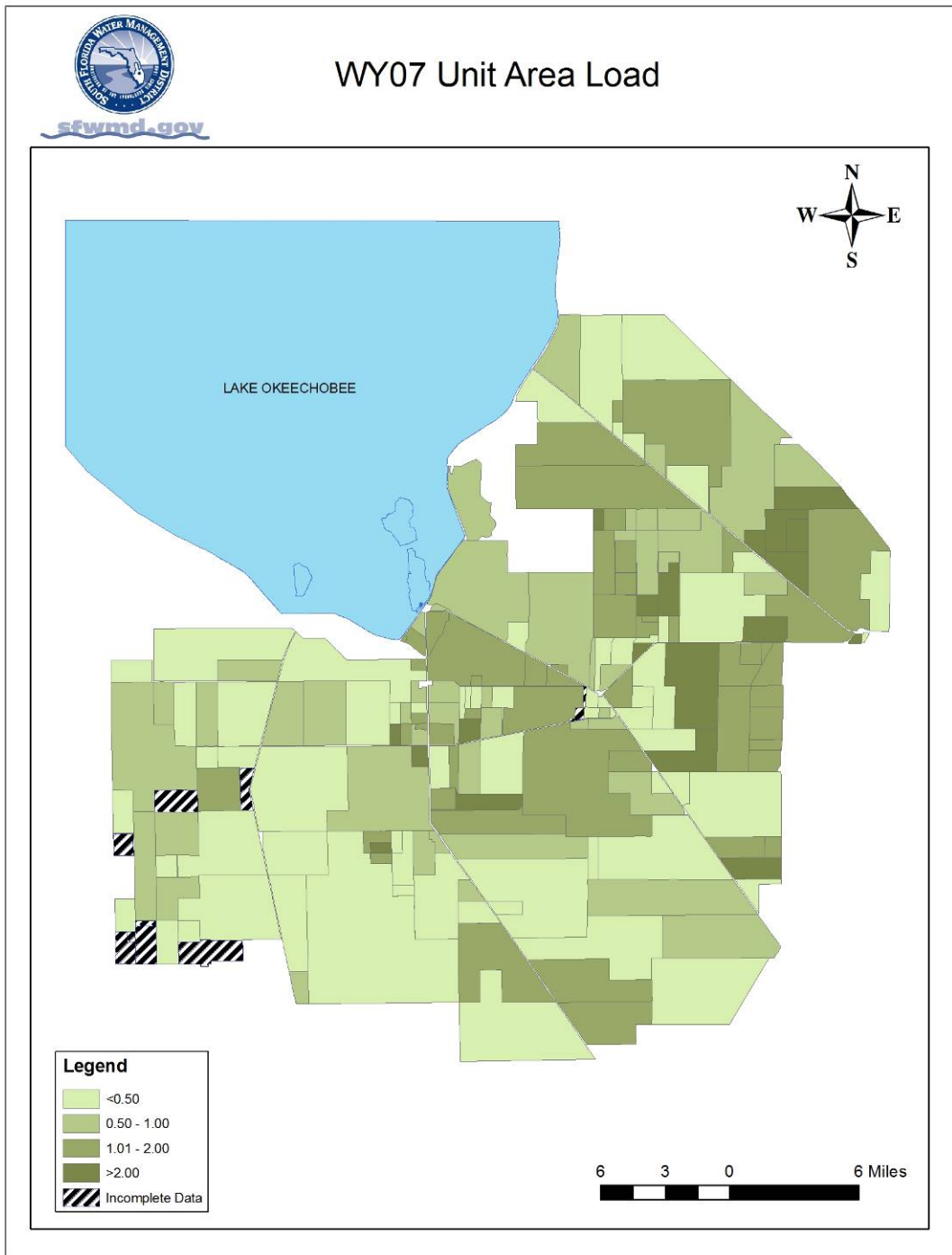
- 1 A small portion of the South Florida Conservancy District and the East Beach Water Control District was capable of discharging to the Everglades. However, a majority of the area historically discharged only to Lake Okeechobee and is now discharging to the Everglades. A BMP Permit issued under Rule 40E-63 is required as is permit-level monitoring.
- 2 Closter Farms (a.k.a. 715 Farms), East Shore Water Control District, and the South Shore Drainage District historically discharged only to Lake Okeechobee and are now discharging to the Everglades. A BMP Permit issued under Rule 40E-63 is required as is permit-level monitoring.



