

Appendix 3A-5: Water Year 2015 and Five-Year (Water Years 2011–2015) Annual Flows and Total Phosphorus Loads and Concentrations by Structure and Area

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This appendix provides annual flows, total phosphorus (TP) loads, and TP flow-weighted mean (FWM) concentrations by structure and area for Water Year 2015 (WY2015) (May 1, 2014–April 30, 2015) and the most recent five-year period, WY2011–WY2015 (May 1, 2010–April 30, 2015). **Tables 1** through **5** present this information for the Stormwater Treatment Area (STA-) 1 inflow basin and L-8/C-51 basin/Rustic Ranches; Water Conservation Area (WCA-) 1; WCA-2; WCA-3; and Everglades National Park (ENP), respectively. Note that the same color font within a table indicates the same source level.

For WY2015, total flows, TP loads, and TP FWM concentrations into the Everglades Protection Area (EPA) are calculated from the total inflows to WCA-1, WCA-2, WCA-3, and ENP, minus that transferred within the EPA through numerous structures: S-10A, S-10C, S-10D, S-11A, S-11B, S-11C, S-12A, S-12B, S-12C, S-12D, S-333–S-334, and S-355A/S-355B. The totals into the EPA are as follows:

- Flow: 1,807.665 acre-feet (ac-ft) in thousands
- TP load: 47,108 kilograms (kg)
- TP FWM concentration: 21 micrograms per liter ($\mu\text{g/L}$)

For WY2015, total flows, TP loads, and TP FWM concentrations from the EPA for water supply and flood control are calculated from the totals of WCA-1, WCA-2, and WCA-3 and from structures S-39, G-300 (negative flow), G-301 (negative flow), G-94A, G-94B, G-94C, G-94D, S-7 (negative flow), S-38, S-34, S-150 (negative flow), S-8 (negative flow), S-31, S-337, S-343A, S-343B, S-344, S-197, and S-334. In addition, the majority of flow exiting the EPA south from ENP is not monitored. The monitored totals from the EPA are as follows:

- Flow: 379.2 ac-ft in thousands
- TP load: 6,333 kg
- TP FWM concentration: 14 $\mu\text{g/L}$

This appendix provides five-year average annual flows, TP loads, and FWM TP concentrations by area for WY2011–WY2015. **Tables 6** through **8** present flows, TP loads, and FWM TP concentrations to the Everglades STAs and diversion from inflow tributaries. **Tables 9** through **11** present flows, TP loads, and FWM TP concentrations for the EPA. A summary of the individual years used to calculate the five-year average values is presented in this appendix and the *2011–2015 South Florida Environmental Reports – Volume I*, Appendix 3A-5 (Xue 2011, 2012, 2013, 2014, 2015).

Table 1. WY2015 annual flows, TP loads, and TP FWM concentrations for the STA-1 inflow basin and L-8/C-51 basin/Reservoir/Rustic Ranches.**Into STA-1 Inflow Basin**

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
S-5A_P	345.415	62,686	147
<i>S-5A from EAA^a</i>	<i>137.338</i>	<i>15,418</i>	<i>91</i>
<i>S-5A from East Beach^b</i>	<i>7.709</i>	<i>4,305</i>	<i>453</i>
<i>S-5A from Lake^c</i>	<i>200.285</i>	<i>41,675</i>	<i>169</i>
<i>S-5AW from Lake</i>	<i>0.090</i>	<i>14</i>	<i>126</i>
<i>S-5AW from L-8 basin/reservoir</i>	<i>0.054</i>	<i>9</i>	<i>135</i>
S-5AS	0.000	0	N/A ^d
<i>S-5AS from Lake</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>S-5AS from L-8 basin/reservoir</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
G-300	0.161	21	107
<i>G-300 from WCA-1</i>	<i>0.161</i>	<i>21</i>	<i>107</i>
G-301	0.120	18	119
<i>G-301 from WCA-1</i>	<i>0.120</i>	<i>18</i>	<i>119</i>
G-311	0.000	0	111
<i>G-311 from C-51W</i>	<i>0.000</i>	<i>0</i>	<i>111</i>
Total	345.696	62,725	147

From L-8/C-51 Basin/Rustic Ranches

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
S-319	36.973	7,522	165
<i>from Lake</i>	<i>10.637</i>	<i>2,195</i>	<i>167</i>
<i>from L-8 basin/reservoir</i>	<i>6.974</i>	<i>1,268</i>	<i>147</i>
<i>From S-5AS</i>	<i>19.363</i>	<i>4,060</i>	<i>135</i>
<i>S-5AS from Lake</i>	<i>17.844</i>	<i>3,019</i>	<i>137</i>
<i>S-5AS from EAA</i>	<i>1.840</i>	<i>83</i>	<i>37</i>
<i>S-5AS from WCA-1</i>	<i>0.135</i>	<i>18</i>	<i>108</i>
<i>S-5AS from East Beach</i>	<i>0.186</i>	<i>37</i>	<i>161</i>
<i>from C-51W</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
S-361(Rustic Ranches)	8.903	316	29
Total	45.876	7,838	139

