
Taylor Slough and the Coastal Basins

Under the Consent Decree, a single total phosphorus long-term limit of 11 ppb, to be met by December 31, 2006, was set for the two points of inflow to Taylor Slough (S332 and S175) and the inflow point to the Coastal Basins (S18C). The 11 ppb limit applies to the water year ending September 30.

C-111 Project Structures and Detention Areas

Beginning in August 1999, structure S332D, a new pump station constructed by the U.S. Army Corps of Engineers (USACE), began operation. The structure is adjacent to spillway S174 and pumps water from the L31N canal into the L31W canal. The S332D and S174 structures became the new inflow compliance monitoring sites for Taylor Slough on October 1, 1999, replacing S332 and S175.

The USACE completed construction of the remaining C-111 project structures and detention areas along the eastern boundary of the ENP in June 2002. The project was authorized by the USACE in 1995 to restore more natural hydrologic conditions in Taylor Slough and to maintain flood protection to the east of the L31N and C-111 canals. Project facilities consist of pump stations S332B, S332C and S332D, Detention Cells 1 through 5, a Connector Cell between cells 2 and 3, a Flow Way Cell originating at Berm 3 of Cell 5, and four emergency overflow structures (**Figure 5**). The Flow Way Cell is the only surface water routine discharge location to the ENP from this project.

The construction of these facilities was accelerated to respond to U.S. Fish and Wildlife requirements to give immediate relief to water conditions that threaten the Cape Sable Seaside Sparrow, an endangered species. The USACE signed a Record of Decision on July 2, 2002 that authorizes the implementation of an Interim Operational Plan (IOP) to govern the operation of the new facilities. Since July 31, 2002, the USACE has been operating the project under Emergency Orders issued by the Florida Department of Environmental Protection (FDEP).

The USACE and the South Florida Water Management District (District) will monitor the implementation of the IOP under the terms and conditions of the C-111 Project Cooperation Agreement executed in 1995. The USACE has implemented a monitoring plan approved by FDEP that assesses the hydrologic, environmental, and surface and ground water quality changes that may occur as a result of the IOP.

The monitoring plan treats the detention areas as a single project with five cells, three inflows and a single outflow to ENP. Only Emergency Overflows EO2 and EO4 would discharge into ENP if utilized. Overflows have periodically occurred at EO2 between September 2001 and September 2003. Data from these overflows are presented graphically beginning on page 16 this report. Discharges from Emergency Overflows EO1 and EO3 would flow onto District property and eventually into the L31N Canal. The majority of the water pumped into the detention cells, as well as rainfall, is expected to seep into the Biscayne Aquifer directly below the project site and provide a hydrologic "curtain" to reduce ground water seepage in an easterly direction from ENP. Until FDEP issues an operating permit to the District and approves the District's monitoring plan, the District will continue to report data from S332D and S174 to determine compliance with the Consent Decree requirements as described in the following section.