**Figure 1.** Water Year 2007 (WY2007) total phosphorus (TP) flow-weighted mean concentrations (ppb) in the EAA.



**Figure 2.** WY2007 rainfall-adjusted unit area TP load (lbs/acre) in the EAA basin.



**Figure 3.** WY2007 observed unit area TP load (lbs/acre) in the EAA basin.

**Table 2.** Everglades Agricultural Privilege Tax area-wide incentive credits for the EAA basin.

**Everglades Agricultural Privilege Tax  
Area-Wide Incentive Credit Schedule**

Calendar Year	Water Year	Min. Phos. Reduction Required (%)	Actual Phos. Reduction Achieved (%)	Credits Earned	Total Credits (Cumulative)	Credits Used	Credit Balance	Fiscal Year
1994	1993	25	44	19	19.00	0.00	19.00	FY95
1995	1994	25	17	0	19.00	0.00	19.00	FY96
1996	1995	25	31	6	25.00	0.00	25.00	FY97
1997	1996	25	68	43	68.00	0.00	68.00	FY98
1998	1997	25	49	24	92.00	3.91	88.09	FY99
1999	1998	25	34	9	97.09	3.91	93.18	FY00
2000	1999	25	49	24	117.18	3.91	113.27	FY01
2001	2000	25	55	30	143.27	3.91	139.36	FY02
2002	2001	25	73	48	187.36	10.02	177.34	FY03
2003	2002	25	55	30	207.34	10.02	197.32	FY04
2004	2003	25	35	10	207.32	10.02	197.30	FY05
2005	2004	25	64	39	236.30	10.02	226.28	FY06
2006	2005	25	59	34	260.28	15.55	244.73	FY07
2007	2006	25	44	19	263.73	15.55	248.18	FY08
2008	2007	25	18	0	248.18	15.55	232.63	FY09
2009	2008	25			232.63	15.55	217.08	FY10
2010	2009	25			217.08	15.55	201.53	FY11
2011	2010	25			201.53	15.55	185.98	FY12
2012	2011	25			185.98	15.55	170.43	FY13
2013	2012	25			170.43	15.55	154.88	FY14

Note: Water Year 2007 (Calendar Year 2008 / FY2009) subject to Governing Board approval at 08/9/07 public hearing. WY07 results are Preliminary.

Water Year 2007 = May 1, 2006 to April 30, 2007

**Additional Information of Interest**

Per Acre Charge	Years	Area-Wide Incentive Credit	Min. Phos. Reduction Required
\$24.89	1994 - 1997	0.33	25%
\$27.00	1998 - 2001	0.54	25%
\$31.00	2002 - 2005	0.61	25%
\$35.00	2006 - 2013	0.65	25%
\$25.00	2014 - 2016	N/A	N/A
\$10.00	2017	N/A	N/A

**Note:**

1. Vegetable classified acreage is never charged more than \$24.89 pre acre.
2. Vegetable classified acreage is not eligible for incentive credits.
3. The minimum per acre charge will never drop below \$24.89 through Nov 2013. If incentive credits would cause the per acre charge to drop below \$24.89, any earned, unused credits will be carried forward and applied to the following year.
4. Any unused or excess incentive credits remaining after certification of the Everglades agricultural privilege tax roll for the tax notices mailed in November 2013 shall be canceled.
5. The annual Everglades agricultural privilege tax for the tax notices mailed in November 2014 through November 2016 shall be \$25 per acre and for tax notices mailed in November 2017 and thereafter shall be \$10 per acre.