- a. EAA – Everglades Agricultural Area
b. East Beach Water Control District
c. Lake – Lake Okeechobee
d. N/A – not applicable

From STA-1 Inflow Basin

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
S-5AS	143.396	24,773	140
<i>From EAA</i>	<i>20.510</i>	<i>2,291</i>	<i>91</i>
<i>From East Beach</i>	<i>1.911</i>	<i>630</i>	<i>267</i>
<i>From Lake</i>	<i>109.230</i>	<i>18,935</i>	<i>141</i>
<i>From L-8 basin/reservoir</i>	<i>0.020</i>	<i>4</i>	<i>162</i>
<i>From WCA-1</i>	<i>0.162</i>	<i>21</i>	<i>105</i>
<i>From G-311</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
G-300	0.083	35	344
<i>From EAA</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From East Beach</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From Lake</i>	<i>0.028</i>	<i>13</i>	<i>376</i>
<i>From L-8 basin/reservoir</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From G-311(C-51)</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
G-301	0.001	0	340
<i>From EAA</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From East Beach</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From Lake</i>	<i>0.001</i>	<i>0</i>	<i>308</i>
<i>From L-8 basin/reservoir</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From G-311(C-51)</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
G-302	140.087	27,103	157
<i>From EAA</i>	<i>79.703</i>	<i>9,213</i>	<i>94</i>
<i>From East Beach</i>	<i>3.784</i>	<i>2,349</i>	<i>503</i>
<i>From Lake</i>	<i>50.786</i>	<i>15,389</i>	<i>246</i>
<i>From L-8 basin/reservoir</i>	<i>0.024</i>	<i>4</i>	<i>135</i>
<i>From WCA-1</i>	<i>0.001</i>	<i>0</i>	<i>73</i>
<i>From G-311(C-51)</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
G-311	78.379	14,781	153
<i>From EAA</i>	<i>35.223</i>	<i>3,469</i>	<i>80</i>
<i>From East Beach</i>	<i>2.013</i>	<i>1,325</i>	<i>534</i>
<i>From Lake</i>	<i>37.357</i>	<i>7,035</i>	<i>153</i>
<i>From L-8 basin/reservoir</i>	<i>0.002</i>	<i>0</i>	<i>133</i>
<i>From WCA-1</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
Total	361.946	66,693	149

Table 2. WY2015 annual flows, TP loads, and TP FWM concentrations for WCA-1.**Into WCA-1**

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
G-300 & G-301	0.084	35.480	344
G-338	0	0	N/A ^a
S-362 (from STA-1 East)	97.818	2,561	21
G-251 (from STA-1 West)	44.791	865	16
G-310 (from STA-1 West)	102.663	2,562	20
ACME2	0.000	0	N/A
Total	245.356	6,024	20

From WCA-1

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
S-10A	59.933	898	12
S-10C	21.544	343	13
S-10D	17.568	391	18
S-39	87.557	1,652	15
G-300	0.161	21	107
G-301	0.120	18	119
G-94A	4.580	130	23
G-94B	2.468	143	47
G-94C	3.413	97	23
G-338	0.001	0	67
G-94D	0.000	0	N/A
Total	197.346	3,694	15

a. N/A – not applicable

Table 3. WY2015 annual flows, TP loads, and TP FWM concentrations for WCA-2.**Into WCA-2**

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
G-436 (from STA-2)	293.393	5,746	16
G-335 (from STA-2)	239.078	4,502	15
<i>STA-2 from EAA^a</i>	<i>306.749</i>	<i>25,305</i>	<i>67</i>
<i>STA-2 from East Shore^b</i>	<i>19.849</i>	<i>2,568</i>	<i>105</i>
<i>STA-2 from Lake^c</i>	<i>252.651</i>	<i>24,309</i>	<i>78</i>
<i>STA-2 retained</i>	<i>---</i>	<i>-37,000</i>	<i>---</i>
S-7	192.386	3,775	16
<i>From STA-3/4</i>	<i>65.643</i>	<i>5,277.982</i>	<i>65</i>
<i>From Lake</i>	<i>14.106</i>	<i>1,085</i>	<i>62</i>
<i>From EAA</i>	<i>51.537</i>	<i>4,193</i>	<i>66</i>
<i>STA-3/4 retained</i>	<i>---</i>	<i>-4,375</i>	<i>---</i>
<i>From G-371</i>	<i>0.050</i>	<i>1.400</i>	<i>23</i>
<i>From Lake</i>	<i>0.044</i>	<i>1</i>	<i>26</i>
<i>From EAA</i>	<i>0.005</i>	<i>0</i>	<i>39</i>
S-10A (from WCA-1)	59.934	898	15
S-10C (from WCA-1)	21.544	343	18
S-10D (from WCA-1)	17.568	391	67
N. Springs Improv. District ^d	0.000	0	N/A ^e
Total	823.903	15,656	15

