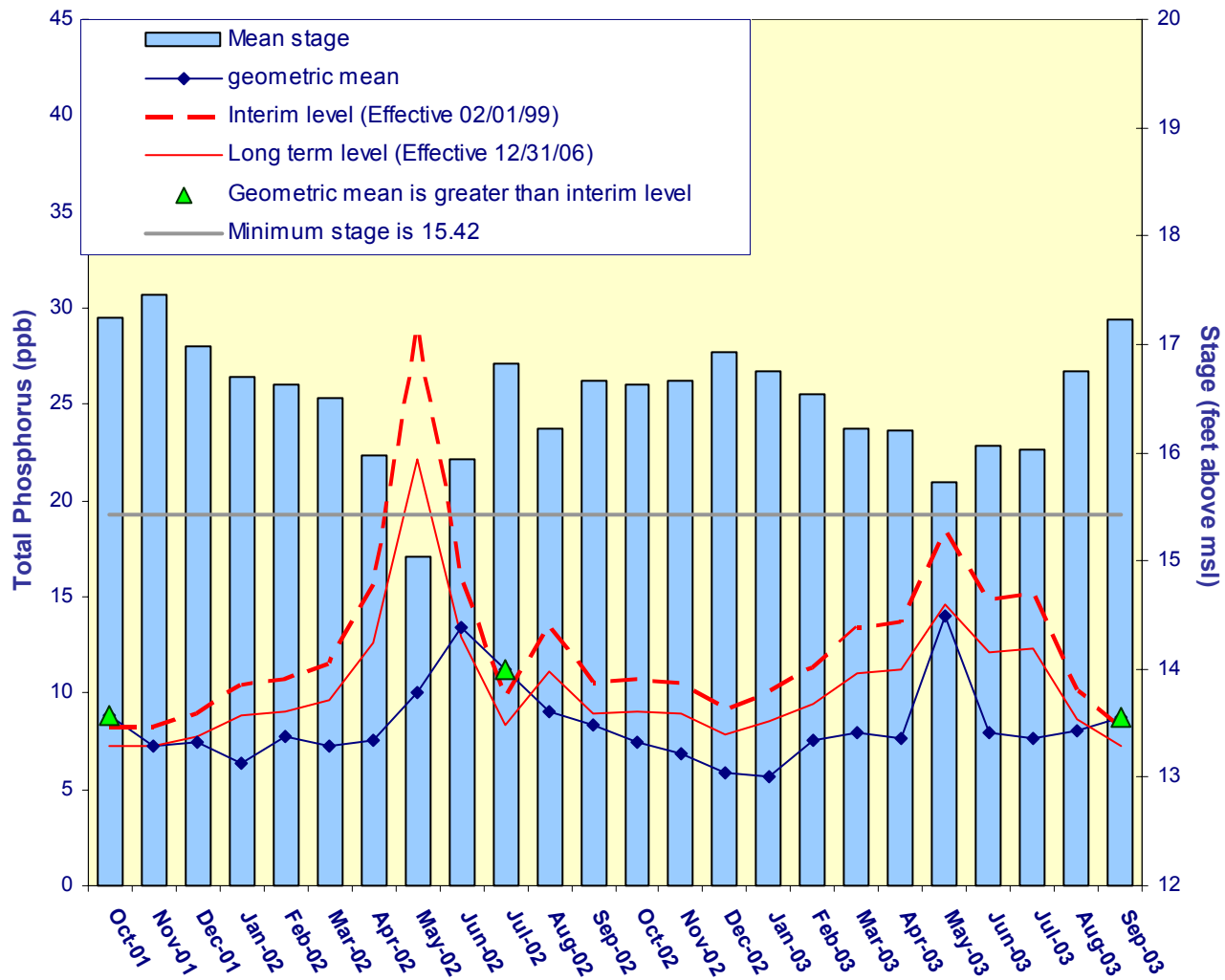


# Settlement Agreement

July - September 2003



**Figure 1.** Monthly total phosphorus geometric mean concentrations for the A.R.M. Loxahatchee National Wildlife Refuge compared to the interim and long-term levels. The calculated level concentrations are adjusted for fluctuations in stage.