Florida Statute 373.4592, EFA

**Calculating Credits:**

1994 - 1997	N/A
1998 - 2001	$\$27.00 - \$24.89 = \$2.11 / .54 = 3.91$
2002 - 2005	$\$31.00 - \$24.89 = \$6.11 / .61 = 10.02$
2006 - 2013	$\$35.00 - \$24.89 = \$10.11 / .65 = 15.55$

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## BMP EQUIVALENT POINT SYSTEM AND PLANS

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Each Everglades Works of the District (EWOD) permit approves an onsite implementation plan for BMPs (BMP plan). The BMP plan includes operational programs or infrastructure enhancements designed to reduce phosphorus levels in discharges to the EWOD. The District is responsible for ensuring that a base level of BMPs is established for each permit area and that BMP plans between different permittees are consistent and comparable. To accomplish this task, a system of BMP “equivalents” was developed by assigning points to BMPs within four basic categories consisting of water management practices, nutrient management practices, control of sediment and particulate matter, and pasture management (if applicable). Points were originally based on the review of reports and publications produced by University of Florida Institute for Food and Agricultural Services (UF/IFAS), on the best professional judgment of District staff, and extensive cooperative workshops conducted among affected landowners, consultants, and other interested stakeholders. This BMP plan development approach considers that both flow and concentration are targeted through a balanced plan. The plan implementation also has to be verifiable for compliances purposes at the parcel level. With these objectives in mind, the number of points assigned to each BMP was developed as a negotiated solution in a regulatory context. The BMP points system has proven successful in ensuring implementation of a consistent base level of BMPs between permitted areas.

The minimum level of BMP plan implementation in the EAA and C-139 basins is established by Chapter 40E-63, F.A.C., as BMP equivalents or points. By using the BMP-equivalents approach, each permittee has the flexibility to develop a BMP plan that is best suited for site-specific soil types, hydrology, and crop conditions. For each proposed BMP, the permittee must consider how the BMP will be implemented, how staff responsible for BMP implementation will be trained, and how BMP implementation will be documented. If either basin is determined to be out of compliance, then there is a system outlined by rule for increasing the level of BMP implementation. **Table 3** provides a general description of BMPs that can be implemented in the EAA and C-139 basins to meet permit requirements and their equivalent points. The list is not exhaustive and implementation of other BMP options can be accomplished through a proposal and acceptance process between permittees and District staff.

