Notes from the Quarterly Meeting of the Everglades Technical Oversight Committee (TOC)

December 5, 2023

South Florida Water Management District
3301 Gun Club Road, West Palm Beach, FL 33406

TOC Representatives:

Julianne LaRock, TOC Chair, SFWMD	Lori Miller, LNWR
John Barkett, Special Master	Edward Smith, FDEP
Daniel Crawford, USACE	Donatto Surratt, ENP

Note: *This meeting was conducted in person, online, and by phone, and was recorded by a court reporter. Copies of the transcript are available for purchase. Please contact Florida Court Reporting (561-689-0999) for more information. Handouts and presentations are available on the TOC website (https://www.sfwmd.gov/our-work/toc) and a recording of the meeting is available online at SFWMDTV YouTube Channel – TOC Meeting December 5, 2023*

Note: *Definitions of agency acronyms are provided at the end of the notes.*

1. **TOC Opening Business – Julianne LaRock, SFWMD**

   1A. Welcome, Announcements, and Identification of Participants

   Julianne LaRock called the meeting to order and provided instructions for participating during the meeting discussions.

   1B. Agenda Modifications and Documents Available on the TOC Website

   There were no requests to modify the agenda.

   1C. Approval of Meeting Summary for September 21, 2023

   The TOC approved the September 21, 2023, meeting summary with no requests for changes.

   Associated Online Documents:
   - Final Agenda for December 5, 2023
   - Draft Meeting Notes for September 21, 2023, Meeting

2. **Settlement Agreement Quarterly Report, Second Quarter, April–June 2023 –** Chelsea Qiu, SFWMD

   Chelsea Qiu presented the Settlement Agreement Report for the Second Quarter 2023, April-June 2023, which includes results of surface water total phosphorus (TP) monitoring in the Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR), Shark River Slough (SRS), and Taylor Slough and Coastal Basins (TSCB). Each area has a unique TP compliance regime. Results for SRS were calculated using provisional flow data and are preliminary.

   The Refuge 14-station geometric mean TP values for April, May, and June 2023 were below the computed stage-based long-term levels (LTLs). Ten stations were sampled in April and fourteen were sampled in May and June. The 36-month average TP geometric mean is 6.8 parts per billion (ppb), which is 2.3 ppb below the 36-month average LTL of 9.1 ppb. It was noted that the

17.14 ft NGVD29 was used to calculate the LTL even when the average stage for the month of October was 17.55 ft.

SRS has a flow-based limit (long-term limit) that is inversely related to the 12-month total flow. The preliminary tracking results were presented for the 12-month periods ending April, May, and June 2023. The provisional data shows that TP flow-weighted mean concentrations (FWMC) for this quarter were higher than the flow-based LTLs. Specifically, the moving 12-month total flows ending in April, May, and June were consistently above 1061 thousand acre feet per year (kac-ft/yr), exceeding the flow range defined in Appendix A of the 1995 Consent Decree, triggering the lowest possible LTL of 7.6 ppb. The majority of the daily flows into SRS from the S12s were discharges from S12C and S12D because S12A and S12B are only open to discharge 2.5 to 3.5 months out of the 12-month flow period according to the COP Water Control Plan, unless a deviation is implemented.

TSCB has a constant limit fixed at 11 ppb. The results for the 12-month tracking periods ending in April, May, and June 2023 were presented. TP FWMC values for TSCB continue to be less than half of the LTL (11 ppb) with 5.1 ppb for the first two periods and 4.8 ppb for the final period.

Questions, Comments, and Discussion:
Dan Crawford clarified that the Combined Operational Plan (COP) allows S12A and S12B to be open until November 1st under high water conditions. In WY2023, due to the high water conditions in WCA3A at the end of the wet season, both S12A and S12B remained open for the entire month of October and were closed on November 1. USACE invoked a temporary plan deviation on November 17, 2023, to reopen S12A, S12B, S343A and S343B to reduce the water levels. Bill Walker, consultant to the Department of Interior, asked if the deviation's focus was on flow volume without considering water quality, even if COP has an algorithm to look at the water quality impact. Dan agreed, because the temporary deviation was activated to address high water levels. The NEPA document was circulated for public review, which included an assessment of water quality among other environmental factors. Deviation is anticipated to end in a couple of weeks once the water levels drop below the top of the regulation schedule.

Ed Smith, FDEP, asked Chelsea why the number of samples taken for the Refuge in April was lower as shown on slide 2? Chelsea stated that the mean stage was too low to collect all 14 samples and many sites were dried up or below the 10 cm of water depth sampling criteria.