From WCA-2

Structure	Flow	Phosphorus	
	(1,000 ac-ft)	Load (kg)	FWMC (µg/L)
S-7	0.000	0	N/A
S-11A (from WCA-2)	222.377	1,705	6
S-11B (from WCA-2)	375.306	5,088	11
S-11C (from WCA-2)	57.533	868	12
S-38	154.825	1,782	9
S-34	0.000	0	N/A
Total	810.041	9,442	9

- a. EAA – Everglades Agricultural Area
b. East Shore – East Shore Drainage District
c. Lake – Lake Okeechobee
d. N. Springs Improv. District – North Springs Improvement District
e. N/A – not applicable

Table 4. WY2015 annual flows, TP loads, and TP FWM concentrations for WCA-3.**Into WCA-3**

Structure	Flow	Phosphorus	
	(1000 ac-ft)	Load (kg)	FWMC (µg/L)
Non-ECP ^a -L-28, Feeder Canal	147.980	15,165	83
<i>S-140 (from L-28 Canal)</i>	<i>108.301</i>	<i>9,879</i>	<i>74</i>
<i>S-190 (from Feeder Canal)</i>	<i>39.679</i>	<i>5,286</i>	<i>108</i>
G-407	0.041	4	71
STA-5/6-south	50.420	2,306	37
<i>From C-139 basin</i>	<i>18.710</i>	<i>5,312</i>	<i>230</i>
S-8	211.825	3,992	16
<i>From STA-3/4</i>	<i>121.048</i>	<i>2,150</i>	<i>14</i>
<i>From Lake^b</i>	<i>131.143</i>	<i>20,840</i>	<i>129</i>
<i>from EAA^c</i>	<i>106.797</i>	<i>6,251</i>	<i>47</i>
<i>From C-139 basin</i>	<i>13.782</i>	<i>2,248</i>	<i>132</i>
<i>From SFCD^d</i>	<i>13.854</i>	<i>1,110</i>	<i>65</i>
<i>From SSDD^e</i>	<i>3.806</i>	<i>428</i>	<i>91</i>
<i>STA-3/4 retained</i>	<i>--</i>	<i>-22,128</i>	<i>--</i>
<i>From G-373</i>	<i>4.755</i>	<i>347</i>	<i>59</i>
<i>From Lake</i>	<i>4.703</i>	<i>345</i>	<i>59</i>
<i>From EAA</i>	<i>0.000</i>	<i>0</i>	<i>N/A^f</i>
<i>From C-139 basin</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From SFCD</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From SSDD</i>	<i>0.052</i>	<i>3</i>	<i>46</i>
<i>STA5/6-North</i>	<i>21.829</i>	<i>661</i>	<i>25</i>
<i>From C-139 basin</i>	<i>39.621</i>	<i>11,252</i>	<i>230</i>
S-150	0	0	N/A
<i>From STA-3/4</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From Lake</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From EAA</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>STA-3/4 retained</i>	<i>--</i>	<i>0</i>	<i>--</i>
<i>From G-371</i>	<i>0.000</i>	<i>0.000</i>	<i>0</i>
<i>From Lake</i>	<i>0.000</i>	<i>0</i>	<i>62</i>
<i>From EAA</i>	<i>0.000</i>	<i>0.000</i>	<i>N/A</i>
G-404 & G-357-G409	123.434	2,423	16
<i>From STA3/4</i>	<i>81.807</i>	<i>1,453</i>	<i>14</i>
<i>From Lake to G-409</i>	<i>81.880</i>	<i>13,011</i>	<i>129</i>
<i>From EAA</i>	<i>66.679</i>	<i>5,203</i>	<i>63</i>
<i>From C-139 basin</i>	<i>9.327</i>	<i>1,404</i>	<i>122</i>
<i>From SFCD</i>	<i>6.657</i>	<i>693</i>	<i>84</i>
<i>From SSDD</i>	<i>2.376</i>	<i>267</i>	<i>91</i>
<i>STA-3/4 retained</i>		<i>-14,893</i>	
<i>From G-373</i>	<i>2.969</i>	<i>217</i>	<i>59</i>
<i>From Lake</i>	<i>2.936</i>	<i>215</i>	<i>59</i>
<i>From EAA</i>	<i>0.000</i>	<i>0</i>	<i>0</i>
<i>From C-139 basin</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From SFCD</i>	<i>0.000</i>	<i>0</i>	<i>N/A</i>
<i>From SSDD</i>	<i>0.033</i>	<i>2</i>	<i>45</i>
<i>STA5/6-North</i>	<i>13.629</i>	<i>413</i>	<i>25</i>
<i>From C-139 basin</i>	<i>24.738</i>	<i>7,025</i>	<i>230</i>
S-11A (from WCA-2)	222.377	1,705	6
S-11B (from WCA-2)	375.306	5,088	11
S-11C (from WCA-2)	57.533	868	12
Non-ECP-C-11 West	119.103	1,926	13
<i>S-9</i>	<i>67.800</i>	<i>1,286</i>	<i>15</i>
<i>S-9A</i>	<i>51.303</i>	<i>640</i>	<i>10</i>
Total	1308.019	33,477	21