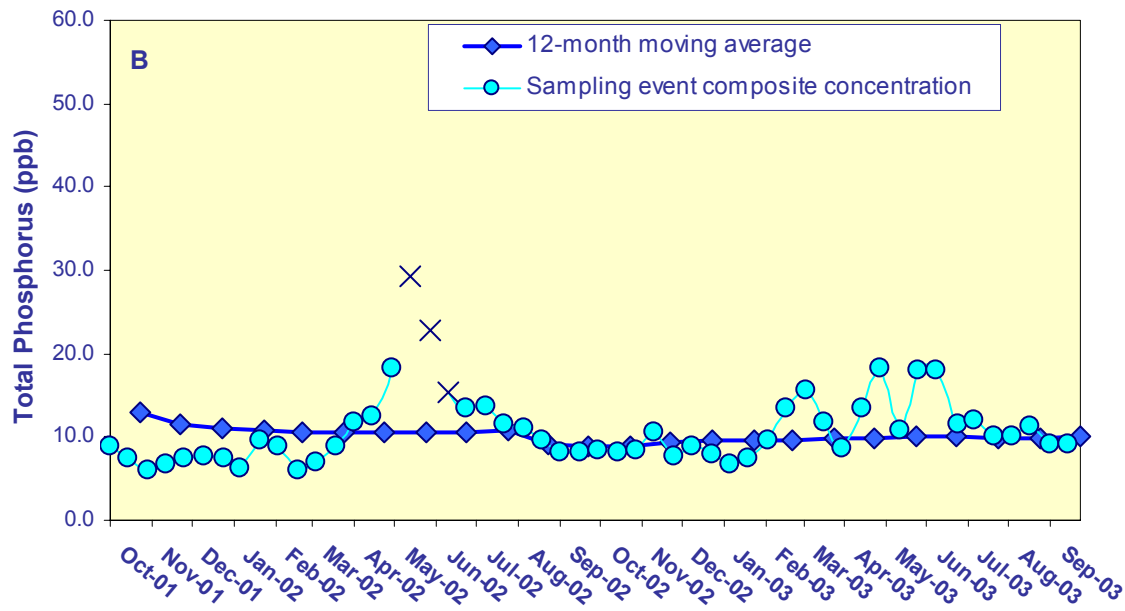
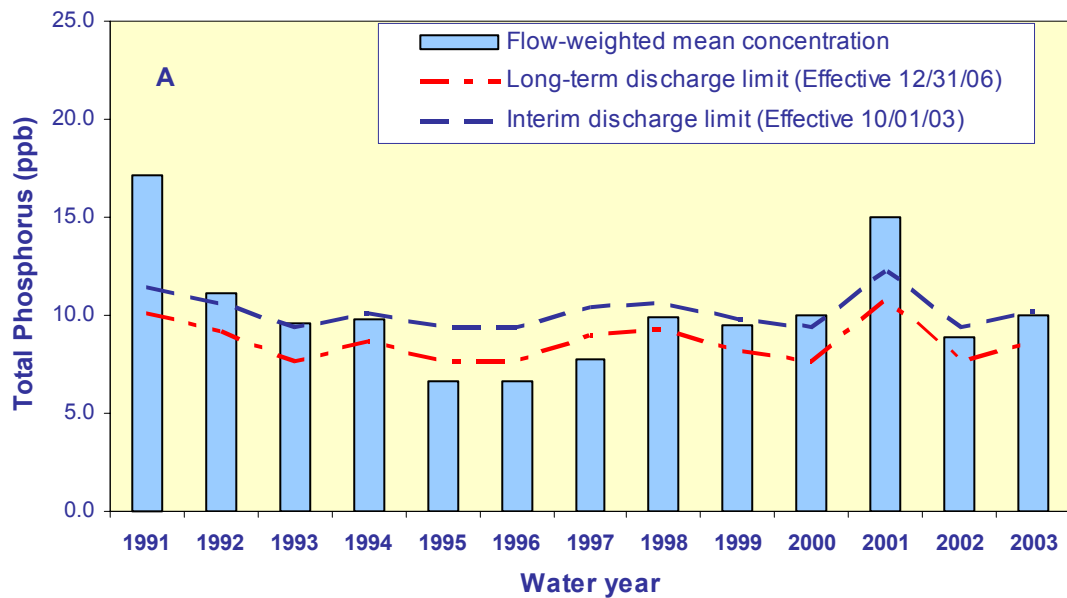
**Table 1.** Loxahatchee National Wildlife Refuge Total Phosphorus Compliance Tracking.