**Table 3.** Best Management Practices (BMP) summary and “BMP equivalent” points for the EAA and C-139 basins.

<b>BMP</b>	<b>Points</b>	<b>Description</b>
<b><i>Nutrient Control Practice</i></b>		<b><i>Minimizes the Movement of Nutrients Off-Site</i></b>
Nutrient Application Control	2 ½	Controlled application of nutrients with a 4-foot setback from canals: banding, pneumatic application – AIRMAX; fertigation; and fertilization placement near root under plastic.
Nutrient Spill Prevention	2 ½	Formal spill prevention protocols (storage, handling, transfer, and education/instruction).
Successive Vegetable Planting to Minimize P	2 ½	Successive planting of high phosphorus (P)/low P demand crops to avoid P buildup and no successive P application.
Plant Tissue Analysis	2 ½	Determines plant nutrient requirements next growing season (crop specific).
	5	Citrus only — because plant tissue analysis provides information on current season, additional points are allowed.
Nutrient Application Control	5	Determines the P requirements of the soil and follow standard recommendations for application rates (crop specific).
Split Nutrient Application	5	Applying small portions of P at various times without exceeding the total recommendation.
Slow Release P Fertilizer	5	Specially treated fertilizer.
Reduced P Fertilization	5	P application rate is at least 30% below the recommendation.
No Nutrients Imported Via Direct Land Application	15	No application of P in any form. Native and semi-improved range may apply fertilizer at maintenance levels every 6–8 years.
No Nutrients Imported Indirectly Through Cattle Feed	15	No P import to the basin through cattle feed (Note: native range is not excluded by use of mineral supplements or molasses).
Nutrient Management Plan	Up to 35	Managing the amount, source, placement, form, and timing of the application of nutrients on lands with cattle operations.
<b><i>Water management practices</i></b>		<b><i>Minimizes the volume of off-site discharges</i></b>
½ Inch Detained	5	Delay discharge (based on measuring daily rain events using a rain gauge).
1 Inch Detained	10	
Improved Infrastructure	5	Recirculate water inside farm boundaries to improve water quality prior to offsite discharge (e.g., rice and vegetables); fallow field floodwater with no direct discharge (instead allow to “drain” via evapotranspiration, seepage, use as irrigation water); or increasing water detention using properly constructed canal berms.
Water Table Management	5	Optimizing drainage and irrigation schedules and/or using low volume irrigation methods to decrease discharge.
Approved and Operational Surface Water Reservoir	35	Properly permitted, constructed, and maintained storage system meeting specified Environmental Resource Permit Basis of Review criteria (version in effect at the time of permitting or in effect at the time of permit modification for modified systems).
Temporary Holding Pond	15	Temporary agricultural activities (as described in Chapter 40E-400, F.A.C.) with a properly constructed and permitted temporary holding pond.

Table 3. Continued.

BMP	Points	Description
<b>Particulate Matter &amp; Sediment Controls</b>		<b>Minimizes the Movement of Particulate Matter and Sediments</b>
Any 2	2 ½	<ul style="list-style-type: none"> <li>Leveling fields</li> <li>Soil stabilization through infrastructure improvements</li> </ul>
Any 4	5	<ul style="list-style-type: none"> <li>Grassed swales/field ditch connections</li> <li>Culvert bottoms above ditch bottoms</li> <li>Cover crops</li> </ul>
Any 6	10	<ul style="list-style-type: none"> <li>Ditch bank berms</li> <li>Vegetated ditch banks</li> <li>Slow drainage velocity near pumps</li> </ul>
Any 8	15	<ul style="list-style-type: none"> <li>Aquatic weed control</li> <li>Canal cleaning program</li> <li>Field ditch drainage sumps</li> <li>Ditch bank stabilization</li> </ul>
<b>Pasture Management</b>		<b>On-Farm Site Operation and Management Practices</b>
	2 ½	<ul style="list-style-type: none"> <li>Restricted placement of feeders, cowpens, or feed and water to reduce "hot spots" near drainage ditches (2 ½ points each)</li> </ul>
	2 ½	<ul style="list-style-type: none"> <li>Provide shade structures to prevent cattle in waterways</li> </ul>
	5	<ul style="list-style-type: none"> <li>Low cattle density (1 head/2 acres, non-irrigated pasture)</li> </ul>
	5	<ul style="list-style-type: none"> <li>Reduced P in feed (by a minimum of 20%)</li> </ul>
	10	<ul style="list-style-type: none"> <li>Restrict cattle from waterways through fencing of canals in a manner that protects the discharge water quality</li> </ul>
Urban Xeriscape	5	Use of plants that required less water and fertilizer.
Detention Pond Littoral Zone	5	Vegetative filtering area for on-site stormwater runoff.
Other BMPs	TBD	BMPs proposed by permittee and accepted by SFWMD.

**Note:**

A BMP plan is required for each land use or crop, and shall be implemented across the entire farm acreage (drainage area). For the EAA basin, a minimum of 25 points is required for each BMP plan.

For the C-139 basin, the minimum required points for each BMP plan are based on compliance status as follows:

- Level I: Initial phase 15 points for each BMP plan.
- Level II: First incidence out of compliance, no additional BMPs; however, on-site verification of BMPs begin. Frequency of visits based on compliance record.
- Level III: Second incidence out of compliance, 10 additional BMP points for each BMP plan (25 points total).
- Level IV: Third incidence out of compliance, 10 additional BMP points for each BMP plan (35 points total)

TBD = To Be Determined.



