Proposed Flow-Weighted Mean Concentration Calculations for Shark River Slough and Taylor Slough/Coastal Basins

May 12 2000

Shark River Slough

Current Structures: S12A, S12B, S12C, S12D, and S333.

Discharge Limit: Interim limit and long-term limit (and OFW Standard) on maximum flow-weighted-mean inflow concentration composed of all inflows to Shark Slough. Limits are computed from total inflow to Shark River Slough.

Exceedance: Frequency of inflow concentrations (composited across all inflow structures on each sampling date with positive flow) in a given water year exceeding 10 ppb.

Issues:

(1) Extraneous and irregular sampling events.

Recommendation: Include the data set only when the sampling event covered at least half of the total flow on the sampling date.

Note: this procedure is already used.

(2) **S334 flow:** Some of the flow measured at S333 goes to S334 and not into Shark River Slough.

Recommendation: Subtract S334 flow from S333 flow.

Note: If S334 flow are larger than that at S333, consider S333 contribution to Shark Slough to be zero and do no make them negative values.

Computation Methods

Original:

1. Composite of S12A, S12B, S12C, S12D, and S333 flow and flow-weighted-means.
2. If a sampling event covers more than half of the total (sum of S12s and S333) flow for the day, keep the data set.

Modification:
Subtract S334 flow from S333 flow.

Computation Method

Original:

1. Composite of S175, S332, and S18-C flow and flow-weighted-means.
2. Use all of the biweekly data.

Modification:

Include S332D Pump discharge when the water goes over the berm and enters the Park.

Modified Method:

1. Use only grab sample TP data.
2. If a sampling event covers more than half of the total (sum of S332, S175, and S18C) flow for the day, keep the data set.
3. When S175 and S332 are closed, include S332D discharge for the flow weighted mean calculation.
4. When S175 or S332 are opened and have a positive flow, do not include S332D discharge.

(Flow data show that the sum of S175 and S332 discharges is greater than the sum of S174 and S332D discharges when either of S175 and S332 is opened and has a positive flow during the period of S332D operation.)

Modified Method:

1. If a sampling event covers more than half of the total (sum of S12s and S333) flow for the day, keep the data set.
2. S334 TP data. S334 grab sampling dates have been different from the rest of the Shark River Slough Structures. To calculate the sampling event (day) areal composite flow weighted mean, interpolated values are used for S334 TP concentrations.
3. Flow subtraction. When S333 flow or total TP loads are larger than or equal to those at S334, S334 flow or total TP loads are subtracted from S333 flow or total TP loads for the flow-weighted-mean computation. When S334 flow or total TP loads are larger than those at S333, S333 flow or TP loads are set to zero.

Taylor Slough and Coastal Basins

Current Structures: S175, S332 and S18C.

Long-term limit flow-weighted discharge limit and OFW Standard = 11.0 ppb.

Exceedance: Frequency of inflow concentrations (composited across all inflow structures on each sampling date with positive flow) exceeding 10 ppb.

Issues:

(1) Extraneous and irregular sampling events.

Recommendation: Include the data set only when the sampling event covered at least half of the total flow on the sampling date.

(2) **S332D flow:** Only part of the flow measured at S332D goes into Taylor Slough. Data analysis suggests that S332D flow goes directly into Taylor Slough only when both S332 and S175 are closed.

Recommendation: Include S332D flow only when both S332 and S175 are closed.