From WCA-3

Structure	Flow	Phosphorus	
	(1000 ac-ft)	Load (kg)	FWMC (µg/L)
S-150	0.000	0	N/A
S-8	0.000	0	15
S-31	0.000	0	N/A
S-337	60.186	1,231	17
S-343A	18.404	276	12
S-343B	27.302	417	12
S-344	0.000	0	N/A
S-12A	25.329	405	13
S-12B	37.379	315	7
S-12C	93.538	965	8
S-12D	101.921	1,510	12
S-333 ^g	159.386	5,127	26
S-355A/ S-355B	0.000	0	N/A
G-357	0.000	0	N/A
Total	523.444	10,247	16

a. Non-ECP – Non-Everglades Construction Project

b. Lake – Lake Okeechobee

c. EAA – Everglades Agricultural Area

d. SFCD – South Florida Conservancy District

e. SSDD – South Shore Drainage District

f. N/A – not applicable

g. Value includes S-334 from WCA-3.

Table 5. WY2015 annual flows, TP loads, and TP FWM concentrations for ENP.**Into ENP**

Structure	Flow (1,000 ac-ft)	Phosphorus	
		Load (kg)	FWMC (µg/L)
S-12A (from WCA-3)	25.329	405	13
S-12B (from WCA-3)	37.379	315	7
S-12C (from WCA-3)	93.538	965	8
S-12D (from WCA-3)	203.026	2,512	10
S-333-S-334 (from WCA-3)	139.194	4,562	27
S-355A/S-355B (from WCA-3)	0.000	0	N/A ^a
Non-ECP ^b -C-111 Basin	184.642	1,243	5
<i>S-332D</i>	<i>99.794</i>	<i>739</i>	<i>6</i>
<i>S-18C</i>	<i>84.848</i>	<i>504</i>	<i>5</i>
Total	683.108	10,002	12

a. N/A – not applicable

b. Non-ECP – Non-Everglades Construction Project

From ENP

Structure	Flow (1,000 ac-ft)	Phosphorus	
		Load (kg)	FWMC (µg/L)
S-197	0	0	N/A
Total	0	0	N/A

Table 6. Flow volume budgets to the Everglades STAs and diversion from inflow tributaries in 1,000 acre-feet per year.^a

Source Apportioned STA Inflows & Diversions							
	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average	Five-Year % STAs/Diversions
Lake Okeechobee							
<i>Lake Okeechobee through EAA^b to STAs and diversions</i>	47.7	95.6	81.8	168.3	574.6	193.6	18%
<i>Lake Okeechobee through L-8 canal to STAs and diversions</i>	12.2	0.5	16.6	6.9	10.6	9.4	1%
<i>Total Lake Okeechobee to STAs and diversions</i>	59.9	96.1	98.4	175.2	585.3	203.0	18%
C-139 Basin							
<i>From C-139 basin to EAA STAs and diversions</i>	19.4	17.8	13.6	23.2	24.3	19.7	2%
<i>From C-139 basin to STA-5/6 and diversions</i>	86.9	60.4	59.1	103.3	83.1	78.6	7%
<i>Total C-139 basin to STAs and diversions</i>	106.3	78.2	72.7	126.6	107.3	98.2	9%
EAA Basin^b							
<i>Flow from Lake Okeechobee to EAA canals</i>	457.7	447.7	249.3	590.8	1042.7	557.6	N/A ^c
<i>From EAA to STAs and diversions</i>	516.6	544.9	841.2	868.9	669.1	688.2	62%
Water Control District Basins through EAA							
<i>East Beach^d diversion basin to STAs and diversions</i>	8.7	4.7	14.3	15.3	7.7	10.1	1%
<i>East Shore^e & Closter Farms diversion basins to STAs and diversions</i>	18.3	14.6	18.9	25.4	19.9	19.4	2%
<i>SFCD/^fSSDD^g diversion basins to STAs and diversions</i>	25.1	23.3	31.0	35.5	23.6	27.7	3%
<i>Total other water control districts to STAs and diversions</i>	52.1	42.7	64.3	76.1	51.1	57.3	5%
L-8 Basin/Reservoir /C-51 West/Rustic Ranch Basins							
<i>Flow from Lake Okeechobee to L-8 canal</i>	129.9	39.1	121.6	175.3	146.2	122.4	N/A
<i>L-8 basin/reservoir to STAs and diversions</i>	6.9	0.3	34.4	18.5	7.0	13.4	1%
<i>C-51 West to STAs and diversions</i>	10.2	58.3	85.1	32.1	0.0	37.1	3%
<i>Rustic Ranches to STAs</i>	6.3	6.1	4.4	10.7	8.9	7.3	1%
<i>Total from L-8 basin/reservoir/C-51 West/Rustic Ranches to STAs and diversions</i>	23.5	64.7	123.8	61.3	15.9	57.8	5%
Apportioned Total to STA Inflows and Diversions							
	758.5	826.7	1200.5	1308.2	1428.7	1104.5	100%
STAs Reported Data							
STA and Diversion Budget							
<i>Total STAs inflow</i>	736.3	712.3	1160.9	1301.8	1364.8	1055.2	97%
<i>Total diversions</i>	12.4	86.2	28.0	17.4	8.0	30.4	3%
<i>Total STAs inflows and diversions</i>	748.7	798.6	1189.0	1319.2	1372.7	1085.6	100%
<i>Total STAs outflows</i>	723.5	730.5	1206.9	1336.0	1315.9	1062.6	
<i>Total STAs outflows and diversions</i>	736.0	816.7	1235.0	1353.4	1323.9	1093.0	
STA Inflows & Diversions Mass Balance Check							
Percent difference between historical and source apportioned	-1.30%	-3.52%	-0.97%	0.84%	-4.08%	-1.81%	