Month - Year	Geometric Mean Concentration	Interim Level (ppb)	Long Term Level (ppb)	Average Stage	Number of TP Samples	Number of Stage Measurements
	(ppb)	Effective 2/1/99	Effective 12/31/06	(ft, NGVD)		
Oct-2001	8.8	8.3	7.2	17.24	14	3
Nov-2001	7.3	8.3	7.2	17.46	14	3
Dec-2001	7.5	8.9	7.7	16.99	14	3
Jan-2002	6.4	10.4	8.8	16.69	14	3
Feb-2002	7.8	10.7	9.1	16.63	14	3
Mar-2002	7.3	11.5	9.7	16.50	14	3
Apr-2002	7.5	15.6	12.7	15.98	11	3
May-2002	10.0	0.0	0.0	15.04	3	3
Jun-2002	13.4	16.0	12.9	15.94	10	3
Jul-2002	11.2	9.7	8.3	16.82	14	3
Aug-2002	9.0	13.5	11.1	16.22	12	3
Sep-2002	8.3	10.6	8.9	16.66	11	3
Oct-2002	7.5	10.7	9.0	16.64	12	3
Nov-2002	6.9	10.5	8.9	16.66	12	3
Dec-2002	5.9	9.2	7.9	16.93	14	3
Jan-2003	5.7	10.0	8.5	16.76	13	3
Feb-2003	7.5	11.3	9.5	16.54	11	3
Mar-2003	8.0	13.4	11.1	16.23	9	3
Apr-2003	7.6	13.7	11.2	16.20	12	3
May-2003	14.0	18.3	14.6	15.72	7	3
Jun-2003	7.9	14.8	12.1	16.06	11	3
Jul-2003	7.7	15.2	12.3	16.02	9	3
Aug-2003	8.0	10.1	8.6	16.74	14	3
Sep-2003	8.7	8.3	7.2	17.23	11	3

Notes:

(1) Average Stage is calculated using stage elevations at three stations on the sampling date

(2) Highlighted values indicate months when exceedances occurred



**Figure 2.** Total phosphorus flow-weighted mean concentrations (fwmc) in inflows to Everglades National Park through Shark River Slough. **A.** The 12-month moving average fwmc at the end of each water year compared to the total phosphorus interim and long-term limits.

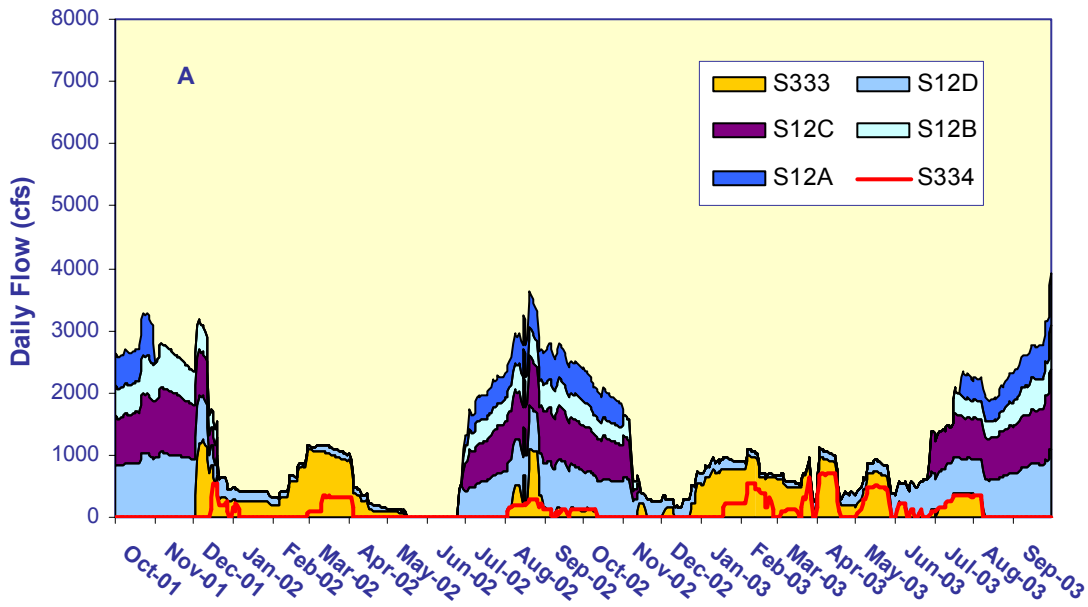
**B.** The 12-month moving average fwmc at the end of each month and the composite total phosphorus concentration for each sampling event. \*(star): denotes arithmetic average for May-02 and June-02 samples as there was no flow on these sampling dates.

