Marco Island, Florida

Water Quality Status & Trends

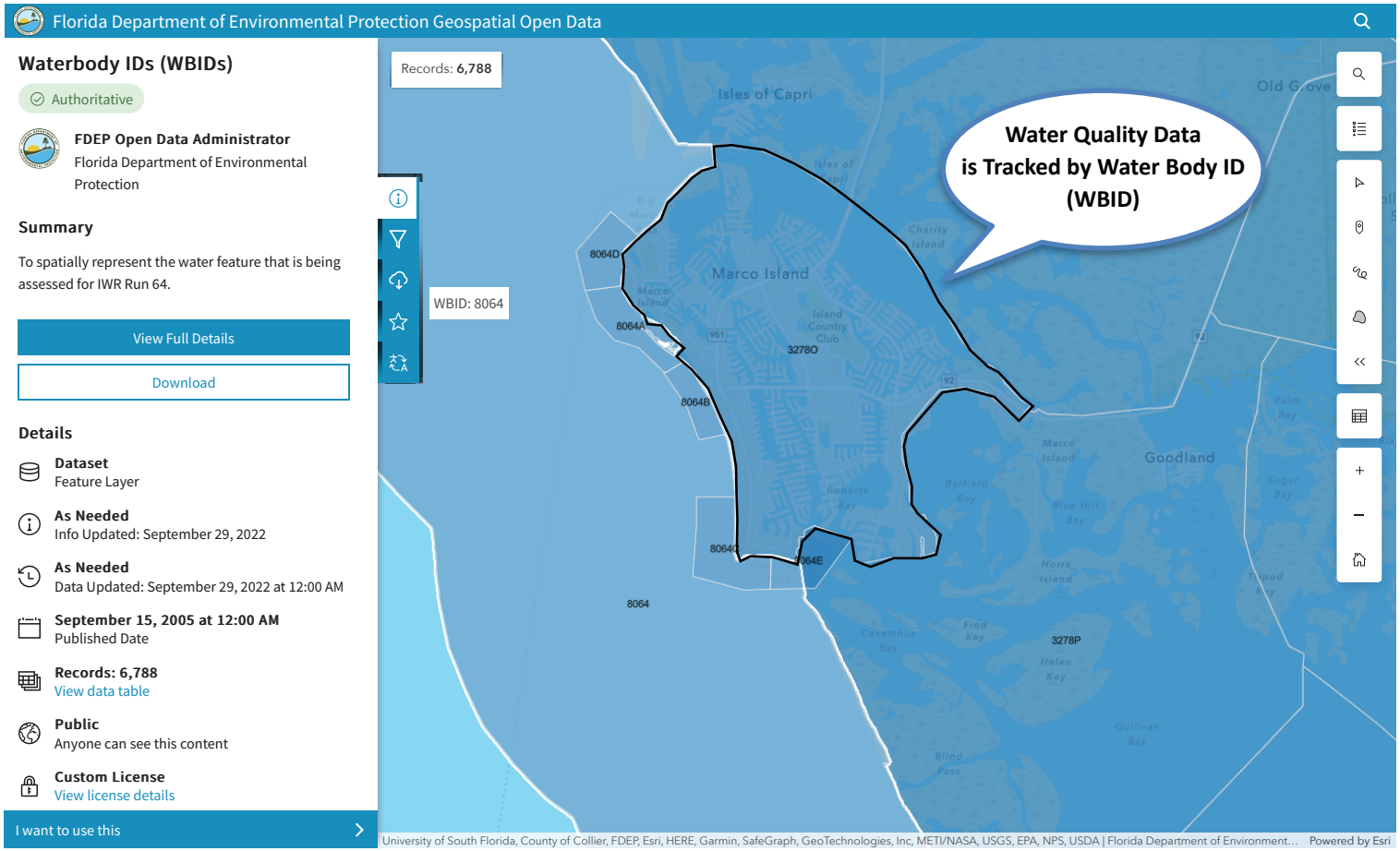
2018 - 2024

Summary

- **Marco canals no longer impaired for Total Nitrogen (TN) - in 2019 the sewage plant dropped TN in the reuse water by 50% and the island came out of impairment.**
- **Total Phosphorus (TP) in the canals is now approaching the impairment limit - only one source of TP on Marco - the sewage reuse water. Phosphorus feeds algae.**
- **Chlorophll-a (CHLA) measures the level of algae in the canals and is also approaching the Impairment limit.**
- **Marco is now officially impaired for negative oxygen trend - algae destroys oxygen - the canals have lost 70% of the oxygen in the last 4 years.**