Lori Miller asked for clarification on the total flow exceeding the equation. Chelsea explained that the LTL, which is used for SRS inflow compliance, tracks total flow for the past 12 months. This means the total flow for the 12 month period from July 2022 to June 2023 exceeded 1 million acre feet, the upper flow range of the SA Appendix A equation. This results in the tracking limit being 7.6 micrograms per liter (µg/L). In the past 2.5 years since implementation of the Tamiami Trail Flow Formula (TTFF) in March 2021, the 12-month flow has been above 1 million acre-ft most of the time regardless of rainfall.

Associated Online Documents:

- Settlement Agreement Quarterly Report, April – June 2023, presentation
- Settlement Agreement Report, Second Quarter, April – June 2023
- Quality Assessment Report for Water Quality Monitoring, April – June 2023 (Second Quarter
- Quality Assessment Report for Water Quality Monitoring, April – June 2023: Water Quality Data (Second Quarter)
- Arthur R. Marshall Loxahatchee National Wildlife Refuge Total Phosphorus (TP) Compliance Status as of Second Quarter 2023
- Provisional Shark River Slough Second Quarter 2023 Total Phosphorus (TP) Data Report
- Taylor Slough and Coastal Basins Second Quarter 2023 Total Phosphorus (TP) Data Report

Overview of the recent Memorandum from the Principals:

The memo was published in November 2023 to address the Principals' concurrence with the S-333 working group "Phase I" recommendations:

- Per the October 2020 memorandum from the Principals, both the TOC and the Principals agree that the WY2019 SRS exceedance was caused by a localized phenomenon of phosphorus release and transport related to patterns of stage and flow and less related to phosphorous coming from the Everglades Agricultural Area (EAA).
- The S-333 Working Group (WG) was created to research the localized phenomenon and to develop a consensus recommendation for solutions to minimize TP transport. The recommendations coming from the WG serve as the present method for addressing current and potential future SRS exceedances that occur as a result of the localized drivers in the headwaters of the S-333 structure. The Principals concur with the WG recommendations and have begun to develop actions to implement some of the recommendations.

Associated Online Documents:

- Memo to TOC from Principals to the Consent Decree-November 2023

3. **S-333 Working Group Update – Phase 1** – Jodie Hutchins, SFWMD

Jodie Hutchins provided an overview of the multiagency recommendations for engineering and maintenance solutions aimed at resolving SRS exceedances caused by the localized phenomenon of phosphorus release and transport related to patterns of stage and flow at the S-333 complex. The complete S-333 Working Group (WG) – Phase 1 – Synthesis Report is posted to the TOC website and is linked below. The report includes the Phase 1 study reports as attachments and a comments matrix documenting the review of the reports during the WG's collaboration.

A summary of the presentation is bulletized below:

- The WG developed an outline of initial solutions to be evaluated and studied in 2 phases. Phase 1 focused on sediment characterization upstream of the S333 structure and nearby reaches of the L-29 and L-67A canals lead by the ENP, and modeling flow scenarios and the potential effect on sediment entrainment lead by the SFWMD.

- Informed by the Phase 1 study conclusions, the WG reached consensus on the recommendations and concurrence was provided by the Principals to be implemented as initial actions and future actions, if warranted, as described below
    - Initial actions include the removal of canal sediments 1,500 feet upstream of the S-333 complex in the L-67A and L-29 canals, the installation of a series of low-sill weirs, and a monitoring and assessment program. Completion of these initial actions is targeted in Federal WY2025, assuming expedited permitting and conducive construction conditions. The monitoring and assessment program will begin following the removal of canal sediments to evaluate the effectiveness of the initial solution, identify optimization opportunities, and to inform future actions. An annual report will be produced and submitted to the Principals.
    - Future actions may include an Innovative Technologies Feasibility Study and advancing the Phase 1 studies to Phase 2 to further evaluate regional nutrient transport to better understand nutrient origins and dynamics in the general system. Once sufficient information from the monitoring and assessment program is obtained, the WG will make a recommendation whether to pursue these future actions and this will be reported in the monitoring and assessment plan annual report to the Principals.

Questions, Comments, and Discussion:

A better understanding of the configuration for the low-sill weirs was requested. It was explained that after reviewing different options, traditional low-sill weirs that will extend through the width of the canal's cross-section are being considered. The type of low sill weir being considered was questioned, for example, whether they would be temporary as initially envisioned by the WG, or if they would be permanent? Jodie stated that the group isn't far enough along to determine if the weirs will be permanent. Other alternatives are still being explored by the Engineering and Construction group from SFWMD.