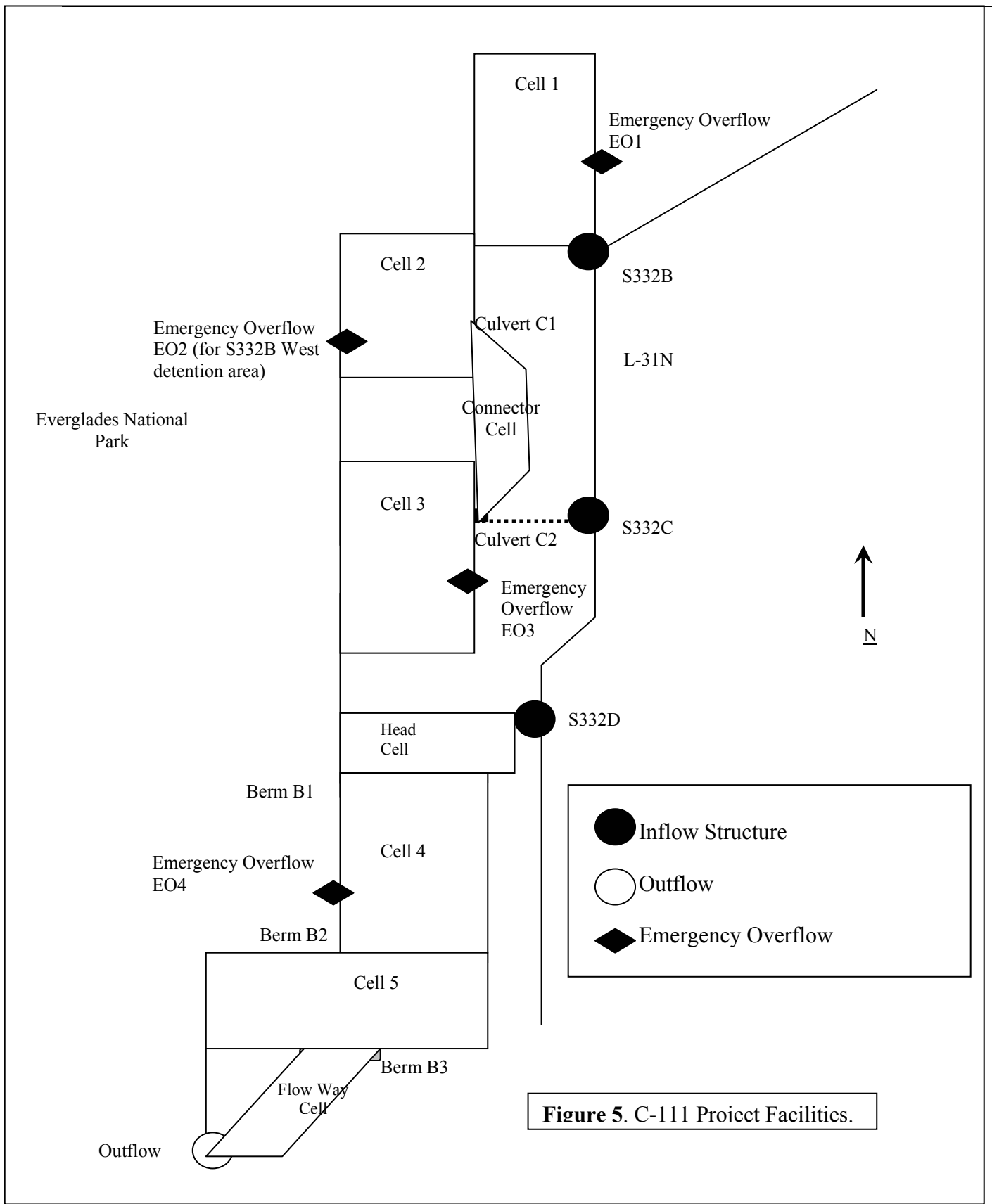


Figure 5. C-111 Project Facilities.

Compliance with Consent Decree

Inflow concentrations of total phosphorus to the Everglades National Park through Taylor Slough and the Coastal Basins are compared to the 11 ppb limit at the end of each water year using data from both the old (S175, S332, S18C) and new (S174, S332D, S18C) combinations of structures (**Figure 6a**). The bars in **Figure 6a** represent the flow-weighted mean total phosphorus concentrations from S332, S175 and S18C for water years 1989 through 2002. The diamond point values for water years 1999 through 2002 represent the new combination of structures. **Figure 6b** presents the 12-month moving average and individual sampling event flow-weighted mean total phosphorus concentrations at the S174, S332D and S18C structures.

Total phosphorus and flow data from both sets of structures presented in prior editions of this report through December 2001 (April 2002 report) showed that, beginning October 2000, the 12-month moving total flow for S332D, S174 and S18C was consistently greater than flow at S332, S175 and S18C. There was also a shift in flow-weighted mean total phosphorus concentration data whereby S332D, S174 and S18C concentrations became equal to and then consistently lower than the concentrations at S332, S175 and S18C. These changes reflected the switch made from S332 to S332D for water delivery to Taylor Slough between July 3 and July 5, 2000. Consequently, as of the July 2002 report, only S332D, S174 and S18C data are presented for monthly tracking of data in **Figure 6b**.

The 12-month flow-weighted mean concentrations for April, May and June 2003 were 5.8, 5.8 and 5.6 ppb, respectively, for the combined flow through S174, S332D and S18C (**Table 3**). The Consent Decree stipulates that the percent of flow-weighted mean total phosphorus concentrations greater than 10 ppb from each sampling event in any 12-month period must not exceed a fixed guideline of 53.1 percent. The percentage of flow-weighted mean total phosphorus concentrations greater than 10 ppb for the combined flow through S174, S332D and S18C was 4.8, 0.0 and 0.0 for the periods ending April, May and June 2003.

The daily flows into Everglades National Park through S332D, S174 and S18C are presented in **Figure 7a**. **Figure 7b** shows the relationship between the daily inflows and the corresponding flow-weighted mean total phosphorus concentrations for each sampling event. As the data indicate, there is no observable linear relationship between daily mean flow and flow-weighted mean total phosphorus concentrations at these structures.