The Marco canal eco-system is collapsing

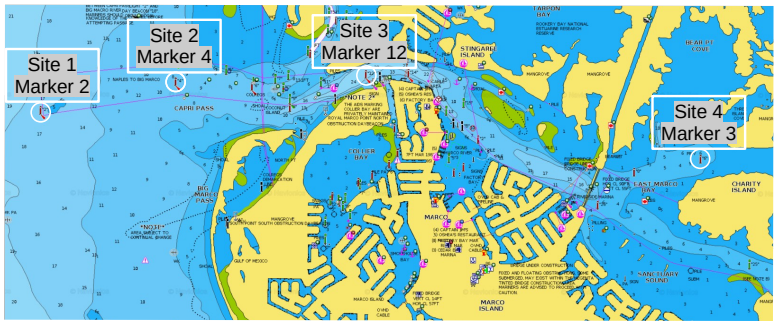
Marco Island Water Body ID (WBID) is 3278O



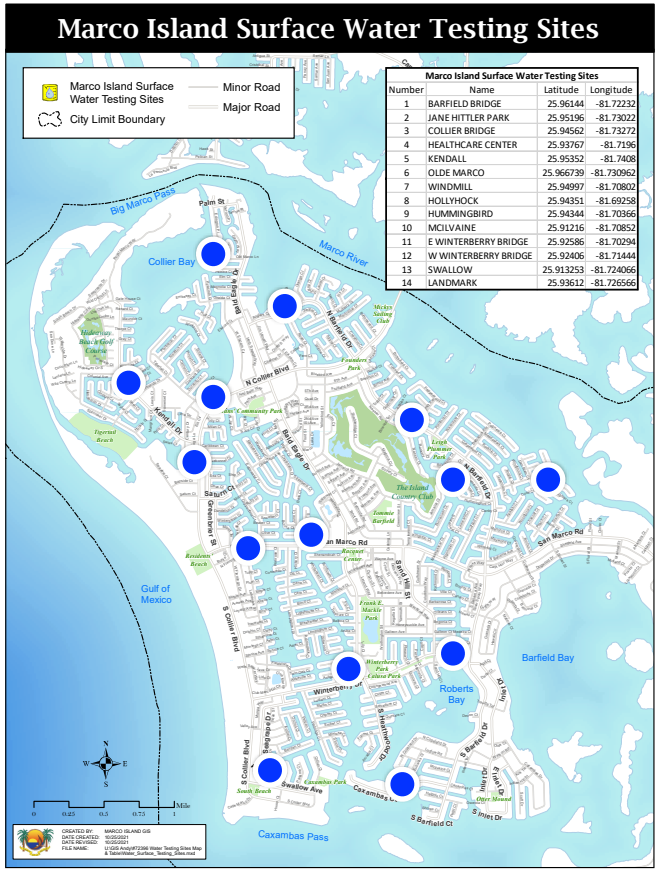
8 WBID surround Marco Island

18 Water Quality Sampling Locations

