

A high-level analysis of the TCNS Subwatershed was completed to determine the nutrient planning targets, status on meeting the targets, and current project reductions in relation to the Lake Okeechobee Total Maximum Daily Load (TMDL). Targeted reductions are needed because the lake annually receives approximately 380 metric tons (t) of phosphorus (TP) above the TMDL. The goal of this analysis is to identify additional reductions needed and general locations for exploring potential projects to achieve the desired water quality. The TCNS Subwatershed discharges from 5 distinct drainage basins, each with its own nutrient and flow monitoring. Therefore, information is provided by basin and summed for the TCNS Subwatershed. Storage volume is included, though there are no direct targets for individual basins.

### BASIN CONDITIONS AND TP REDUCTIONS NEEDED

	S-191	S-154	S-154C	S-133	S-135	TCNS
<b>TP load (t) (WY2017-WY2021)</b>	68.3	16.5	2	8.5	6.1	101.3
<b>TP planning target (t)<sup>a</sup></b>	13.6	3.3	0.5	1.5	1.1	19.9
<b>Recently completed and planned projects (estimated reductions)<sup>b</sup> (t)</b>	24.8 <sup>c</sup>	13.2 <sup>d</sup>	1.5 <sup>d</sup>	0 <sup>c</sup>	0 <sup>e</sup>	39.5
<b>Reductions still needed (t)</b>	29.9	0	0	7	5	41.9
<b>WY2021 Storage (ac-ft)</b>	7,275	661	0	0	0 <sup>e</sup>	7,936
<b>Upcoming storage Projects (ac-ft)</b>	83,210	3,900 <sup>f</sup>	0 <sup>f</sup>	33,604 <sup>f</sup>	0	120,714
<b>Total Storage (ac-ft)</b>	90,485	4,561	0	33,604	0	128,650

<sup>a</sup> For planning the SFWMD developed static basin targets in consultation with FDEP (S. Davis, personal communication, March 17, 2021 and via Coordinating Agencies Technical Team on February 3, 2023) which are based on the proportion of the load contributed by the basins during the 5-year period from WY2014-WY2018 and is identical to the methodology FDEP used to develop the subwatershed targets in the 2020 BMAP.

<sup>b</sup> Assumes projects operating for 5 or more years have realized their TP reduction benefits. Includes long-term annual average reductions from recently completed and planned projects where load estimates were available.

<sup>c</sup> No reductions are included associated with CERP ASR wells which may provide ancillary water quality benefits in these basins in the future.

<sup>d</sup> Includes the Lower Kissimmee Basin STA which is estimated to remove 13 to 15 t TP annually and should achieve the load reductions needed from S-154 and S-154C basins.

<sup>e</sup> Does not include TP load reductions or storage from Lakeside Ranch STA as those numbers were included in the reductions for the S-191 Basin. Water quality treatment and storage from S-135 Basin is dependent upon the operation of the S-191A pump.

<sup>f</sup> Estimated storage for the Lower Kissimmee Basin STA is included in the S-154 Basin.