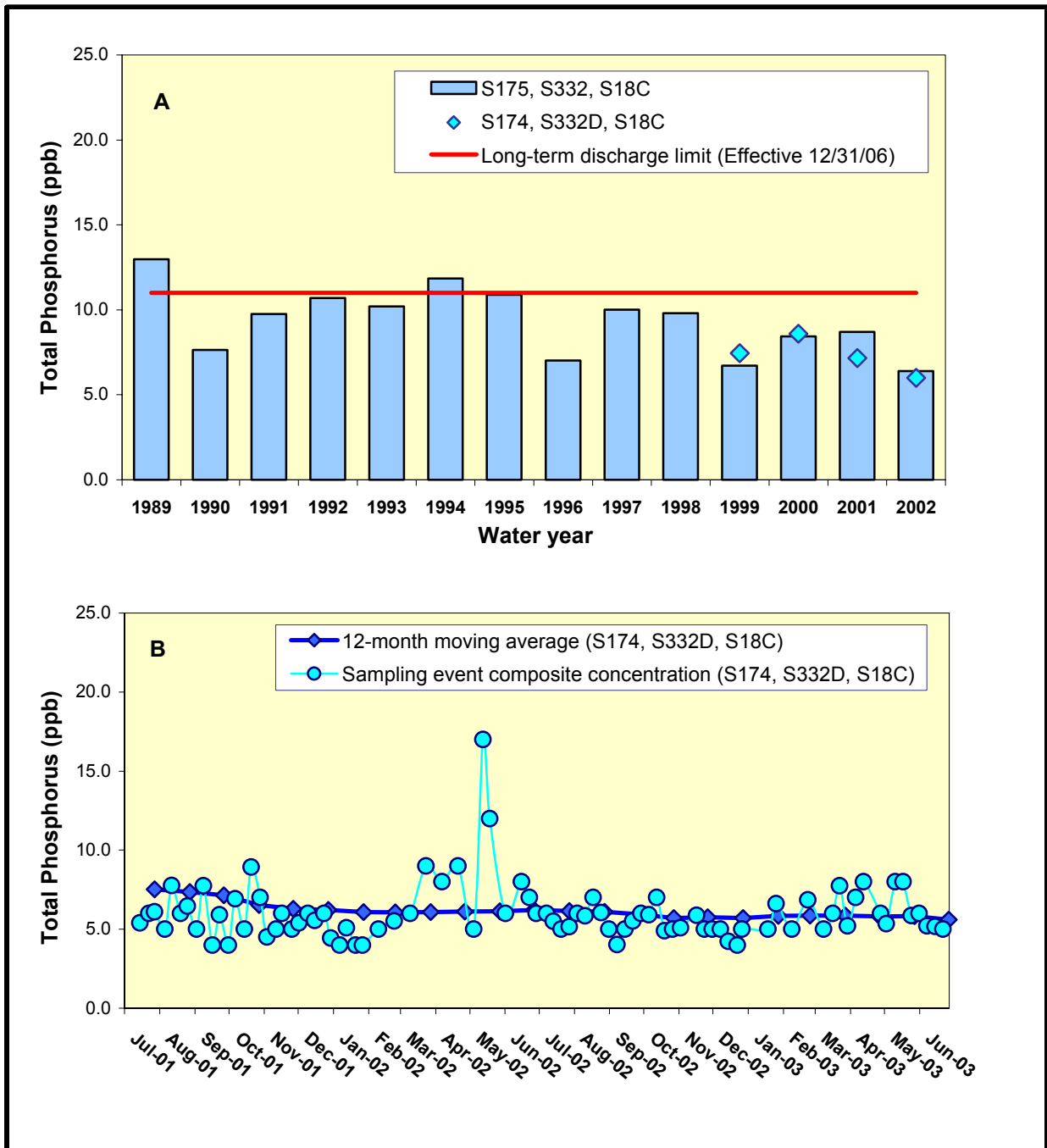


Figure 6. Total phosphorus flow-weighted mean concentrations (fwmc) in inflows to Everglades National Park through Taylor Slough and the Coastal Basins. **A.** The 12-month moving average fwmcs at the end of each water year compared to the 11 ppb long-term total phosphorus limit. **B.** The 12-month moving average fwmcs 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
31-Jul-01	243.0	7.5	11.0	53.1	10.7
31-Aug-01	237.1	7.3	11.0	53.1	11.5
30-Sep-01	235.1	7.2	11.0	53.1	11.5
31-Oct-01	235.2	6.5	11.0	53.1	8.0
30-Nov-01	269.7	6.3	11.0	53.1	7.4
31-Dec-01	296.5	6.2	11.0	53.1	6.7
31-Jan-02	316.0	6.1	11.0	53.1	5.9
28-Feb-02	320.6	6.1	11.0	53.1	0.0
31-Mar-02	325.9	6.1	11.0	53.1	0.0
30-Apr-02	331.1	6.1	11.0	53.1	0.0
31-May-02	336.4	6.1	11.0	53.1	5.0
30-Jun-02	364.3	6.2	11.0	53.1	4.9
31-Jul-02	392.1	6.1	11.0	53.1	4.7
31-Aug-02	388.3	6.1	11.0	53.1	4.7
30-Sep-02	371.8	6.0	11.0	53.1	4.7
31-Oct-02	316.0	5.7	11.0	53.1	4.5
30-Nov-02	271.6	5.8	11.0	53.1	4.8
31-Dec-02	249.8	5.7	11.0	53.1	4.7
31-Jan-03	234.2	5.8	11.0	53.1	5.0
28-Feb-03	229.9	5.9	11.0	53.1	5.0
31-Mar-03	230.5	5.9	11.0	53.1	4.9
30-Apr-03	231.5	5.8	11.0	53.1	4.8
31-May-03	244.2	5.8	11.0	53.1	0.0
30-Jun-03	249.8	5.6	11.0	53.1	0.0