**Table 2.** Shark River Slough  
Total Phosphorus  
Concentration Compliance  
Tracking

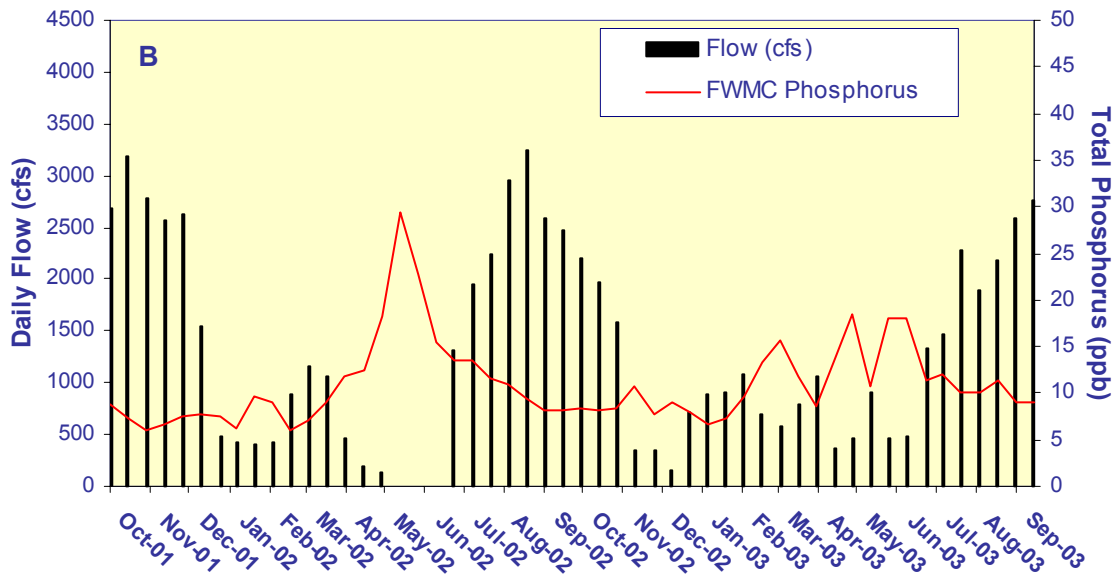
12-Month Period Ending On	Total Period Flow	Flow Weighted Mean Total Phosphorus	Interim Limit (ppb)	Long Term Limit (ppb)	Percent of Sampling Events Greater than 10 ppb	
			Effective	Effective	(%)	
	(Kac-ft)	(ppb)	10/1/2003	12/31/2006	Guideline	Observed
<b>31-Oct-01</b>	503.2	13.0	11.8	10.5	55.2	<b>68.4</b>
<b>30-Nov-01</b>	600.0	11.5	11.3	10.0	52.1	<b>57.9</b>
<b>31-Dec-01</b>	688.8	11.0	10.9	9.5	49.8	<b>52.6</b>
<b>31-Jan-02</b>	707.8	10.9	10.8	9.4	49.3	<b>52.6</b>
<b>28-Feb-02</b>	741.3	10.7	10.6	9.2	48.3	45.0
<b>31-Mar-02</b>	809.5	10.5	10.3	8.9	46.9	40.9
<b>30-Apr-02</b>	829.9	10.5	10.3	8.8	46.3	40.9
<b>31-May-02</b>	833.5	10.5	10.2	8.7	46.3	43.5
<b>30-Jun-02</b>	839.6	10.5	10.2	8.7	46.1	40.9
<b>31-Jul-02</b>	958.5	10.9	9.7	8.1	43.1	<b>45.8</b>
<b>31-Aug-02</b>	1003.2	9.1	9.6	7.9	42.3	39.1
<b>30-Sep-02</b>	1048.1	8.8	9.4	7.7	41.4	30.4
<b>31-Oct-02</b>	999.9	8.9	9.6	7.9	42.6	30.4
<b>30-Nov-02</b>	884.5	9.4	10.0	8.5	45.4	34.8
<b>31-Dec-02</b>	802.2	9.6	10.4	8.9	47.4	33.3
<b>31-Jan-03</b>	831.1	9.5	10.3	8.8	46.7	34.8
<b>28-Feb-03</b>	843.6	9.7	10.2	8.7	46.9	39.1
<b>31-Mar-03</b>	812.1	9.9	10.3	8.9	47.6	<b>47.8</b>
<b>30-Apr-03</b>	832.1	9.9	10.2	8.8	47.5	43.5
<b>31-May-03</b>	871.3	10.0	10.1	8.6	47.0	45.8
<b>30-Jun-03</b>	901.1	10.2	10.0	8.4	46.4	<b>50.0</b>
<b>31-Jul-03</b>	891.3	9.8	10.0	8.5	47.1	<b>50.0</b>
<b>31-Aug-03</b>	839.3	9.9	10.2	8.7	48.3	<b>50.0</b>
<b>30-Sep-03</b>	850.1	10.0	10.2	8.7	47.8	<b>50.0</b>

Notes:

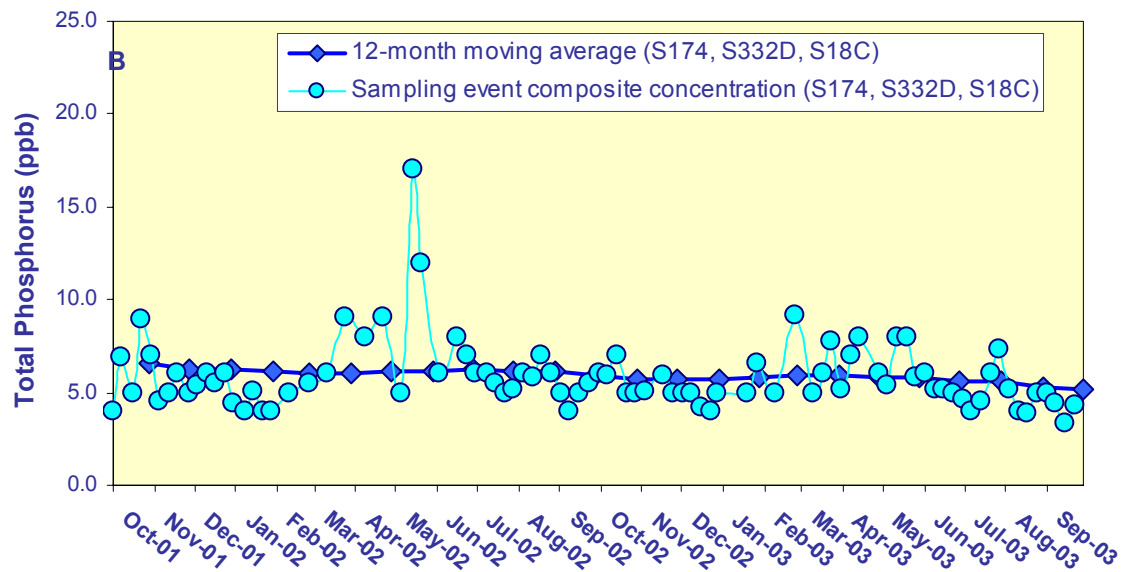
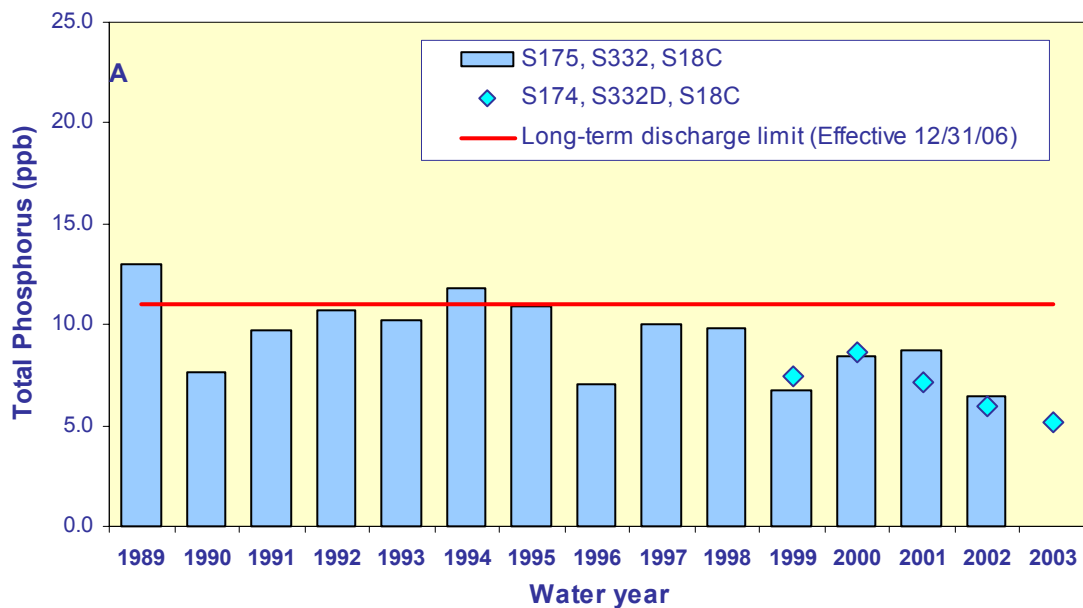
*Italicized values exceeded allowed percentage*



**Figure 3.A.** Daily flows into Shark River Slough by structure.



**Figure 3.B.** The relationship between daily flow at Shark River Slough structures and the corresponding flow-weighted mean total phosphorus concentrations for individual sampling events.



**Figure 4.** Total phosphorus flow-weighted mean concentrations (fwmc) in inflows to Everglades National Park through Taylor Slough and the Coastal Basins.