Rustic Ranches to STAs included the seepage since WY2014.a. The actual values are the basis for the apportionment to the sources. However, mass balancing the system results in slight differences due to multiple complexities in tracking all discharges. EAA to STAs and diversions is a portion of the total EAA runoff reported in Chapter 4 of this volume.

b. EAA – Everglades Agricultural Area

c. N/A – not applicable

d. East Beach – East Beach Water Control District

e. East Shore – East Shore Water Control District

f. SFCD – South Florida Conservancy District

g. SSDD – South Shore Drainage District

Table 7. TP load budgets to the Everglades STAs and diversion from inflow tributaries in metric tons per year.^a

Source Apportioned STA Inflows & Diversions							
	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average	Five-Year % STAs/Diversions
Lake Okeechobee							
<i>Lake Okeechobee through EAA^b to STAs and diversions</i>	8.8	12.5	9.1	27.6	85.4	28.7	19%
<i>Lake Okeechobee through L-8 Canal to STAs and diversions</i>	1.7	0.1	2.4	1.2	2.2	1.5	1%
<i>Total Lake Okeechobee to STAs and diversions</i>	10.5	12.6	11.5	28.8	87.6	30.2	20%
C-139 Basin							
<i>From C-139 basin to EAA STAs and diversions</i>	1.6	3.2	0.9	3.1	3.7	2.5	2%
<i>From C-139 basin to STA-5/6 and diversions</i>	18.6	12.1	9.5	25.2	23.6	17.8	12%
<i>Total C-139 basin to STAs and diversions</i>	20.3	15.3	10.4	28.3	27.2	20.3	13%
EAA Basin							
<i>Flow from Lake Okeechobee to EAA canals</i>	61.0	55.1	28.1	95.8	170.8	82.1	N/A ^c
<i>From EAA to STAs and diversions</i>	45.3	62.7	138.2	98.3	38.6	76.6	50%
Water Control District Basins through EAA							
<i>East Beach^d diversion basin to STAs and diversions</i>	4.7	2.3	10.9	10.3	4.3	6.5	4%
<i>East Shore^e & Closter Farms diversion basins to STAs and diversions</i>	2.7	2.1	3.4	3.4	2.6	2.8	2%
<i>SFCD^f/SSDD^g diversion basins to STAs and diversions</i>	3.3	3.2	4.4	4.0	2.5	3.5	2%
<i>Total other water control districts to STAs and diversions</i>	10.8	7.7	18.6	17.7	9.4	12.8	8%
L-8 Basin/Reservoir/C-51 West/Rustic Ranch Basins							
<i>Flow from Lake Okeechobee to L-8 canal</i>	22.6	7.3	23.8	36.0	33.8	24.7	N/A
<i>L-8 basin/reservoir to STAs and diversions</i>	1.0	0.0	8.3	4.3	1.3	3.0	2%
<i>C-51 West to STAs and diversions</i>	1.3	6.7	26.1	8.7	0.0	8.6	6%
<i>Rustic Ranches to STAs</i>	0.1	0.1	0.3	0.7	0.3	0.3	0%
<i>Total from L-8 basin/reservoir/C-51 West/Rustic Ranches to STAs and diversions</i>	2.4	6.9	34.7	13.8	1.6	11.9	8%
Apportioned Total to STA Inflows and Diversions	89.3	105.1	213.5	186.8	164.4	151.8	100%
STAs Reported Data							
STA and Diversion Budget							
<i>Total STAs inflow</i>	85.9	97.8	198.3	181.1	166.3	145.9	96%
<i>Total diversions</i>	0.5	7.5	13.1	6.2	0.6	5.6	4%
<i>Total STAs inflows and diversions</i>	86.4	105.3	211.4	187.2	166.9	151.4	100%
<i>Total STAs outflows</i>	17.8	17.0	31.9	34.2	28.0	25.8	
<i>Total STAs outflows and diversions</i>	18.2	24.5	45.0	40.3	28.5	31.3	
STA Inflows & Diversions Mass Balance Check							
Percent difference between historical and source apportioned	-3.36%	0.13%	-1.00%	0.24%	1.48%	-0.50%	

a. The actual values are the basis for the apportionment to the sources. However, mass balancing the system results in slight differences due to multiple complexities in tracking all discharges. EAA to STAs and diversions is a portion of the total EAA runoff reported in Chapter 4 of this volume. Rustic Ranches to STAs included the seepage since WY2014.