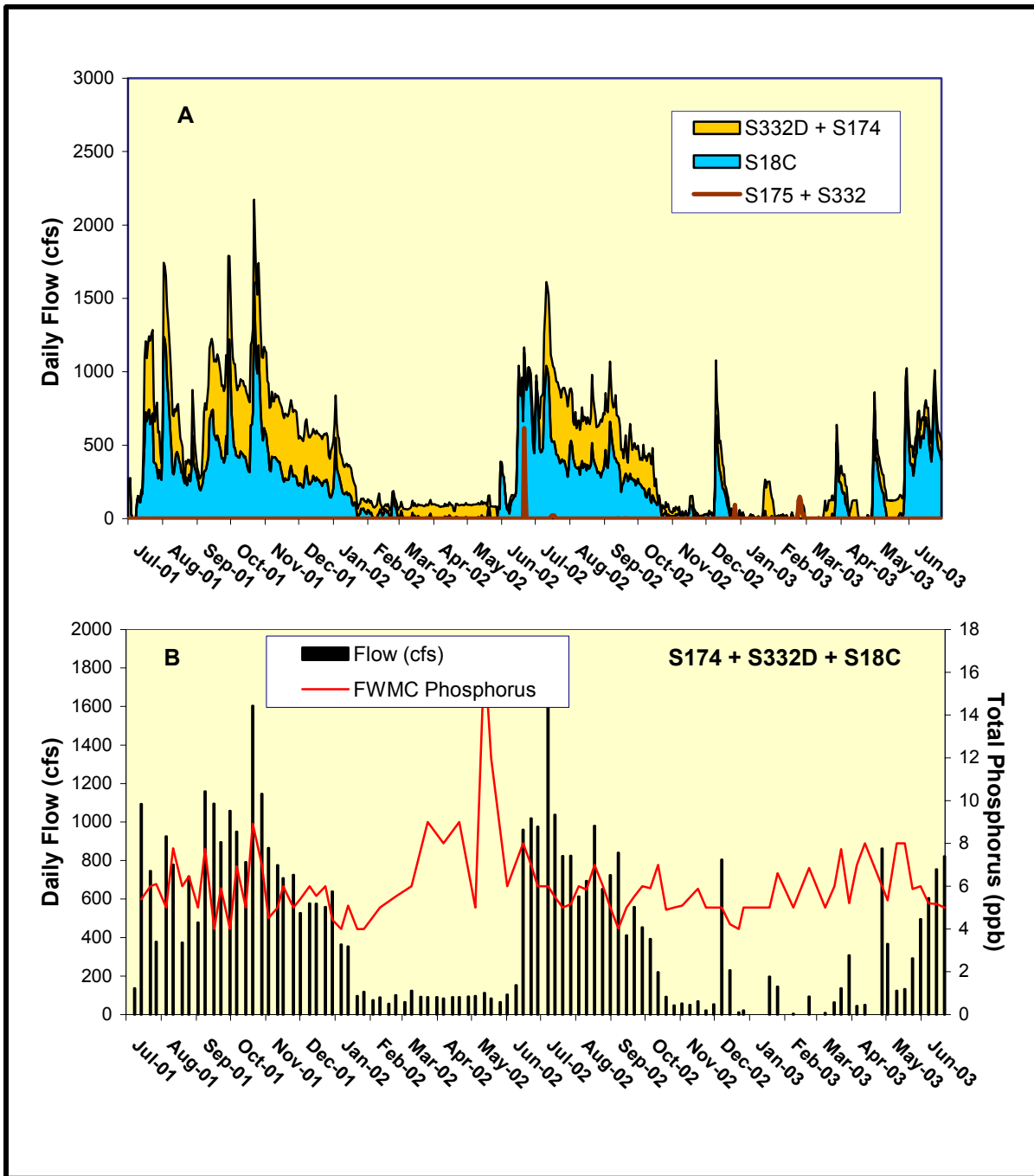


Figure 7. **A.** Daily flows into Everglades National Park through Taylor Slough and S18C. **B.** The relationship between daily flows at Taylor Slough structures and S18C and the corresponding flow-weighted mean total phosphorus concentrations for individual sampling events.