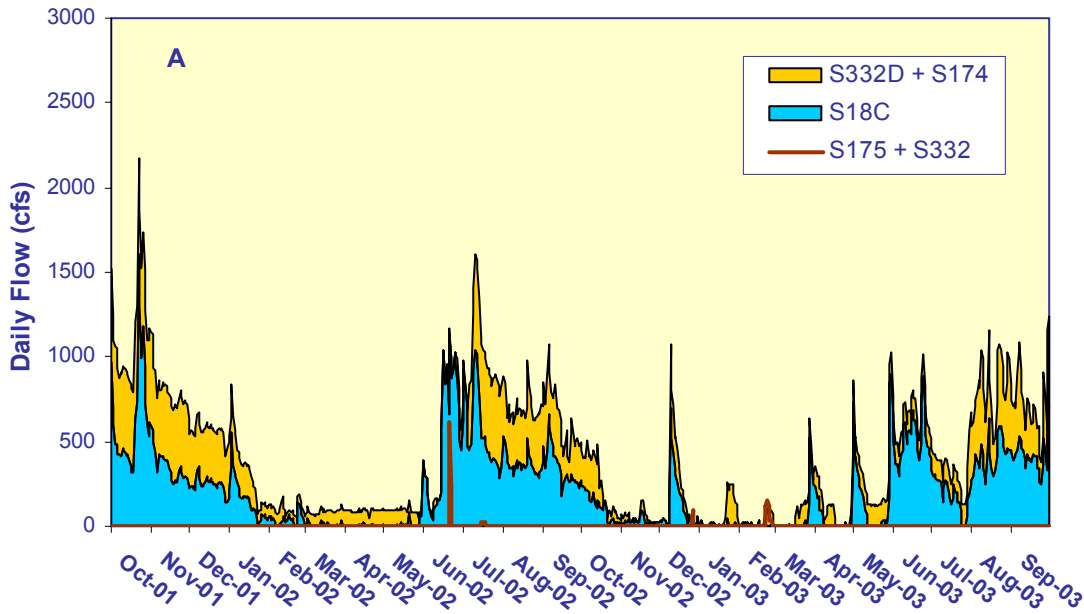
**A.** The 12-month moving average fwmc at the end of each water year compared to the 11 ppb long-term total phosphorus limit.

**B.** The 12-month moving average fwmc at the end of each month and the composite total phosphorus concentration for each sampling event.

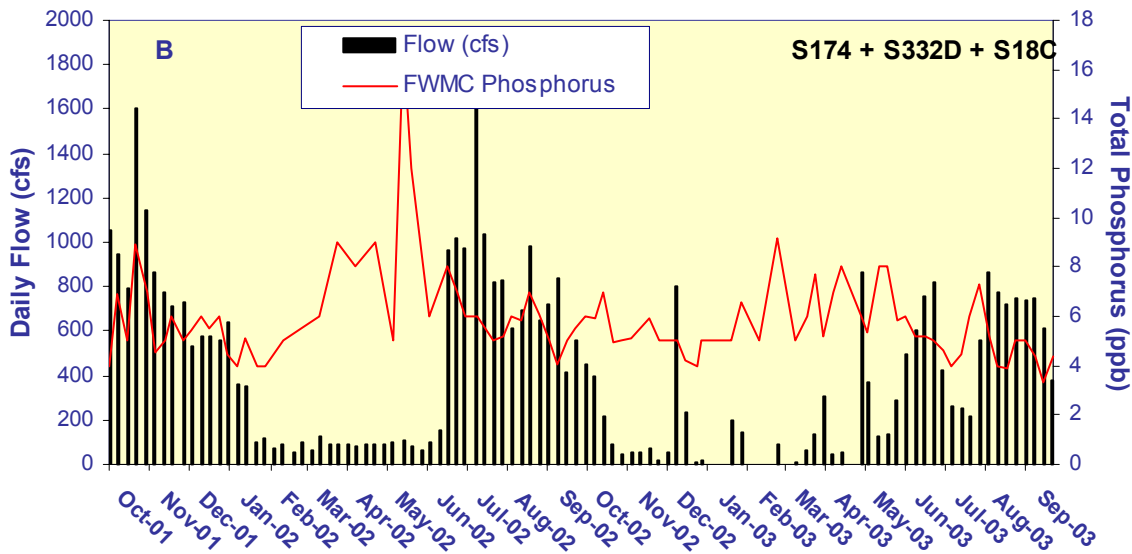
**Table 3.** Taylor Slough and the Coastal Basins Total Phosphorus Concentration Compliance Tracking

12-Month Period Ending On	Total Period Flow	Flow Weighted Mean Total Phosphorus	Limit (Effective 12/31/06)	Percent of Sampling Events Greater than 10 ppb	
			(ppb)	(%)	
	(Kac-ft)	(ppb)	Long Term	Guideline	Observed
<b>31-Oct-01</b>	235.2	6.5	11.0	53.1	8.0
<b>30-Nov-01</b>	269.7	6.3	11.0	53.1	7.4
<b>31-Dec-01</b>	296.5	6.2	11.0	53.1	6.7
<b>31-Jan-02</b>	316.0	6.1	11.0	53.1	5.9
<b>28-Feb-02</b>	320.6	6.1	11.0	53.1	0.0
<b>31-Mar-02</b>	325.9	6.1	11.0	53.1	0.0
<b>30-Apr-02</b>	331.1	6.1	11.0	53.1	0.0
<b>31-May-02</b>	336.4	6.1	11.0	53.1	5.0
<b>30-Jun-02</b>	364.3	6.2	11.0	53.1	4.9
<b>31-Jul-02</b>	392.1	6.1	11.0	53.1	4.7
<b>31-Aug-02</b>	388.3	6.1	11.0	53.1	4.7
<b>30-Sep-02</b>	371.8	6.0	11.0	53.1	4.7
<b>31-Oct-02</b>	316.0	5.7	11.0	53.1	4.5
<b>30-Nov-02</b>	271.6	5.8	11.0	53.1	4.8
<b>31-Dec-02</b>	249.8	5.7	11.0	53.1	4.7
<b>31-Jan-03</b>	234.2	5.8	11.0	53.1	5.0
<b>28-Feb-03</b>	229.9	5.9	11.0	53.1	5.0
<b>31-Mar-03</b>	230.5	5.9	11.0	53.1	4.9
<b>30-Apr-03</b>	231.5	5.8	11.0	53.1	4.8
<b>31-May-03</b>	244.2	5.8	11.0	53.1	0.0
<b>30-Jun-03</b>	249.8	5.6	11.0	53.1	0.0
<b>31-Jul-03</b>	209.0	5.6	11.0	53.1	0.0
<b>31-Aug-03</b>	216.1	5.3	11.0	53.1	0.0
<b>30-Sep-03</b>	221.9	5.2	11.0	53.1	0.0