b. EAA – Everglades Agricultural Area

c. N/A – not applicable

d. East Beach – East Beach Water Control District

e. East Shore – East Shore Water Control District

f. SFCD – South Florida Conservancy District

g. SSDD – South Shore Drainage District

Table 8. TP FWM to the Everglades STAs and diversion from inflow tributaries in $\mu\text{g}/\text{L}$.^a

Source Apportioned STA Inflows & Diversions						
	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average
Lake Okeechobee						
<i>Lake Okeechobee through EAA^b to STAs and diversions</i>	149	106	90	133	121	120
<i>Lake Okeechobee through L-8 canal to STAs and diversions</i>	115	168	119	135	167	132
<i>Total Lake Okeechobee to STAs and diversions</i>	142	106	95	133	121	121
C-139 Basin						
<i>From C-139 basin to EAA STAs and diversions</i>	67	146	53	109	122	103
<i>From C-139 basin to STA-5/6 and diversions</i>	174	162	131	197	230	184
<i>Total C-139 basin to STAs and diversions</i>	154	159	116	181	206	168
EAA Basin						
<i>Flow from Lake Okeechobee to EAA canals</i>	108	100	91	131	133	119
<i>From EAA to STAs and diversions</i>	71	93	133	92	47	90
Water Control District Basins through EAA						
<i>East Beach^c diversion basin to STAs and diversions</i>	444	401	617	545	453	521
<i>East Shore^d & Closter Farms diversion basins to STAs and diversions</i>	121	115	144	110	105	118
<i>SFCD^e/SSDD^f diversion basins to STAs and diversions</i>	106	113	114	91	86	101
<i>Total other water control districts to STAs and diversions</i>	167	146	235	188	149	181
L-8 Basin/Reservoir/C-51 West/Rustic Ranch Basins						
<i>Flow from Lake Okeechobee to L-8 canal</i>	141	151	158	167	187	163
<i>L-8 basin/reservoir to STAs and diversions</i>	118	122	195	190	147	180
<i>C-51 West to STAs and diversions</i>	106	94	249	220	N/A ^g	187
<i>Rustic Ranches to STAs</i>	13	12	63	54	29	35
<i>Total from L-8 basin/reservoir/C-51 West/Rustic Ranches to STAs and diversions</i>	84	86	227	182	81	166
Apportioned Total to STA Inflows and Diversions	95	103	144	116	93	111
STAs Reported Data						
STA and Diversion Budget						
<i>Total STAs inflow</i>	95	111	138	113	99	112
<i>Total diversions</i>	31	70	380	287	57	148
<i>Total STAs inflows and diversions</i>	94	107	144	115	99	113
<i>Total STAs outflows</i>	20	19	21	21	17	20
<i>Total STAs outflows and diversions</i>	20	24	30	24	17	23
STA Inflows & Diversions Mass Balance Check						
Percent difference between historical and source apportioned	-2.03%	3.53%	-0.04%	-0.60%	5.34%	1.24%

a. The actual values are the basis for the apportionment to the sources. However, mass balancing the system results in slight differences due to multiple complexities in tracking all discharges. EAA to STAs and diversions is a portion of the total EAA runoff reported in Chapter 4 of this volume. Rustic Ranches to STAs included the seepage since WY2014.

b. EAA – Everglades Agricultural Area

c. East Beach – East Beach Water Control District

d. East Shore – East Shore Water Control District

e. SFCD – South Florida Conservancy District

f. SSDD – South Shore Drainage District

g. N/A – not applicable

Table 9. Flow budgets for the EPA and inflow tributaries in 1,000 acre-feet per year.