## BEST MANAGEMENT PRACTICE PLAN BASIC CATEGORIES

### Nutrient Application Practices

Nutrient application practices refer to practices that improve nutrient application and minimize nutrient losses. The table below indicates the equivalent points assigned to typical BMPs in this category. Some BMPs may be more applicable than other based on the characteristics of each farm, or urban area. The typical nutrient BMPs are presented in **Table 4** in a side by side layout to facilitate comparison.

**Table 4.** BMP equivalents point table for nutrient control practices.

Nutrient BMPs					
Description	Points	Description	Points	Description	Points
Soil Testing	5	Vegetables: Successive Planting	2.5	Slow Release Fertilizer	5
Nutrient Application Control	2.5	Citrus (typical): Plant Tissue Analysis	2.5	Reduced Fertilization	5
Nutrient Spill Prevention	2.5	Sod (typical): Split Application	5	Pastures: No Nutrients Land applied	15

Soil testing requires that prior to applying nutrients growers obtain soil tests and develop recommendations that are crop and farm specific. Growers follow those recommendations or explain the reasons for any deviations. Soil testing is essential in that it prevents over fertilization by determining nutrient plant requirements in addition to those provided by the soil. Application rates require technical justification and documentation to verify implementation. Yield response curves can be developed to justify application rates. In contrast, Nutrient Application Control is based on the application method and guidelines followed during application (e.g., no overlapping application, canal setbacks). Nutrient spill prevention requires basic documentation of how fertilizer spills will be prevented or dealt with.

There are BMPs that are applicable to specific crops, such as split application in sod farms, or plant tissue analysis --which may occur in lieu of soil testing for citrus groves. Split application requires that nutrient application be split in different applications to maximize uptake by the plant. Documentation similar to that collected for soil testing is required. There are multiple applications and cost associated with those activities. Slow release fertilizers, which prevents losses by delivering the nutrients required as different stages of crop growth serve the function of split application, and are of greater cost than traditional fertilizers. Finally, BMPs that prevent import of phosphorus such as “no nutrients land applied”, receive a high point equivalent as they provide an ideal source control.

## Water Management Practices

Water management BMPs refer to practices that improve drainage and irrigation management to minimize off site discharges. Water management practices are generally provided in accordance with approved surface water or environmental resource permits (ERP). The equivalent point system is based on the level of detention that is anticipated and the water management system that has been developed (operational and infrastructure) to ensure that water quality and quantity is provided. **Table 5** describes the points assigned to typical BMPs in this category. They are presented side by side to facilitate comparison.

**Table 5.** BMP equivalents point table for water management practices

Water Management BMP Sub-Categories					
Canals and Soils	Points	Infrastructure Improvements	Points	ERP Design Criteria	Points
½-inch detained	5	Infrastructure improvements for recirculation	5	ERP approved and operational impoundment	35
1-inch detained	10	Reduced flow through water table management (irrigation)	5		
No direct discharge	15	Holding Pond	15		

For systems where runoff storage is provided in canals and soils, such as those with canals and no ERP approved impoundment, detention is typically achieved by delaying discharge at pump structures. In these cases, providing 1-inch of detention is assumed to require closer attention to pump operation than 0.5-inch (i.e. because of high ground water elevations and less water tolerant crops). To avoid over drainage, permittees must provide start and stop pump elevations, conduct calculations to demonstrate the storage is available, and implement internal water table management to ensure the storage is provided for day to day operation. Half-inch of storage is generally provided with less effort because of the characteristics of the EAA. Additionally, equivalent points are provided to agricultural operations that have invested in infrastructure to enhance detention levels or reduce discharge (e.g., surface water impoundments, recirculation systems, or means to optimize drainage and irrigation schedules).