**Figure 5.A.** Daily flows into Everglades National Park through Taylor Slough and S18C.



**B.** The relationship between daily flows at Taylor Slough structures and S18C and the corresponding flow-weighted mean total phosphorus concentrations for individual sampling events.

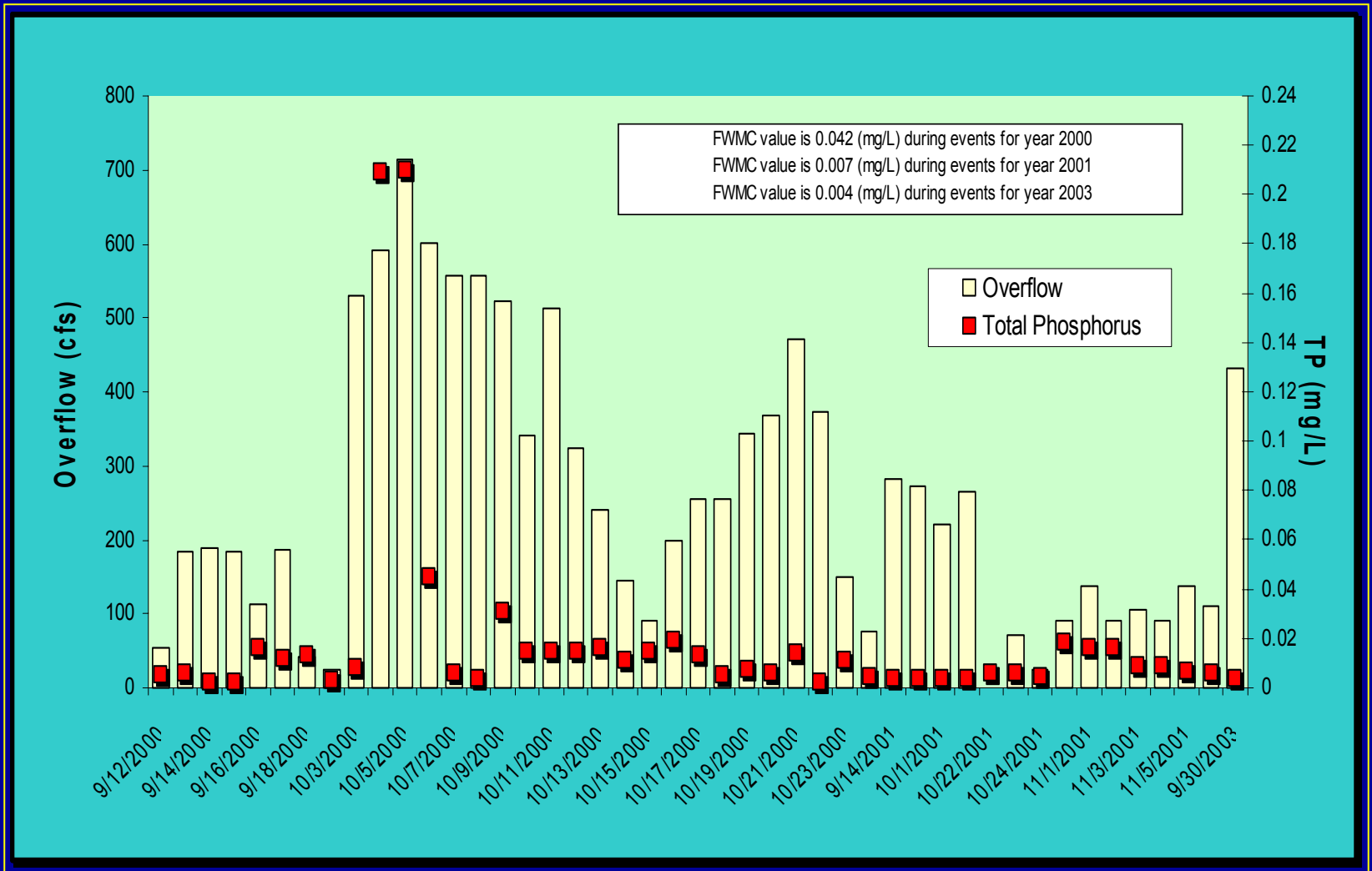