	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average
Discharges within the EPA						
WCA-1						
Into WCA-1 ^a	152.6	170.2	365.1	380.3	245.4	262.7
<i>From STA + diversion</i>	<i>152.6</i>	<i>170.2</i>	<i>363.9</i>	<i>380.3</i>	<i>245.4</i>	<i>262.5</i>
<i>From eastern Non-ECP^b</i>	<i>0.0</i>	<i>0.0</i>	<i>1.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.2</i>
From WCA-1 total	217.4	16.3	483.7	471.4	197.3	277.2
<i>From WCA-1 to WCA-2</i>	<i>133.6</i>	<i>0.0</i>	<i>359.5</i>	<i>328.5</i>	<i>99.0</i>	<i>184.1</i>
<i>Discharge from WCA-1 out of EPA</i>	<i>83.8</i>	<i>16.3</i>	<i>124.2</i>	<i>143.0</i>	<i>98.3</i>	<i>93.1</i>
Net to WCA-1	-64.8	154.0	-118.6	-91.2	48.0	-14.5
WCA-2						
Into WCA-2	466.6	386.1	1069.0	1078.2	823.9	764.8
<i>From STA + diversion</i>	<i>294.4</i>	<i>339.2</i>	<i>634.6</i>	<i>749.7</i>	<i>724.9</i>	<i>548.6</i>
<i>From eastern basin (NSID^c)</i>	<i>0.0</i>	<i>0.0</i>	<i>2.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.4</i>
<i>From WCA-1 to WCA-2</i>	<i>133.6</i>	<i>0.0</i>	<i>359.5</i>	<i>328.5</i>	<i>99.0</i>	<i>184.1</i>
From WCA-2 total	407.2	378.0	937.7	959.0	810.0	698.4
<i>From WCA-2 to WCA-3</i>	<i>254.3</i>	<i>297.2</i>	<i>779.6</i>	<i>689.6</i>	<i>655.2</i>	<i>535.2</i>
<i>Discharge from WCA-2 out of EPA</i>	<i>152.8</i>	<i>80.9</i>	<i>158.2</i>	<i>269.4</i>	<i>154.8</i>	<i>163.2</i>
Net to WCA-2	59.5	8.1	131.3	119.2	13.9	66.4
WCA-3						
Into WCA-3	834.1	959.7	1367.8	1424.6	1308.0	1178.8
<i>From STA + Diversion</i>	<i>288.9</i>	<i>306.8</i>	<i>236.4</i>	<i>380.0</i>	<i>394.5</i>	<i>321.3</i>
<i>From eastern Non-ECP</i>	<i>148.2</i>	<i>191.1</i>	<i>247.5</i>	<i>176.2</i>	<i>119.1</i>	<i>176.4</i>
<i>From western Non-ECP</i>	<i>117.9</i>	<i>135.6</i>	<i>98.5</i>	<i>178.8</i>	<i>148.0</i>	<i>135.7</i>
<i>From WCA-2 to WCA-3</i>	<i>254.3</i>	<i>297.2</i>	<i>779.6</i>	<i>689.6</i>	<i>655.2</i>	<i>535.2</i>
From WCA-3 total	699.5	502.3	942.9	1082.7	523.4	750.2
<i>From WCA-3 to ENP</i>	<i>474.8</i>	<i>426.3</i>	<i>813.8</i>	<i>867.8</i>	<i>498.5</i>	<i>616.2</i>
<i>Discharge from WCA-3 out of EPA</i>	<i>224.6</i>	<i>76.0</i>	<i>129.1</i>	<i>214.9</i>	<i>25.0</i>	<i>133.9</i>
Net to WCA-3	134.6	457.4	424.9	341.9	784.6	428.7
ENP						
Into ENP	710.1	596.6	1096.2	1114.4	683.1	840.1
<i>From eastern Non-ECP</i>	<i>235.2</i>	<i>170.3</i>	<i>282.4</i>	<i>246.6</i>	<i>184.6</i>	<i>223.8</i>
<i>From WCA-3 to ENP</i>	<i>474.8</i>	<i>426.3</i>	<i>813.8</i>	<i>867.8</i>	<i>498.5</i>	<i>616.2</i>
Discharge out of ENP	24.967	12.28	11.30	6.81	0.00	11.1
Discharges into the EPA from Non-ECP Basins						
Eastern Non-ECP Basin	383.4	361.4	533.1	422.8	303.8	400.9
Western Non-ECP Basin	117.9	135.6	98.5	178.8	148.0	135.7
Discharges out of the EPA^d						
Discharges for Water Supply and Flood Control	486.2	185.4	422.8	634.1	278.1	401.3

a. ACME discharges to WCA-1 were stopped and conveyed to the C-51 canal for treatment in STA-1 East.; b. Non-ECP – Non-Everglades Construction Project; c. North Springs Improvement District; d. Water supply/flood releases discharged outside of the EPA.

Table 10. TP load budgets for the EPA and inflow tributaries in metric tons per year.

