Daily average flow data were accessed from the SFWMD DBHYDRO environmental database, for stations at

- S308 (C-44 canal at Lake Okeechobee),
- S80 (C-44 canal at St Lucie River lock and dam),
- S48 (C-23 discharge to Bessey Creek),
- S49 (C-24 discharge to north fork of St Lucie River) and
- S71-1 (Ten Mile Creek at Gordy Road).

The maximum coterminous record from these five stations is between July 1999 and present, which is the maximum duration of measurements available from the Ten Mile Creek gauging station.

Daily total fresh water discharge to SLE was determined with and without flows from Lake O. Discharges from S80 are a combination of runoff from the C-44 watershed and discharges from Lake O via S308. The flow contribution from the C-44 watershed was separated from the discharge from Lake O at S308 in order to determine what the flow through S80 to SLE would result with the Lake discharge removed from the total flow.

In addition to the measured flows, an average direct groundwater discharge to SLE of 150 cfs was added to the daily flow input of the estuary, based on the proposed RECOVER flow envelope minimum (USACE, 2020).

The 14-day running average of the total measured fresh water flow to SLE with and without Lake O discharges are presented in Figures 1 and 2, respectively. In these plots, the RECOVER flow envelope maximum for the updated optimum salinity envelope (1400 cfs) is plotted with the daily 14-day average flow. A 14-day running average was used in this comparison since this averaging period is used in the RECOVER analysis to determine the relative performance of the modeled scenarios.

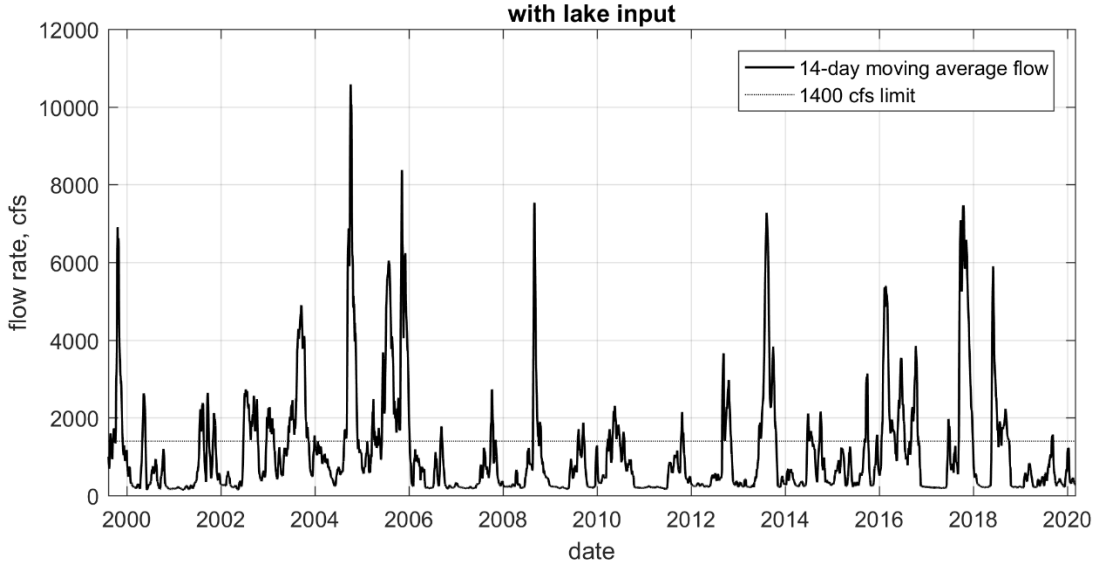

Figure 1. 14-day running average of total fresh water flow input to SLE, including groundwater and discharges from Lake O, for the period between July 1999 and March 2020.

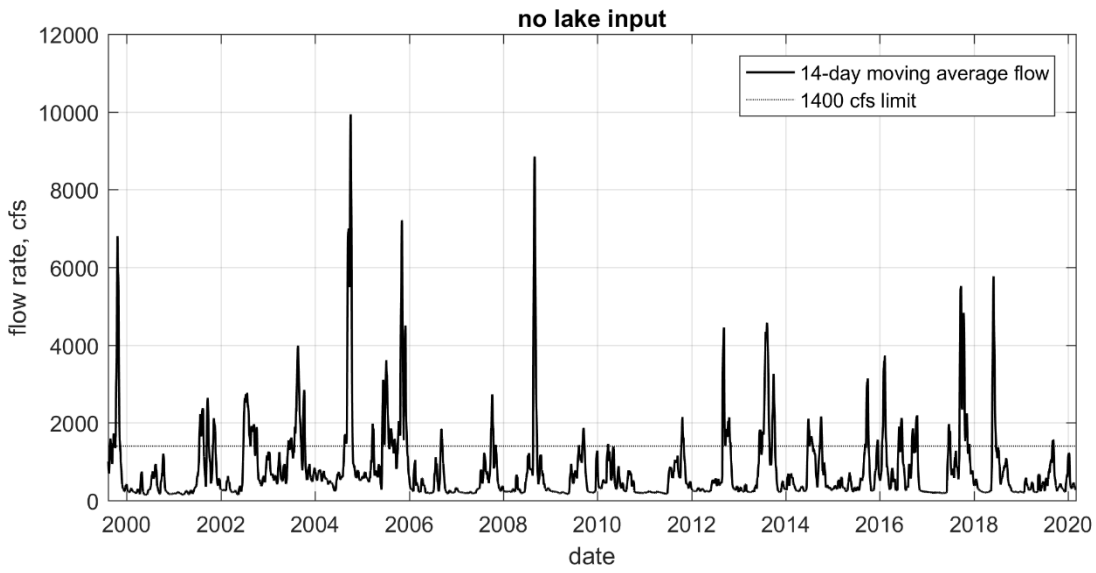

Figure 2. 14-day running average of fresh water flow input to SLE, including groundwater, but with discharges from Lake O removed, for the period between July 1999 and March 2020.

Using the 14-day running average of total freshwater flow to SLE, the percentage of time when the 1400 cfs minimum flowrate for stressful salinity conditions, and the 1700 cfs minimum flowrate for damaging conditions (as specified by the updated RECOVER analysis) were determined (Table 1).

Table 1. Average annual percent time and number of days when RECOVER limits for stressful (1400 cfs) and damaging (1700 cfs) flow conditions have been exceeded from 1999 to present, with and without Lake O discharges to the C-44 canal.

Scenario	Avg. % exceeded per year	Avg. days per year exceeded
1400 cfs, no Lake O	15.2	55
1400 cfs, with Lake O	25.1	92
1700 cfs, no Lake O	10.6	39
1700 cfs, with Lake O	19.1	70