Overflow Events 2000 – 2003 at S332B Weir

Note: Overflow data and total phosphorus data are from the USACE and have not undergone SFWMD QA/QC review. Flow data for S332B have been through the SFWMD’s QA/QC review.

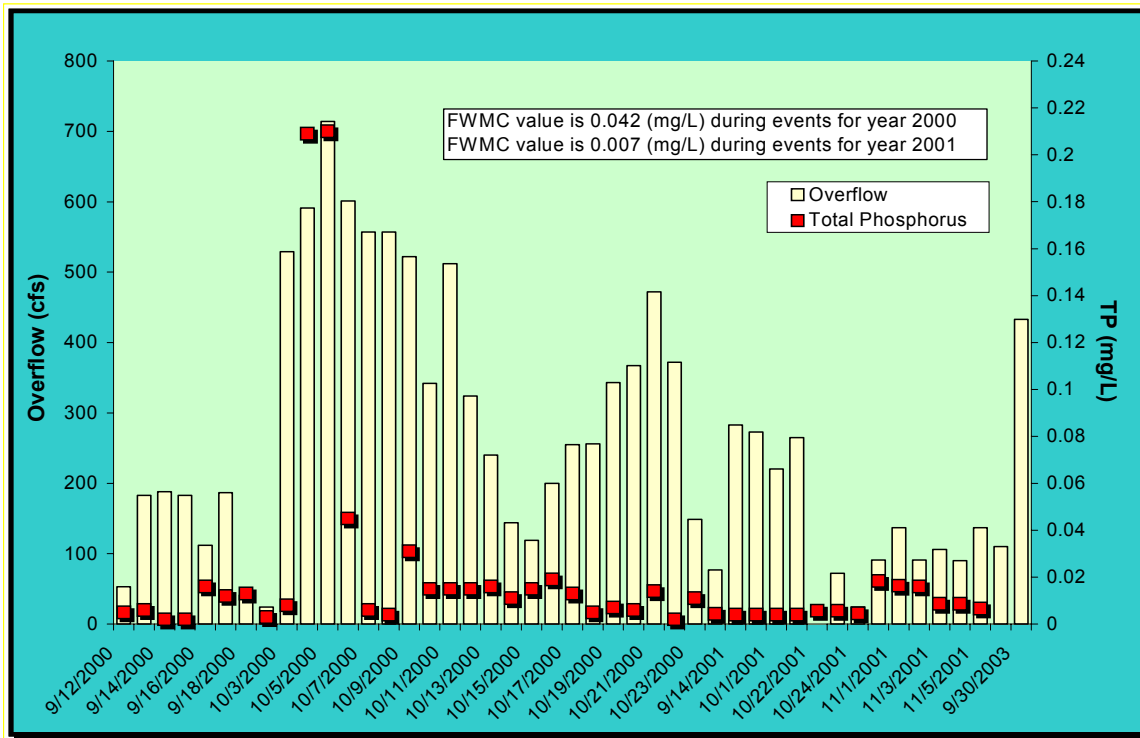


Figure 8. Total Phosphorus concentration for S-332B during overflow events (USACE data).