RIVER AND OFF SHORE

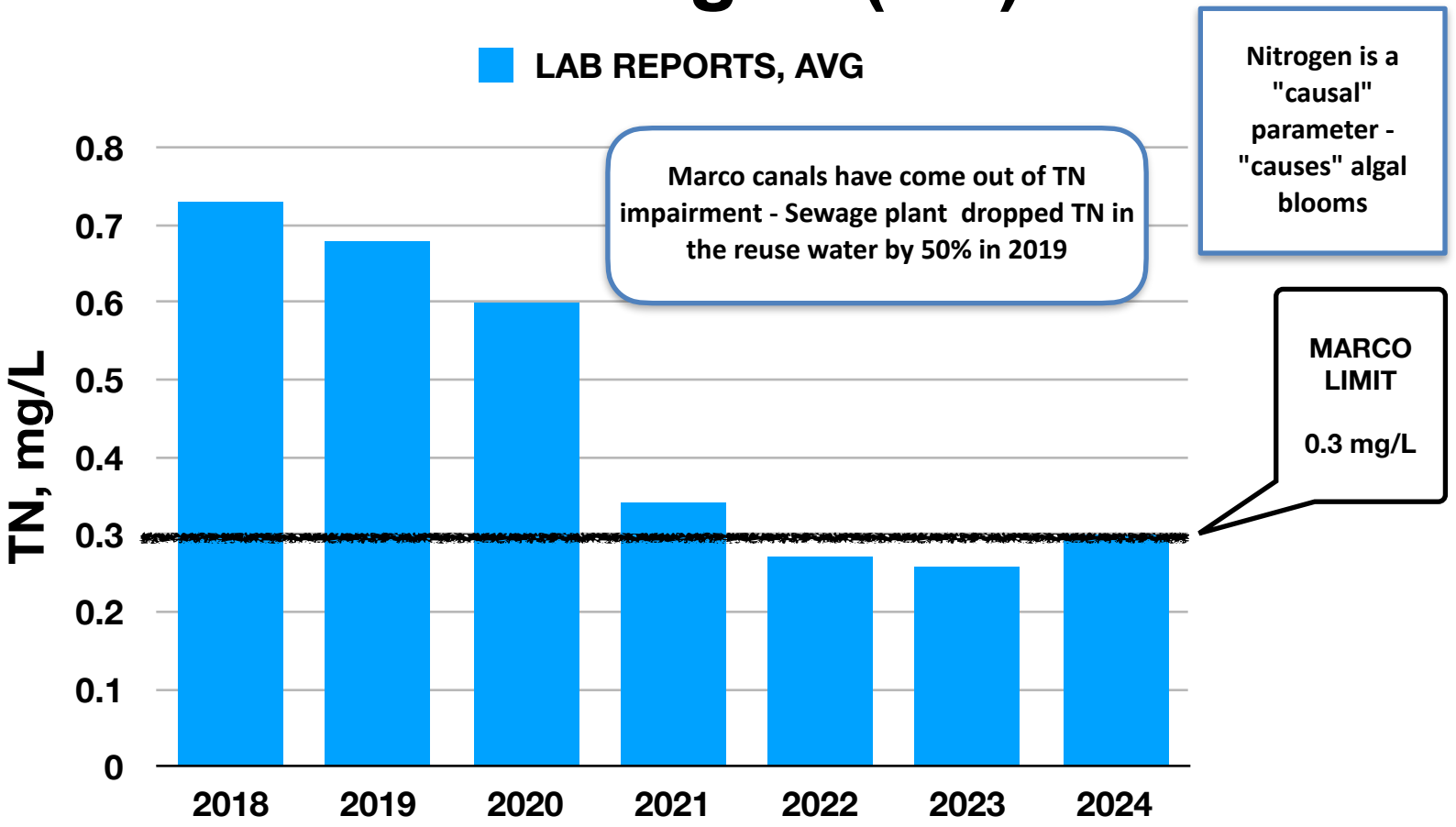


Site 1 – Marker 2 – N25* 58’ 15” W81* 46’ 17”
Site 2 – Marker 4 – N25* 58’ 26” W81* 45’ 22”
Site 3 – Marker 12 – N25* 58’ 28” W81* 44’ 06”
Site 4 – Marker 3 – N25* 57’ 58” W81* 41’ 51”