### Conclusions and Recommendations:

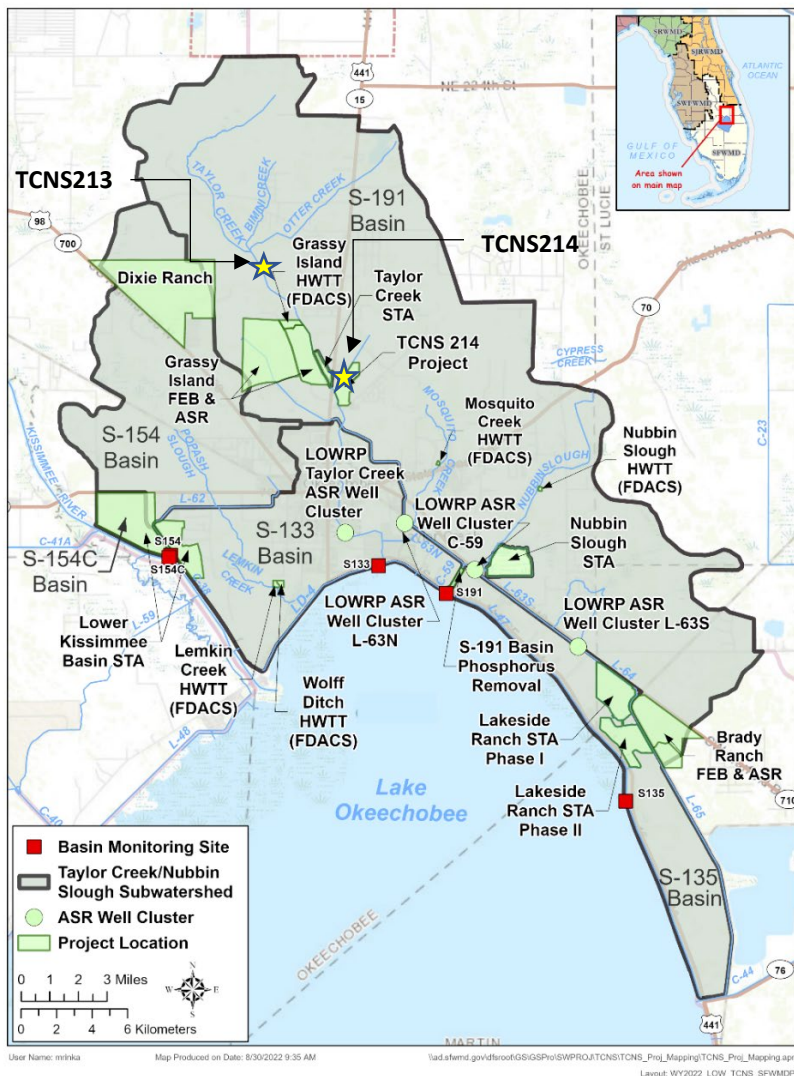
- Recently completed and planned projects in TCNS achieve 39.5 t reduction out of the 380 t needed to meet the TMDL.
  - In the S-154 and S-154C basins, since the LKBSTA is estimated to achieve nutrient reduction targets, focus on interim projects.
  - In S-191, S-133, and S-135 basins focus on long term nutrient reduction projects, such as innovative technology, STAs and HWTT. Based on limited land availability HWTT or chemical treatment may be ideal. Also, enhancement of the existing HWTTs and STAs should continue including automating structures at Taylor Creek and Nubbin Slough STAs and resizing Nubbin Slough STA inflow pump to ensure a steady operation.
  - In S-191 Basin, reductions are needed upstream of TCNS 214 which contributes approximately 14 t TP/yr, upstream of TCNS 213 which contributes approximately 20 t TP/yr, and along Mosquito Creek which contributes approximately 6 t TP/yr.



# LAKE OKEECHOBEE WATERSHED TAYLOR CREEK/NUBBIN SLOUGH (TCNS) ANALYSIS

- The upstream sites with highest TP concentrations are downstream of dairies or former dairies. FDEP dairy wastewater permitting program should determine if additional BMPs or cost-share projects are needed.
- BMPs should be reevaluated within the contributing areas for 5 sites with increasing trends in the S-191 Basin. FDEP should review septic tank clusters within or adjacent to three of those sites and possibly address those under the future plan requirements under the Clean Waterways Act.
- Current and planned storage for TCNS is 128,650 ac-ft which is about 10% to 14% of the overall LOW storage goal of 900,000 ac-ft to 1.3 million ac-ft.
  - Because the system in this subwatershed is “flashy”, projects with both storage and treatment, such as wetland restoration projects could be of great benefit. Additionally, all project inflow pumps should be automated enabling them to start quickly when brief high flow events occur. Upstream detention areas that capture peak flows and slowly release the runoff could help the downstream regional project pump stations capture more water.
  - In each basin, existing and planned projects should be evaluated basin-wide to ensure they operate for maximum nutrient reductions and storage.

## TCNS PROJECTS



## FUTURE REDUCTIONS

<b>2026</b>
19 t Reduction
Nubbin Slough STA (4.6 t) Lakeside Ranch STA (14.4 t)
<b>2029</b>
20.8 t Reduction
TCNS 214 Project (1 t) Grassy Island FEB and ASR (0.8 t)
<b>2030</b>
24.8 t Reduction
Brady Ranch FEB and ASR (4 t)
<b>2032</b>
39.5 t Reduction
Lower Kissimmee Basin STA (14.7 t)

Estimated date when projects are expected to achieve their planned long-term reductions (5 years after normal operations).

Sources: 2022 SFER; 2022 Draft S-191Basin Focus Assessment; 2020 BMAP; 2020 LOWPP

