



Date: December 8, 2022

To: Nicole Morgan, Florida Department of Environmental Regulation

From: John Cassani, Calusa Waterkeeper

Topic: Calusa Waterkeeper comments on the Caloosahatchee BMAP Draft 5-Year Review, 2022

Calusa Waterkeeper is one of many stakeholder organizations in the Caloosahatchee River Watershed and the Caloosahatchee River is the principal waterbody in our four-county project area linking Lake Okeechobee to the coastal waters of Charlotte Harbor. Our non-profit organization has a long history with the Caloosahatchee River starting in 1995 as the Caloosahatchee River Citizens Association and then changing to a member organization of the Waterkeeper Alliance starting in December of 2016.

Members of Calusa Waterkeeper value the Caloosahatchee River as a source of outdoor recreation, wildlife enjoyment, potential property value enhancement and at times spiritual fulfillment and have provided court required standing declarations with respect to these values linked to the Caloosahatchee River.

My personal experience with the Caloosahatchee TMDL / BMAP started as a member of BMAP Technical Advisory Committee starting around 2010 and initially representing the Southwest Florida Watershed Council and the Lee County Hyacinth Control District. Starting in 2016 I accepted the position of Calusa Waterkeeper (my title) and represented our organization (same name) to current date with respect to the Caloosahatchee BMAP.

Please consider the following comments on the 2022 Draft 5-year Caloosahatchee BMAP Review:

- Monitoring data insufficiency as reported in the 2022 draft has been a recurring theme over the last several years with the Caloosahatchee BMAP. Parameters for sufficiency requiring continuous monitoring and for minimum durations can ultimately constrain progress on developing acceptable trend assessment and restoration priority. Data gaps resulting in varying antecedent conditions should be expected especially during drought conditions when surface water may not be present. As reported in the draft document 56 percent of basins in Targeted Restoration Areas (TRA) had insufficient data for TN and 63 percent had insufficient data on TP to determine a priority for restoration and trend analysis (p. 33, Table 13). This recurring problem is unacceptable considering the BMAP is now in its tenth year since adoption and that the Governor's, 2019 executive order 19-12 on water quality emphasized additional monitoring. Despite such widespread data insufficiency, it seems ironic that FDEP could conclude without adequate empirical verification that stakeholders have met or exceeded the 10-year TMDL milestone of a 75 percent reduction in pollutant loading. FDEP should ask the legislature for

adequate funding to address a more predictable and robust approach to BMAP evaluation and progress that leads to timelier TMDL compliance.

- Trend data are not clearly summarized in the document. As one example, the Tidal Northwest basin is listed as having insufficient data for TN assessments in Figure 8 with respect to a TRA but Figure A-1 indicates significant increasing trends at 3 of 5 monitoring stations in the same basin.
- The draft report acknowledges the lack of adequate flow data for determining TN and TP loading rates. Inadequate flow data have been a constraint to loading calculations with the Caloosahatchee BMAP going back to the BMAP adoption in 2012 when FDEP contracts with USGS for flow determination were defunded. As a reminder, compliance with the Caloosahatchee TMDL / BMAP is based on mass loading as opposed to those TMDLs based primarily on pollutant concentration. Furthermore, FDEP is apparently ignoring TN loading information from the tidal basin that is reported by Lee County MS4 stormwater co-permittees. Within each permit cycle the MS4 permittees (Fort Myers, Cape Coral, unincorporated Lee County and other associated Lee County permittees) are required to conduct nutrient loading evaluations from MS4 major outfalls to determine NPDES permit compliance. As one example, the Cape Coral MS4 2013/2014 Annual Report to FDEP reported 270K pounds of TN loading from major outfalls, many of which discharge to the Caloosahatchee River. The total TN loading as indicated in the 2020-2021 Cape Coral MS4 report increased to more than 923K pounds, a 3.4-fold increase since 2013. The increase in TN loading is likely more about excessive untreated stormwater runoff resulting from rapid urban growth and development (Fort Myers and Cape Coral are national leaders in growth) rather than interannual rainfall variability.
- The draft report discusses the more recent assessment of Caloosahatchee Watershed TN loading resulting from a recent estimate cited from the 2022 SFWMD South Florida Environmental Report (Taylor et al. 2022) where TN loading from the watershed has increased by 77 percent or a total of 1,207,239 lbs./yr compared to the TN loads in 2012 when the BMAP was adopted. The huge increase in TN loading is not surprising, when considering the rate of growth, especially in the tidal basin, where TN loading estimates reported through time by MS4 permittees has increased dramatically over the last decade.
- The huge increase in estimated TN loading was predictable as a result of the following factors related to the Caloosahatchee BMAP: reliance on significantly out of date land use for modeling and potentially underestimating current loading, especially in a fast growth watershed; dependence on presumed outcomes from inefficient stormwater treatment design criteria; MS4 permitting that “rubber-stamps” permit renewal despite increased rates of water quality impairment; presumption of compliance on load reductions from education programs and agricultural BMP enrollment where performance is not verified from on-site runoff; and insufficient water quality and flow monitoring data within the BMAP watershed for prioritizing restoration projects. Fifty seven percent of total Caloosahatchee stakeholder nutrient load reduction is assumed from just agricultural BMP enrollment rather than measured loading.