Water management systems designed, built, and operated in accordance with the most recent ERP design criteria (surface water impoundments) which discharge via gravity structures with set control elevations and that provide longer detention times, are assigned the highest level of equivalent points based on providing the greatest attenuation. However, high phosphorus concentration levels from the C-139 Basin and increasing rainfall-runoff trends from the Basin suggest that the equivalent points assigned need re-examination. As indicated above, the BMP plan development serves to set minimum requirements for improving water quality on individual farms so that achieving compliance with water quality requirements, at the basin level, is realized. Technical evaluation of existing water management practices is being considered.

## Particulate Matter and Sediment Control Practices

The purpose of sediment control BMPs is to prevent or minimize the transport of phosphorus off site with sediments and particulate matter. The points assigned to sediment controls increase proportionally to the number of sediment controls being selected. It is difficult to pinpoint the level of effort for the different sediment controls, as it generally varies from grower to grower based on farm needs (e.g., frequency and extent of canals cleaned). Sediment control examples are provided in **Table 6**.

**Table 6.** BMP equivalents point table for particulate matter and sediment controls.

Sediment Controls	Points	Examples
Any 2	2.5	Leveling fields
Any 4	5	Canal cleaning
Any 6	10	Vegetated berms
Any 8	15	Aquatic weed control Cover crops

For the EAA Basin and for customized BMPs in the C-139 Basin, staff can evaluate the BMP equivalent points assigned to a specific BMP on a case by case basis and with adequate technical justification (e.g., level of effort and effectiveness) provide incentives for implementation. To this date, however, there have not been any requests for such evaluation. For instance, it appears that sediment controls to prevent particulate phosphorus transport due to biological material may require an additional level of effort compared to other sediment controls. Based on research conducted by the UF/IFAS, particulate P transport can be reduced by maintaining low canal velocities, longer pump periods, ensuring water level control (to prevent over drainage) and aquatic weed control. Increased equivalent points for a biological sediment control “package”, including these individual practices could provide an opportunity for optimization of this BMP.

## COMPARATIVE DIFFERENCES AMONG BMP PLANS

In an effort to link farm-level data to BMP plan effectiveness, the type of BMP plan implemented for EAA farms was evaluated for the WY2007 compliance year. The majority of EAA farms have selected one of two types of BMP Plans as summarized below in **Table 7**.

**Table 7.** Type of BMP plan breakdown for EAA.

EAA Farms 2007	Plan 1: Sediment Control	Plan 2: Detention
% Farms <sup>1</sup>	48	48
% EAA Acreage	49	50
BMPs	Water Management (½-inch) Soil Testing Nutrient Application Control Nutrient Spill Prevention 6 Sediment Controls	Water Management (1-inch) Soil Testing Nutrient Application Control Nutrient Spill Prevention 4 Sediment Controls

<sup>1</sup>Other BMP Plans account for 4% of the farm-basins and for less than 1% of the acreage.

Similar BMP plans can be associated with very different farm-level water quality data because of site-specific conditions (e.g., crops, soils), and incidental factors. Out of approximately 200 farm basins in the EAA, the farms that have consistently ranked above the 75th percentile since 1994, based on total phosphorus concentration and unit loading, are shown in **Table 8**.

**Table 8.** Type of BMP Plan for farms ranked above the 75th percentile based on TP concentration and unit loading.

Basin Id	BMP Plan	Acreage	Sub-basin
50-003-03	Plan 1	118	S-2
50-007-02	Plan 2	5717	S-5A
50-011-03	Plan 1	14,338	S-6
50-020-01	Plan 1	320	S-2
50-023-01	Plan 2	278	S-2
50-031-02	Plan 2	1387	S-2
50-031-03	Plan 2	602	S-2
50-033-02	Plan 2	6101	S-5A
50-035-01	Plan 1	478	S-2
50-035-02	Plan 1	1634	S-5A
50-059-03	Plan 2	720	S-5A
50-059-04	Plan 2	306	S-5A
50-061-17	Plan 1	1598	S-5A