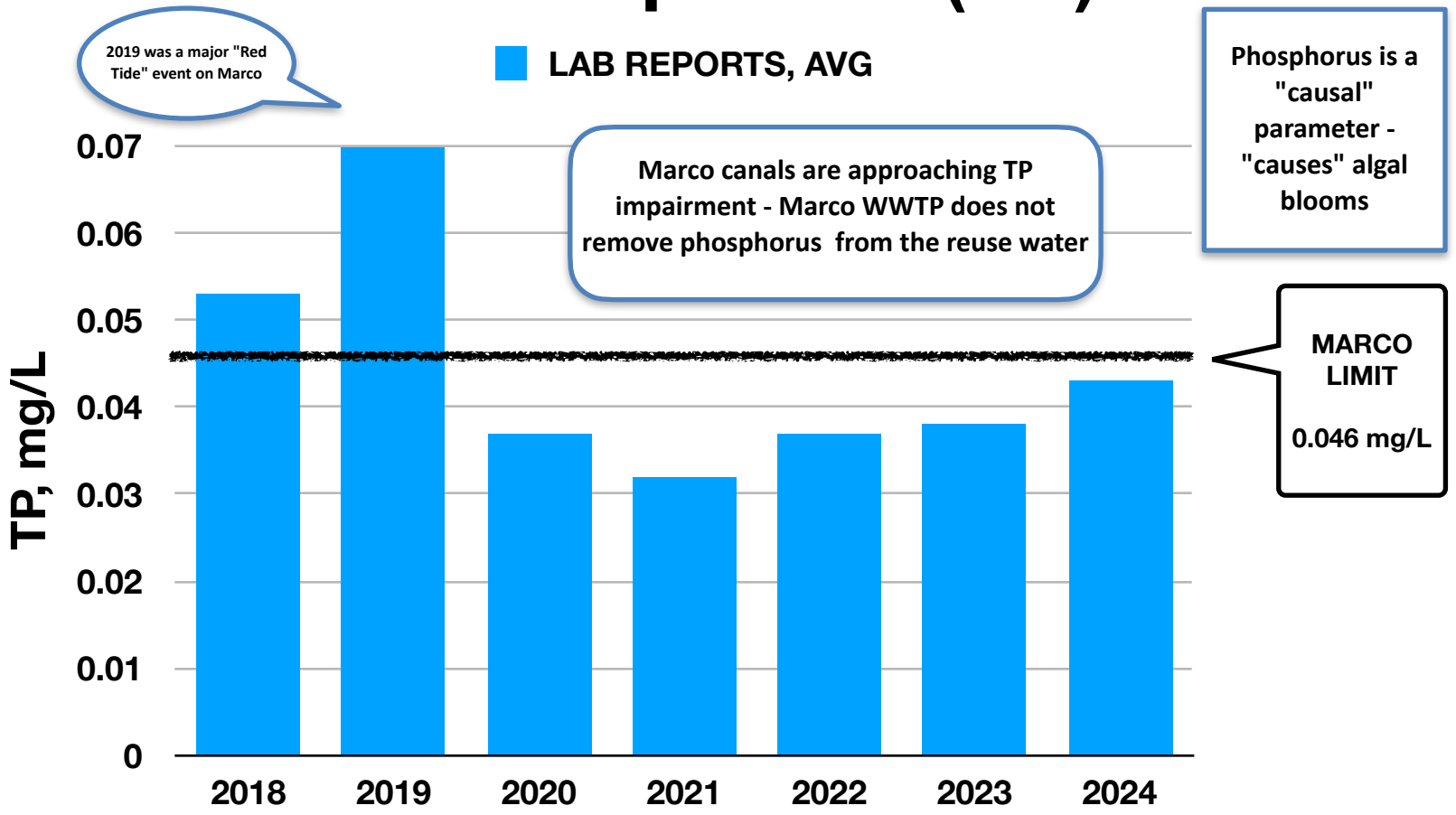
Water Quality Samples Taken Monthly

Marco Total Nitrogen (TN) Trend



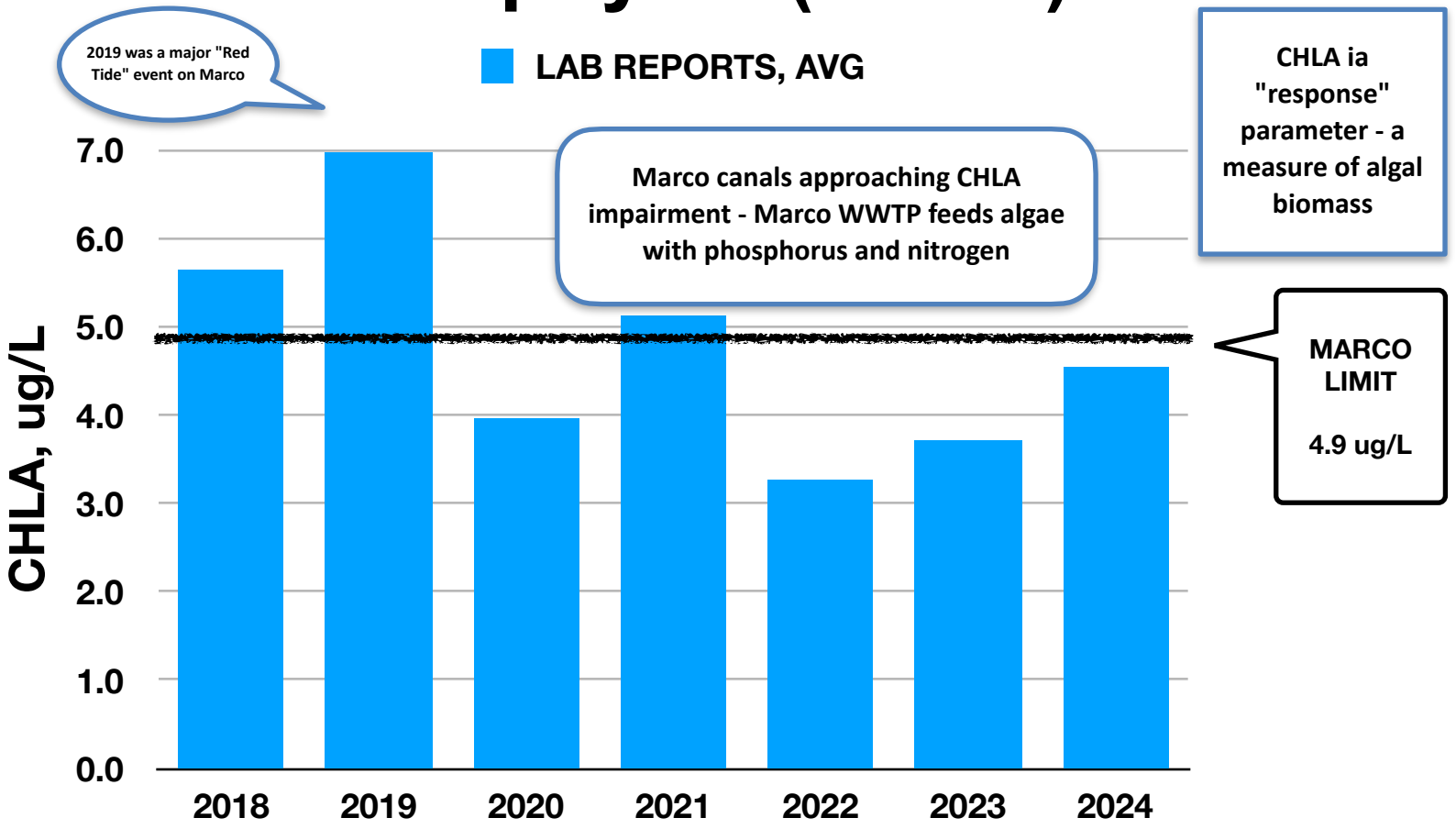
Nitrogen Below Limit - Stable

Marco Total Phosphorus (TP) Trend



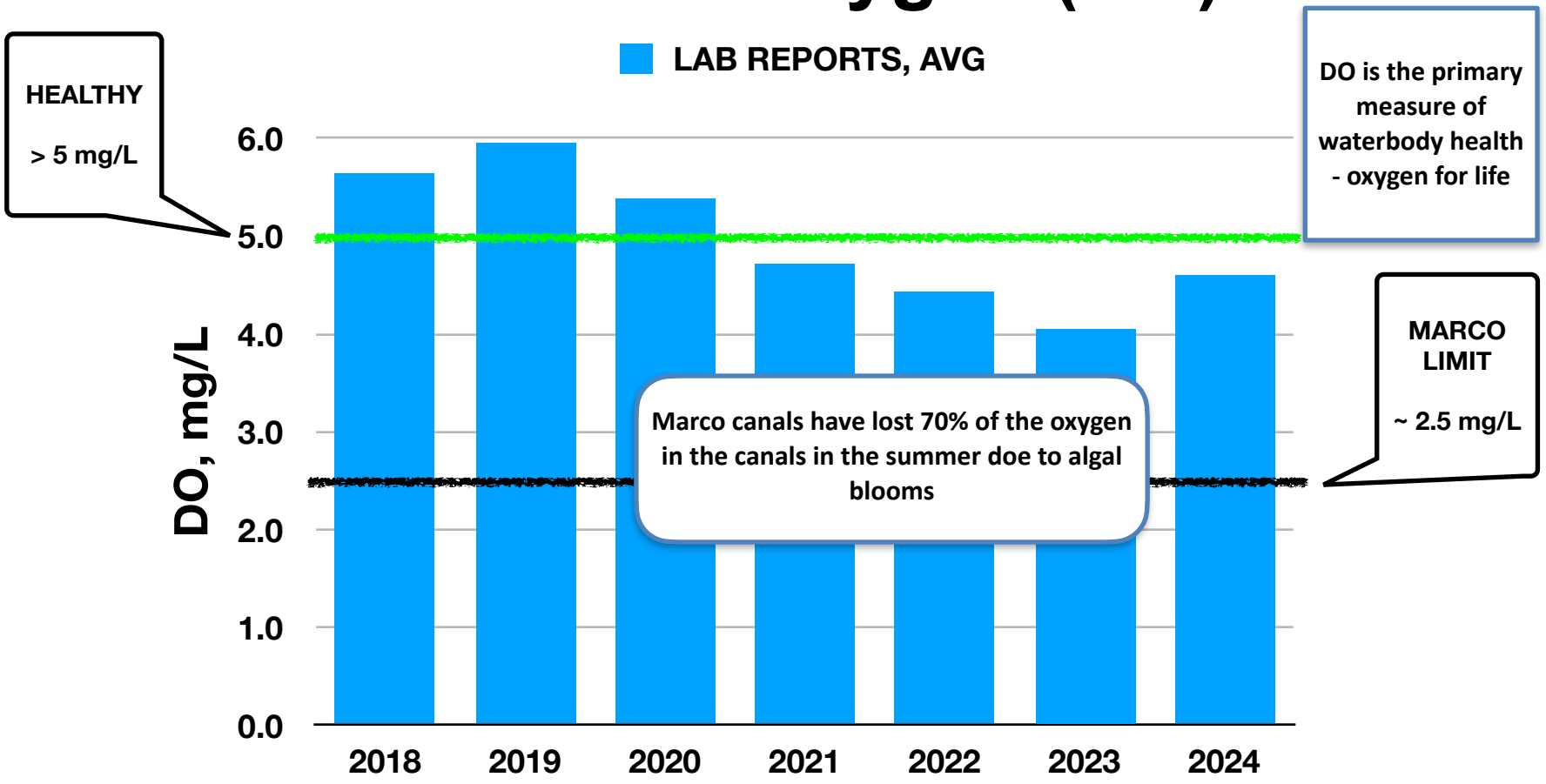
Phosphorus Below Limit - Increasing

Marco Chlorophyll a (CHLA) Trend



Chlorophyll Below Limit - Increasing

Marco Dissolved Oxygen (DO) Trend



Oxygen Above Limit - Decreasing

Marco Island FDEP "Master List"

Parameters Assessed Using the Impaired Surface Waters Rule (IWR)	Summary Assessment Status	Planning Period Assessment Data [5]	Verified Period Assessment Data [5]	Comments