Waiting until further verification of non-compliance is determined after the next 5-year review, as inferred in the draft report, would only create further uncertainty toward the 20-year or final milestone for TMDL compliance. In essence, the Caloosahatchee BMAP has evolved into a stakeholder charity for load reduction credits where progress evaluations ignore net loading changes influenced by rapid growth and unverifiable BMP assumptions. As a result, there will continue to be a growing discrepancy between actual TN and TP loading and presumed compliance from projects completed. Required load reductions per assigned stakeholders should be immediately reassigned and enforced with definitive timelines for compliance supported by sufficient monitoring and flow data.

In summary, a new urgency to reduce nutrient loading in the Caloosahatchee Watershed should be a priority for FDEP as symptoms of excessive and increasing nutrient loading are fundamentally changing associated ecosystems in the basin and downstream coastal waters. A key symptom of cultural eutrophication is represented by a fundamental shift in primary production, from predominantly seagrass historically, to micro and macroalgae dominance that impacts the entire food web including the fishery and survival of marine herbivores such as the Florida manatee, a threatened species in Florida. This ongoing shift to dominance by algae is important ecologically and of significance to the Caloosahatchee BMAP that was defined originally as a resource based BMAP in 2012. The original BMAP compliance response measure focusing on TN limitation, incorporated light transmission associated with the historic deep edge of seagrass in San Carlos Bay (2.2 meters). Since 2012, light transmission is rarely more than 2.0 meters in San Carlos Bay and a decreasing light transmission trend may be in effect from more recent data sourced from Sanibel Captiva Conservation Foundation and consistent with increased TN loading estimates.

The loss or decline of seagrass is documented in Florida Outstanding waters such as Estero Bay, Pine Island Sound, San Carlos Bay and Matlacha Pass from State Aquatic Preserve summaries, CHNEP Water Atlas and other research cited in Janicki (2022). These waters are impacted at least seasonally from nutrient enriched Caloosahatchee outflows and have been assessed as nutrient impaired by FDEP. The decline in seagrass in BMAP impacted waters is counterintuitive to the objective of increasing seagrass distribution by increasing water transparency that was identified as a Caloosahatchee BMAP restoration priority in 2012.

Additionally, an increase in the frequency of harmful algal blooms (HAB) over the last decade in Caloosahatchee BMAP associated waters threaten not only ecosystem stability but also human health. Recent research by Medina et al. 2020 correlates nitrogen sourced from the Caloosahatchee River with red tide bloom occurrence in Charlotte Harbor. Furthermore, HAB blooms responding to nutrient enrichment in the Caloosahatchee River in 2016 and 2018 were severe enough to require an executive order from the governor establishing a State of Emergency for local communities due to economic and public health impacts. An accelerated approach to Caloosahatchee BMAP compliance, due to systemic ecosystem decline, is urgently recommended before ecological tipping points become evident and irreversible.

Literature Cited

Janicki Environmental, Inc. 2022. Identifying Potential Drivers of Change in Seagrass and Algal Community Composition in SWFL Aquatic Preserves. Final Report. Prepared for: Charlotte Harbor and Estero Bay Aquatic Preserves.

Medina, M., Kaplan, D., Milbrandt, E. C., Tomasko, D., Huffaker, R., & Angelini, C. (2022). Nitrogen-enriched discharges from a highly managed watershed intensify red tide (*Karenia brevis*) blooms in southwest Florida. *Science of The Total Environment*, 827, 154149.

Taylor, D., M. Parker, and J. Bobsein. 2022. Chapter 8D: Caloosahatchee River Watershed Protection Plan Annual Progress Report. In: Final 2022 South Florida Environmental Report – Volume I, South Florida Water Management District, West Palm Beach, FL.