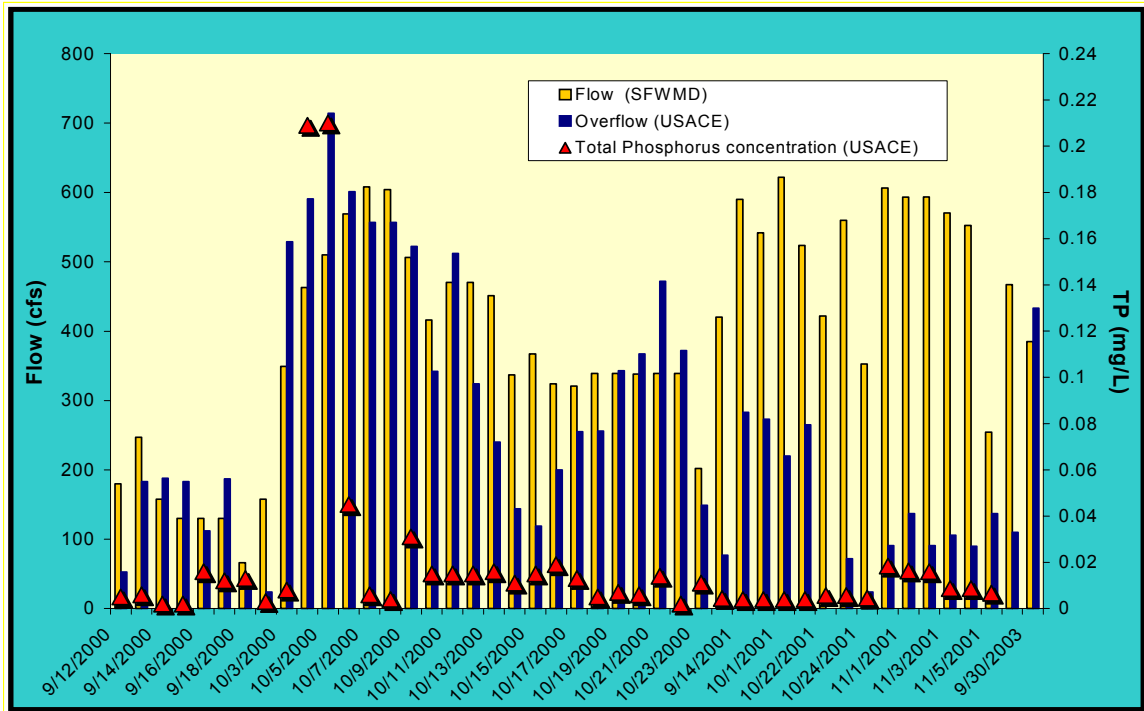


Figure 9. Pump S-332B during overflow events for 2000, 2001 and 2003.

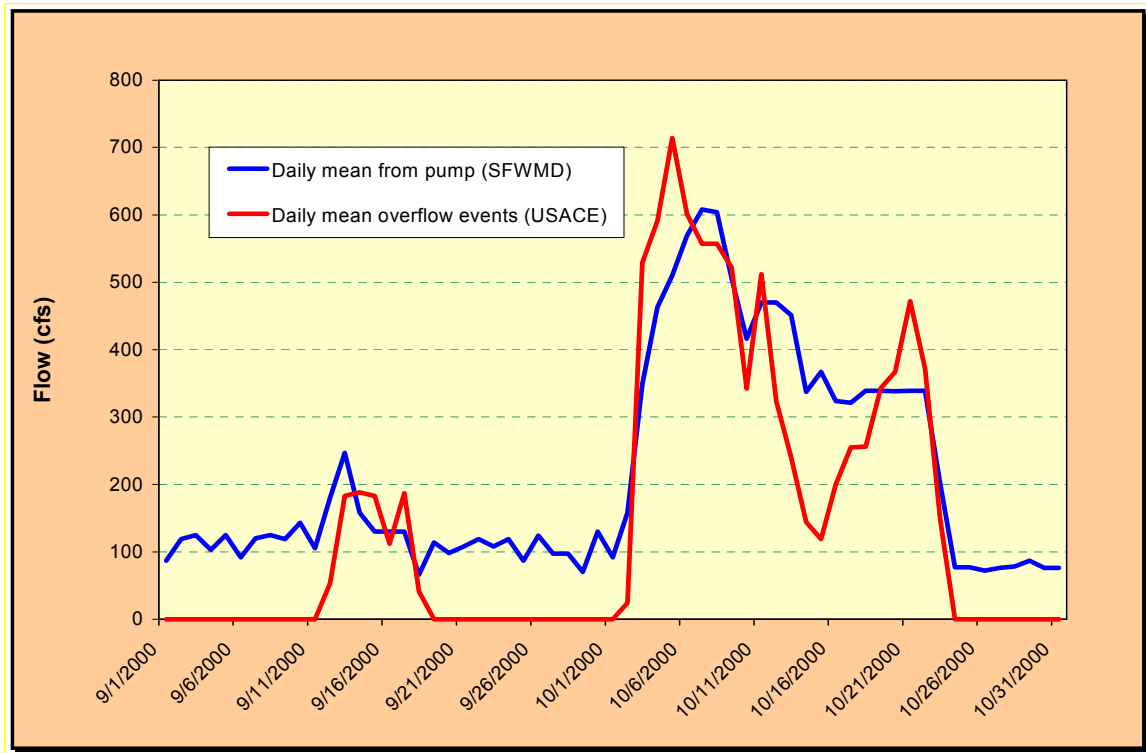


Figure 10. S-332B pump station flows and associated overflow events year 2000.