It was reiterated that the USACE will be involved in the technical reviews of the low-sill weirs' placement because they will be placed in the federal canal system. USACE leadership is committed to working with the State of Florida and other federal partners to ensure the permits are done expeditiously. As the engineering and construction group from the SFWMD examines the low-sill weirs options, it will be important to engage the WG to ensure the technical inputs are worked through before any official permit application is submitted to USACE.

The ability to withstand extreme flooding was then questioned and the method for removing sediment buildup. Julianne LaRock stated that the engineers had a different vision than the WG regarding the low-sill weirs and trusts in their capabilities to accommodate these questions. Additionally, because questions remain regarding origin of sediment particles, the possible future studies should address this concern.

Special Master John Barkett wanted clarification regarding the certainty of the question, "What are the dominant sources and what is contributing to those components from the canals and marsh within WCA-3A?" if Phase 2 studies aren't guaranteed to be done. Jodie explained the initial outline developed by the WG shortly after it was formed. The scope developed for Phase 1 was a localized study that can provide more information to ensure the proposed solutions achieve the intended outcome of reducing TP concentrations during low stages. At the conclusion of Phase 1 the WG would determine if enough information was

gained to recommend engineering solutions and/or if the WG should seek approval to advance to Phase 2 to thoroughly research and understand what is happening regionally.

The WG was directed that once Phase 1 was completed, the recommendations would be assessed to see if there is confidence that the proposed solutions are effective. The WG has concluded that the Phase 1 studies produced enough information to recommend solutions independent of Phase 2. However, if supported by the data collected through the Monitoring and Assessment program, then approval to initiate phase 2 would be sought. Special Master Barkett expressed concern that financial expenditures would be recurring to implement solutions if upstream sources are not known.

Ed Smith addressed the WG by stating that FDEP has an Innovative Technologies evaluation program and could provide research information, particularly for the biochar baffle curtains since various groups are researching this technology currently. It may be helpful to the group for FDEP to share the information it gathers for the biochar baffle curtains among other alternatives that are biological or involve coagulants and flocculants, all of which involve resolving nutrient concerns.

Lori emphasized the importance of studying the nutrient sources as mentioned by Special Master Barkett because the current solutions seem more maintenance based.

Associated Online Documents:

- S-333 Working Group Update – Phase 1 – Synthesis Report
- S-333 Working Group Update – Phase 1_Presentation

Preliminary Discussion: Shark River Slough Appendix A Water Quality Analysis

Donatto Surratt expressed before the presentation began that upon initial review before this TOC meeting, he had some comments regarding the presentation to be addressed with the committee. Specifically, the TOC previously concluded years ago that only final data would be used when discussing exceedances of Appendix A. He was concerned that this FDEP presentation would set a new precedent by using provisional flow data for WY23 in its presentation.

Donatto finds that using provisional data to analyze regional and local drivers is adequate but wanted to remind the TOC of the precedent that was previously agreed upon. Ed Smith from FDEP appreciated Donatto's feedback and clarified that because FDEP presentation was meant to present the information to encourage discussion but not to draw strong conclusions based on one year of data. The conclusions drawn in the presentation were derived after performing a long-term trend analysis of various components coupled with this year's preliminary data. FDEP could have eliminated the data from this past WY and still draw the same conclusions.

The TOC representatives concluded that Ed should highlight the instances when preliminary data is being used when presenting the information to ensure transparency of the data used and because preliminary data can be useful when forming initial thoughts and driving discussion. Despite this, Donatto was under the impression that the presentation would draw conclusions regarding the WY2022 exceedance. Juli reminded the group that the Principals to the Consent Decree provided three questions the TOC representatives should always answer

when evaluating exceedances (three questions linked below in 2016 memo to the TOC from the Principals to the Consent Decree).

The TOC representatives have answered questions one and two regarding the WY2022 exceedance and determined that the exceedance was not due to error or extraordinary natural phenomena. Juli stated that further discussion to answer question three regarding the WY2022 exceedance should occur after Ed Smith's presentation to see if the TOC is able to arrive at a resolution for additional remedies as well address some other important concerns.

Lori stated that she considered the FDEP presentation to be a historical deep dive into the Water Conservation Area 3A (WCA-3A) system to obtain a better understanding of how and why exceedances have occurred. This prompted Ed to reiterate that the presentation should prompt further analysis to draw strong conclusions.