As shown in **Table 8**, the consistently higher phosphorus farms can implement either of the two types of BMP Plans (more sediment BMPs or higher detention levels). The data suggests

that other factors such as crop, area, or location may be more influential than the plan itself. The majority of the farm-basins were in more intensive uses (five were in vegetable farming; there was one sod farm, and one urban area.) The rest were sugarcane farms. The farms varied in size, although were generally smaller than the lower phosphorus farms described below. Higher phosphorus exporting farms were exclusively located in the S-2 or S-5A Basins. Farm location within the EAA Basin is associated with specific soils, irrigation water quality, and District canal influences (e.g. seepage). In addition, out of the fifty farms that were identified each year above the 75th percentile, only the thirteen farms were identified to place consistently in the higher phosphorus discharge bracket, thus, the majority of farms experienced changes from year to year. While the average load and concentration for the farms above the 75th percentile were 270 ppb and 2.5 lbs/ac during the 1994 to 2007 period, below the 25th percentile had average concentrations and loads of 68 ppb and 0.3 lbs/acre.

In contrast, as the same type of BMP Plan did not appear to be a common characteristic for the higher phosphorus farms, it was more characteristic among farms consistently ranked in the lowest 25th percentile of all farms in the EAA. This can be seen in **Table 9**.

**Table 9.** Type of BMP Plan for farms ranked below the 25th percentile based on TP concentration and unit loading.

Basin Id	BMP Plan	Acreage	Sub-basin
26-003-01	Plan 2	599	S-8
50-060-01	Plan 2	8,166	S-6
50-061-10	Plan 1	25,062	S-8
50-062-01	Plan 1	4,626	S-7
50-062-02	Plan 1	10,754	S-7
50-062-03	Plan 1	1,188	S-2
50-062-10	Plan 1	8,772	S-6
50-062-11	Plan 1	1,276	S-2
50-067-01	Plan 1	1,144	S-3
50-067-05	Plan 1	7,223	S-8

The lower phosphorus farms are generally larger farms dedicated to sugarcane with BMP Plans providing for a lower detention levels and more sediment controls. None of the farms were in the S5A Basin. Seven of the 10 farms are managed under the same permit. Similar to the higher phosphorus farms, except for the ten farms listed in **Table 9**, the majority of the remaining farms drop in or out of the lower range category from year to year.

## DISCUSSION OF BMP EQUIVALENT POINT SYSTEM EFFECTIVENESS

Effectiveness of BMPs under the Everglades Regulatory Program consists of proper implementation of approved BMP plans and achieving phosphorus performance measures as outlined in Chapter 40E-63, F.A.C.. The BMP point system has been effective in establishing the grounds for an equivalent level of effort when implementing BMP plans. Through rule development and the supplementary projects described in Chapter 4 of this years volume under "Update on Source Control Activities for the C-139 basin", District staff are conducting analyses

and data collection necessary to refine the BMP program, so that phosphorus loading requirements for the C-139 basin are also achieved. It should be emphasized, however, there are many challenges associated with pinpointing the effectiveness of individual BMPs, and external factors, especially in the C-139 basin as highlighted in Chapter 4 of Volume I, that have resulted in initiating a comprehensive approach to optimizing implementation of BMPs at the farm level.

While the preliminary evaluations reported in this Appendix give a sense of how the data can guide the BMP process, more in depth evaluations are necessary and planned to provide more meaningful results. Specific BMP implementation (methods, frequency, rationale) and available farm water quality and quantity data are reviewed with permittees at the time of site verifications, as an indicator of BMP Plan effectiveness. This evaluation is on a case by case basis. Specific BMP implementation in comparison to BMP technical datasheets as produced by the UF/IFAS and other technical sources is discussed with permittees.