# **Settlement Agreement**

**Overflow Events 2001 – 2003**

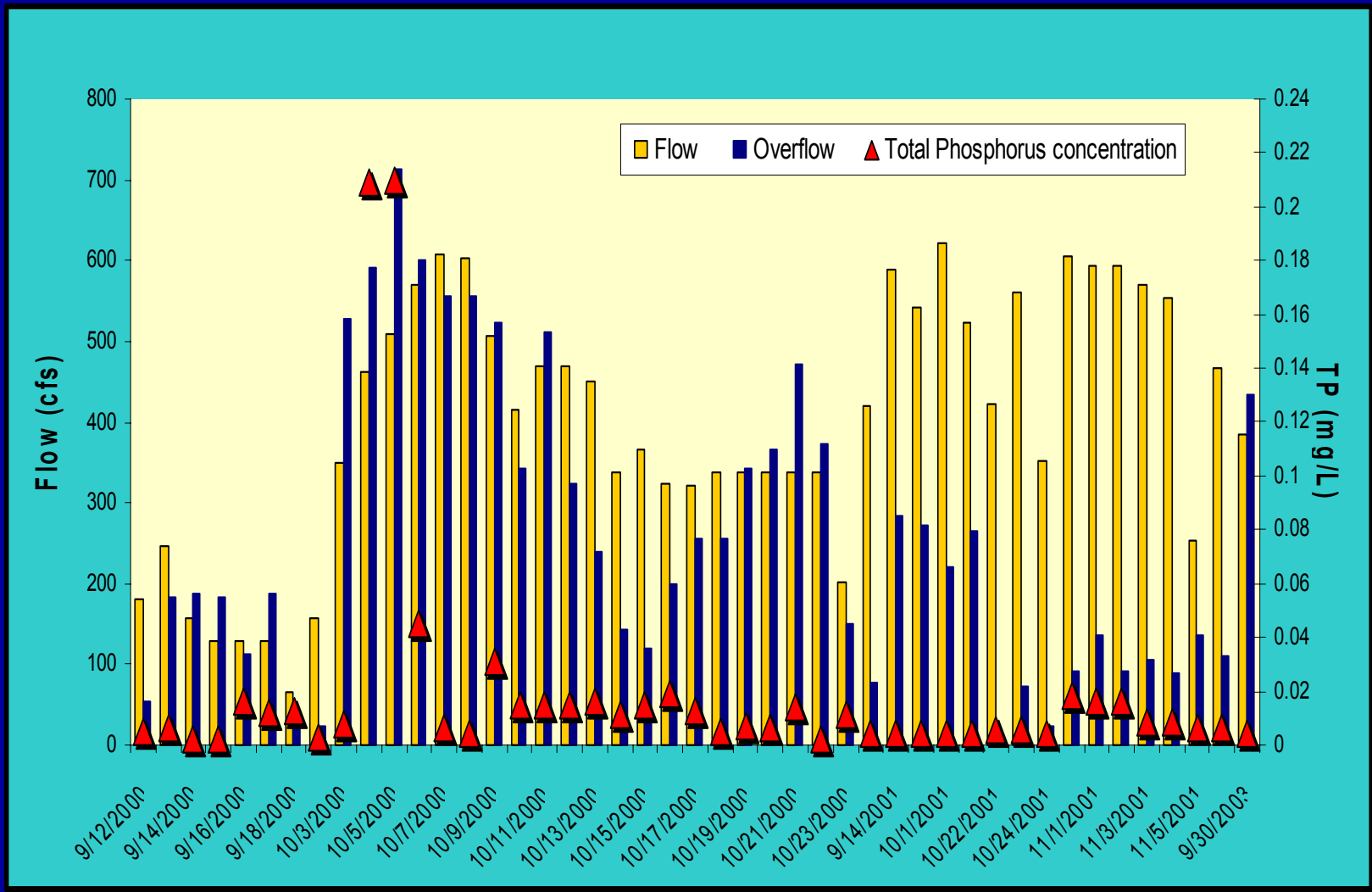
**at the S-332B Weir**

# Evaluation of overflows for S-332B weir





**Fig. 6 Total Phosphorus concentration for S-332B during overflow events .**



**Fig. 7 Pump S-332B during overflow events for 2000, 2001 and 2003.**