Associated Online Documents:

- 2016 Memo to the TOC from the Principals to the Consent Decree

4. Shark River Slough Appendix A Water Quality Analysis – Ed Smith, FDEP

Ed Smith appreciated Special Master Barkett for suggesting sharing the presentation in advance with the TOC Representatives to address comments and many of the comments were incorporated into the revised presentation as time allowed. Other comments will be addressed in a future presentation. Ed provided an overview of the SRS water quality analysis conducted by FDEP which focused on the following:

- The history of exceedances including the frequency and magnitude and water management changes:
    - Examined Data from WY2007 to WY2023 (WY2023 data is preliminary and is not a true exceedance as of the time of the analysis.) to identify significant trends:
        - TP FWMCs have no significant trend.
        - Increased flows as a result of COP, have caused a significant downward trend for LTLs at the minimum limit of 7.6 micrograms per liter (µg/L) since WY2021.
    - The frequency of exceedances has increased, (two recurring exceedances with a potential third for WY2023) due to the increased flows driving the LTL to the minimum of 7.6 µg/L. Non-exceedance years WY2013, WY2016, and WY2018 also had the LTLs at the minimum of 7.6 µg/L.
    - After examining SRS Total Flows (TFs) up to 1,061 kac-ft vs. Low-Stage Flows (LSFs) with stages less than 9.2 ft, it was determined that the years with a greater proportion of LSFs produced higher annual FWMCs. This can be seen

especially after the introduction of COP in WY2021 – WY2023. Higher TP concentrations are observed when stages drop below 9.2 ft.

- TFs had and upward significant trend. The LSF also appears to be trending upwards, but more information is needed to confirm this trend.
- The rolling 5-year average FWMCs were less than the LTL until WY2020.
- COP implementation resulting in higher TP FWMCs, decreased LTLs, and increase risk of LTL exceedances has achieved its desired intent of dry season water deliveries significantly benefiting the SRS ecology based on anecdotal data.

- The hydrodynamics of WCA-3A, focusing on Western Inflows, Miami Canal inflows, and Eastern Inflows was examined to determine if a connection can be found between these inflows and the SRS exceedances. It was concluded that WCA-3A TP inflows are not driving SRS exceedances based on the following:
  - Western Inflows:
    - Mullet Slough splits L-28 and prevents S190 & S140 outflows from reaching S12A and as TP enters the marsh it is attenuated before reaching the nearest marsh site.
  - Miami Canal Inflows:
    - S339 & S340 are closed most of the time when TP concentrations are elevated at S333.
    - Marsh water constantly interacts with the Miami Canal.
  - Eastern Inflows:
    - L-38W plug keeps S150 flows in NE WCA-3A.
    - S9 TP loads interact heavily with marsh & have no direct correlation with S333 FWMCs. Marsh data doesn't support TP concentrations observed at S190, S140, S150, & S11A-C reaching SRS.
- Examination of the local drivers and examining high water stage of the S-333 and low stage water deliveries.
  - TP concentration rate of increase is six times higher when S-333 headwater stage recedes under 9.2 ft.
  - Higher annual proportions of LSF SRS deliveries are strongly associated with exceedance years.

Questions, Comments, and Discussion:

Donatto questioned the conceptual arrows on slide 10 and described an invasive vegetation plume just downstream of the L-28 canal where flow is released into the marsh. He added that our current sampling design doesn't adequately address this situation because sampling locations are located just east of the described flow path. Donatto recommended a study be conducted to investigate this. He also asked if FDEP was comfortable using this area which is the home of a Native Indian reservation as an attenuation feature? Ed stated that it was not FDEP's conclusion to use the area as an attenuation feature rather the presentation was

sharing the facts of what is occurring in the system which is that the water flows into the marsh and that monitoring sites within the marsh show decreased phosphorus levels.

Donatto also requested an explanation of the figure on slide 11. FDEP staff Luke Hudson explained that the percentage of TFs, represented in dark green, is regarding flows across all sites. For instance, the TF entering through S-333 and S-333N represent 30 to 40% of the TF across all the sites but they contribute 80% of LSF below 9.2 ft into the SRS. The remaining 20% is coming from S12A, S12B, and S12C, with S12A and S12B rarely flowing simultaneously when low stages are present.

Donatto described dense vegetation along the Miami canal extending from S8 to L67A canal. During the presentation, Ed shared that the lack of a levee between the canal and the marsh suggesting a heavy interaction between the two. Further examination including the vegetation dynamic in S-339 and S-340 needs to occur to understand what is happening.

Discussing slides 16 – 18, Donatto indicated he found positive-correlations between S9s and S-333 TP concentrations levels and nutrient loads when compared directly, and questioned why the loading at S9 was compared against the concentrations at S333. Ed clarified that the correlation analysis implies that other factors seem to be impacting the higher concentrations at S333 including marsh interaction, that make it more complex. Donatto agreed.