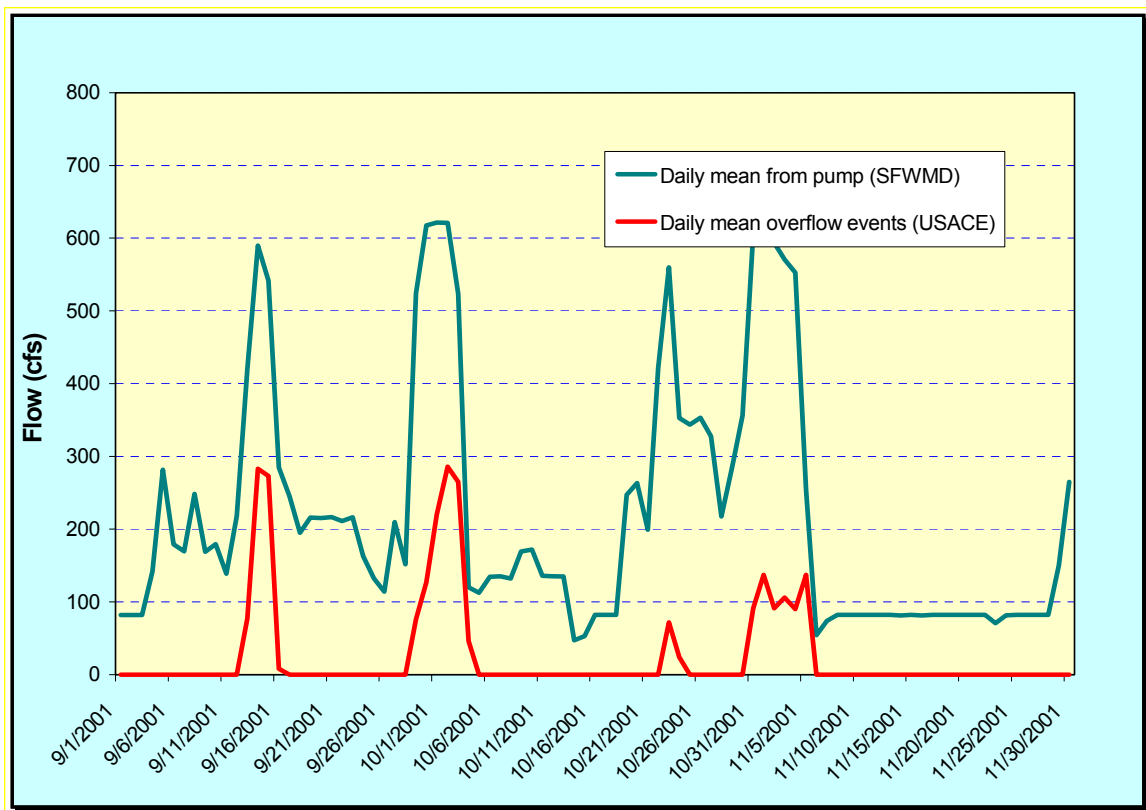


Figure 11. S-332B pump station flows and associated overflow events year 2001.