	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average
Discharges within the EPA						
WCA-1						
Into WCA-1 ^a	4.7	4.6	26.4	18.9	6.0	12.1
<i>From STA + diversion</i>	4.7	4.6	26.2	18.9	6.0	12.1
<i>From eastern Non-ECP^b</i>	0.0	0.0	0.2	0.0	0.0	0.0
From WCA-1 total	7.2	0.4	16.2	15.8	3.7	8.6
<i>From WCA-1 to WCA-2</i>	4.3	0.0	11.2	11.0	1.6	5.6
<i>Discharge from WCA-1 out of EPA</i>	2.9	0.4	5.0	4.7	2.1	3.0
Net to WCA-1	-2.5	4.3	10.2	3.2	2.3	3.5
WCA-2						
Into WCA-2	10.4	7.8	26.1	26.1	15.7	17.2
<i>From STA + diversion</i>	5.9	7.7	14.0	15.1	14.0	11.3
<i>From eastern basin (NSID^c)</i>	0.0	0.0	0.1	0.0	0.0	0.0
<i>From WCA-1 to WCA-2</i>	4.3	0.0	11.2	11.0	1.6	5.6
From WCA-2 total	6.2	6.6	10.4	10.6	9.4	8.7
<i>From WCA-2 to WCA-3</i>	4.4	4.5	8.7	8.0	7.7	6.6
<i>Discharge from WCA-2 out of EPA</i>	1.8	2.1	1.7	2.7	1.8	2.0
Net to WCA-2	4.2	1.2	15.7	15.4	6.2	8.5
WCA-3						
Into WCA-3	20.5	27.0	25.2	31.9	33.5	27.6
<i>From STA + diversion</i>	7.8	12.2	4.8	8.3	9.0	8.4
<i>From eastern Non-ECP</i>	2.3	3.5	4.3	2.8	1.9	3.0
<i>From western Non-ECP</i>	6.1	7.4	7.5	12.8	15.2	9.8
<i>From WCA-2 to WCA-3</i>	4.4	4.5	8.7	8.0	7.7	6.6
From WCA-3 total	9.4	7.5	10.7	12.7	10.2	10.1
<i>From WCA-3 to ENP</i>	5.4	5.0	8.0	8.5	8.8	7.1
<i>Discharge from WCA-3 out of EPA</i>	4.0	2.5	2.7	4.2	1.5	3.0
Net to WCA-3	11.1	19.6	14.5	19.2	23.2	17.5
ENP						
Into ENP	8.5	6.7	10.8	10.2	10.0	9.3
<i>From eastern Non-ECP</i>	3.1	1.8	2.8	1.7	1.2	2.1
<i>From WCA-3 to ENP</i>	5.4	5.0	8.0	8.5	8.8	7.1
Discharge out of ENP	0.1	0.1	0.1	0.0	0.0	0.1
Discharges into the EPA from Non-ECP Basins						
Eastern Non-ECP Basin	5.4	5.3	7.4	4.5	3.2	5.1
Western Non-ECP Basin	6.1	7.4	7.5	12.8	15.2	9.8
Discharges out of the EPA^d						
Discharges for Water Supply and Flood Control	8.8	5.0	9.5	11.6	5.3	8.0

a. ACME discharges to WCA-1 were stopped and conveyed to the C-51 canal for treatment in STA-1 East; b. Non-ECP – Non-Everglades Construction Project; c. North Springs Improvement District; d. Water supply/flood releases discharged outside of the EPA.

Table 11. FWM TP for the EPA and inflow tributaries in µg/L.

	WY2011	WY2012	WY2013	WY2014	WY2015	Five-Year Average
Discharges within the EPA						
WCA-1						
Into WCA-1 ^a	25	22	59	40	20	37
<i>From STA + diversion</i>	25	22	58	40	20	37
<i>From eastern Non-ECP^b</i>	N/A ^c	N/A	139	N/A	N/A	139
From WCA-1 total	27	18	27	27	15	25
<i>From WCA-1 to WCA-2</i>	26	N/A	25	27	13	25
<i>Discharge from WCA-1 out of EPA</i>	28	18	32	27	17	26
WCA-2						
Into WCA-2	18	16	20	20	15	18
<i>From STA + diversion</i>	16	18	18	16	16	17
<i>From eastern basin (NSID^d)</i>	N/A	N/A	26	N/A	N/A	26
<i>From WCA-1 to WCA-2</i>	26	N/A	25	27	13	25
From WCA-2 total	12	14	9	9	9	10
<i>From WCA-2 to WCA-3</i>	14	12	9	9	9	10
<i>Discharge from WCA-2 out of EPA</i>	10	21	9	8	9	10
<i>From WCA-1 to WCA-2</i>	26	N/A	25	27	13	25
WCA-3						
Into WCA-3	20	23	15	18	21	19
<i>From STA + diversion</i>	22	32	17	18	18	21
<i>From eastern Non-ECP</i>	13	15	14	13	13	14
<i>From western Non-ECP</i>	42	44	62	58	83	58
<i>From WCA-2 to WCA-3</i>	14	12	9	9	9	10
From WCA-3 total	11	12	9	10	16	11
<i>From WCA-3 to ENP</i>	9	9	8	8	14	9
<i>Discharge from WCA-3 out of EPA</i>	14	26	17	16	48	18
ENP						
Into ENP	10	9	8	7	12	9
<i>From eastern Non-ECP</i>	11	8	8	6	5	8
<i>From WCA-3 to ENP</i>	9	9	8	8	14	9
Discharge out of ENP	5	5	5	4	N/A	5
Discharges into EPA from Non-ECP Basins						
Eastern Non-ECP Basin	11	12	11	9	8	10
Western Non-ECP Basin	42	44	62	58	83	58
Discharges Out of EPA^e						
Discharges for Water Supply and Flood Control	15	22	18	15	16	16

CP – Non-d releases

¹ACME discharges to WCA-1 were stopped and conveyed to C-51 for treatment in STA-1E.²Water supply/flood releases discharged outside of EPA. ³North Springs Improvement District.

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