Bill Walker agreed with Ed's inclusion of Central Everglades Planning Project (CEPP) as a future influence on WCA-3A Hydrodynamics as it focuses on water quality. Bill then asked what the timetable is for implementing these features. Ed suggested the timetable for these features will be reported at the next TOC meeting.

Dan agrees with Ed regarding the benefits of the implementation of CEPP and the Broward County Water Conservation Area projects but wanted to highlight that these are ancillary benefits because the goal of these projects is Everglades restoration and historical flow path restoration and are not considered corrective actions or remedies for the Consent Decree. These projects are statutorily prohibited as federal projects from interfering with or superseding any water quality actions that are required or pending under future judicial proceedings including the Consent Decree. Therefore, the TOC as a deliberative body must keep compliance with the Everglades Consent Decree as its focal point. Ed emphasized the inclusion of these projects in the presentation to understand the impact those projects can make to the Hydrodynamics of WCA-3A which can impact the decisions TOC will make in the future.

While revisiting slide 12, Lori stated that the ecosystem-based management group meets bi-weekly and checks, when western 3A is drying, if there's an ability to open S8 to move water south. Upon examination of the S339, it is more like a concrete weir where enough water must be released to go up and over the weir down to the S340. However, if the water could be backed up to the S339, the water will start to move into the marsh at a level of about 11.2 ft NGVD. Additionally, Lori suggested looking into the spoil mounds maintained by FWC upstream of S339 to understand the role they play in flow dynamics. Lori also recommended that the flow at the S9s, including the time and rate of flow, could help inform the conclusions being drawn. The presentation shows that some higher phosphorous waters are entering northeastern 3A and northwestern 3A meaning the marsh is being used to clean that water.

Ed explained that there is movement in the canal and that the canal doesn't constrain the water like a pipe or ditch but that there is an interaction between the canals and the marsh.

Dan Scheidt, from the USEPA, commented that all of the phosphorus data for the marsh and structures were expressed as geometric means and it would be really helpful and informative to also include annual Flow Weighted Means (FWM) since many are more accustomed to this data. The discharges from the STAs coming in from the North to WCA-3A and at inflows to the Park are reported as annual FWMs. Mr. Scheidt stated that it would be helpful to see both: geometric means for the marsh, and geometric means and annual flow-weighted means for structures. Mr. Scheidt asked if FDEP is convinced or has concluded that P inflows to WCA3 from the east, north and west do not affect TP concentrations at inflows to the Park. Ed responded by saying that what is being concluded is that the localized drivers, including the low stage deliveries into SRS, are really what is causing the exceedances. Mr. Scheidt asked if the Department has concluded that upstream sources are irrelevant or are not sure. Ed responded by saying that FDEP was unable to find evidence as of this current analysis of a connection from the Western, Miami, or Eastern, to the S333 complex or the SRS inflows. Ed concluded this discussion by emphasizing that this is a springboard to further discussions and collaboration.

Associated Online Documents:

- Shark River Slough Appendix A Water Quality Analysis – Presentation

Follow-up Discussion of Exceedance Federal WY2022– TOC Representatives

The TOC representatives unanimously agreed on the reasons for the WY2022 exceedance and the conclusions and initial actions that the S-333 Working Group has presented but want to ensure that all agencies have an opportunity to present their conclusions at a future TOC meeting before voting action is taken.

Special Master Barkett stated that the Memo from the Principals of the Consent Decree to the TOC representatives regarding the exceedances focuses on the WY2019 exceedance and not WY2021 and WY2022. Juli responded by saying the memo addresses current and potential or future exceedances that occur as a result of the localized drivers in the headwaters which is the focal point of these discussions. Special Master Barkett believes that there is an obligation to decide the outcomes regarding each exceedance with a timetable that provides informational milestones.

5. Public Comment

No public comments were given.

6. TOC Closing Business – Julianne LaRock, SFWMD

The TOC will host the next quarterly meeting on Tuesday, February 27, 2024. Followed by the next meeting to be held on Tuesday, June 25, 2024.

Julianne adjourned the meeting.

Agency acronym definitions:
DOI – Department of Interior
ENP – Everglades National Park

FDEP – Florida Department of Environmental Protection
LNWR – Arthur M. Marshall Loxahatchee National Wildlife Refuge
NPS – National Park Service
SFWMD – South Florida Water Management District
USACE – United States Army Corps of Engineers
USEPA – United States Environmental Protection Agency
FWC – Florida Fish and Wildlife Conservation Commission