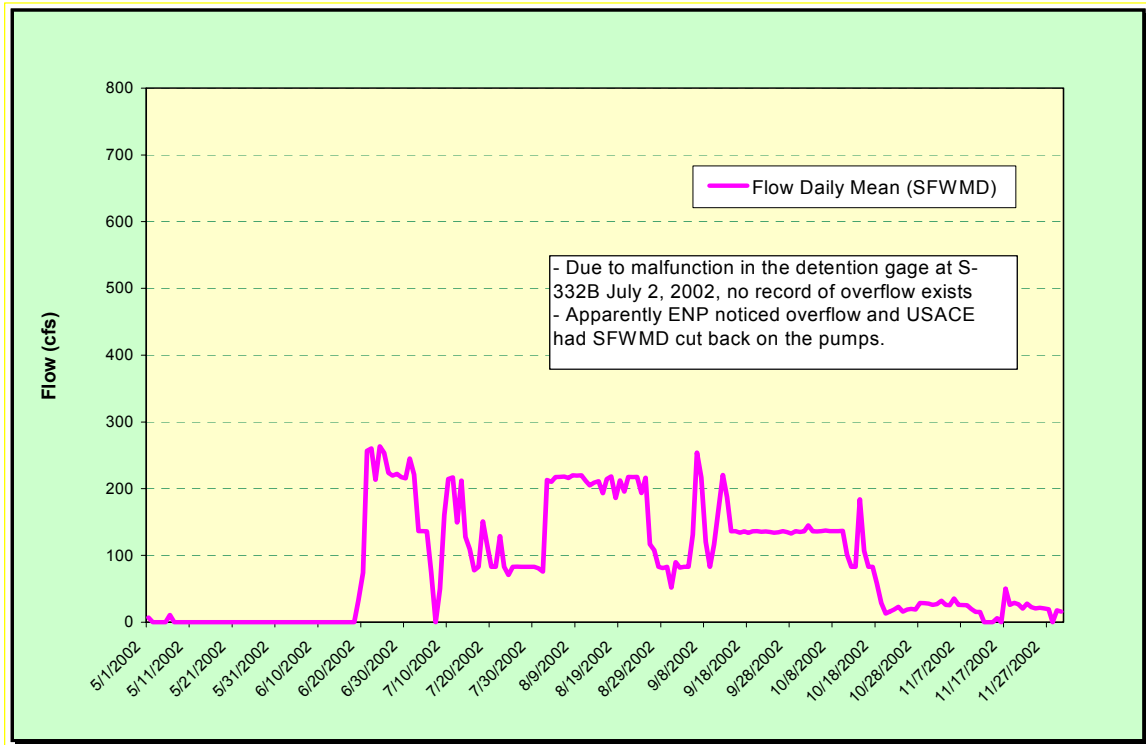


Figure 12. S-332B pump station year 2002.

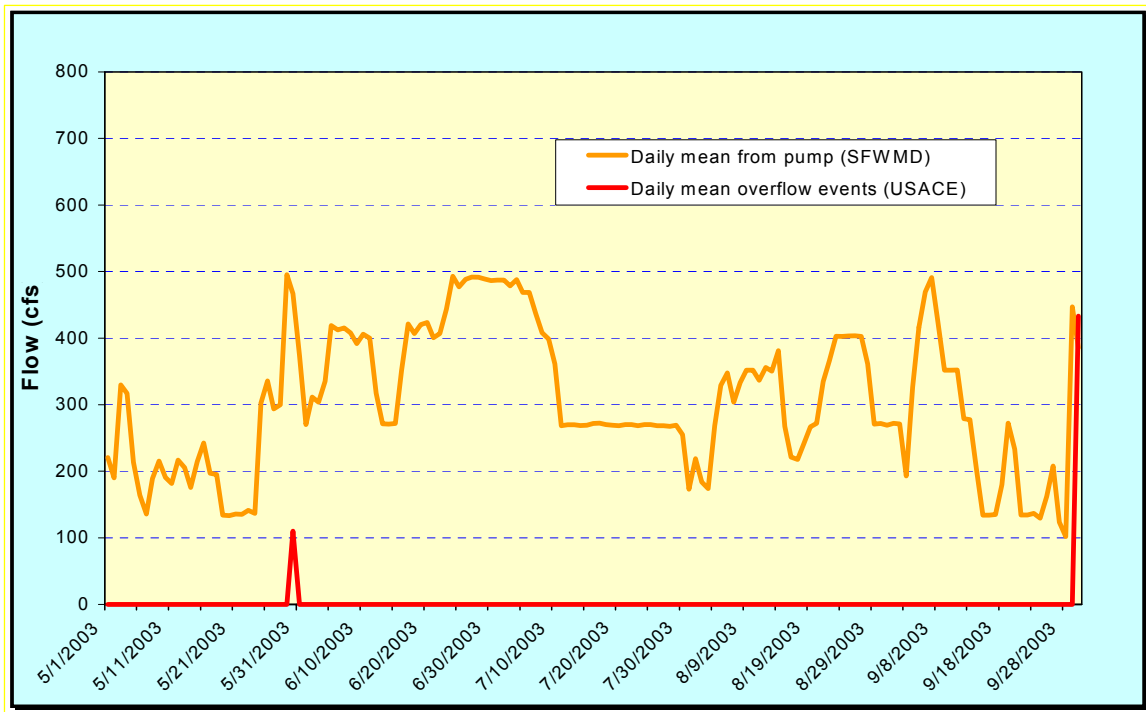


Figure 13. S-332B pump station flows and associated overflow events year 2003.