Dissolved Oxygen (Trend)	Planning List	Insufficient Data	Impaired	This waterbody has sufficient data to meet the planning list requirements for this parameter based on a significant decreasing trend in dissolved oxygen levels or increasing trend in the range of daily dissolved oxygen fluctuations of the 90% confidence level using a one-sided Seasonal Kendall test for trends.
Nutrients (Total Nitrogen Trend)	Not Impaired	AGM 2015 (0.13 mg/L) 2016 (0.17 mg/L) 2017 (0.38 mg/L) 2018 (0.61 mg/L) 2019 (0.47 mg/L)	AGM 2015 (0.13 mg/L) 2016 (0.17 mg/L) 2017 (0.38 mg/L) 2018 (0.61 mg/L) 2019 (0.47 mg/L) 2020 (0.41 mg/L)	This waterbody is not impaired for this parameter based on having no statistically significant increasing trend at the 95% confidence level over the assessment period using a Mann's one-sided, upper-tail test for trend.
Nutrients (Total Nitrogen)	Delist (Ongoing Restoration Activities)	ENRE3 (AGM) 2015 (0.13 mg/L) 2016 (0.17 mg/L) 2017 (0.38 mg/L) 2018 (0.61 mg/L) 2019 (0.47 mg/L)	ENRE3 (AGM) 2015 (0.13 mg/L) 2016 (0.17 mg/L) 2017 (0.38 mg/L) 2018 (0.61 mg/L) 2019 (0.47 mg/L) 2020 (0.41 mg/L) 2021 (0.22 mg/L)	This waterbody is impaired for this parameter because the annual geometric means exceeded the ENR criteria more than once in a three year period. However, this parameter is being added to the Study List because there are ongoing restoration activities to address the total nitrogen impairment documented in the Marco Island Pollutant Reduction Plan. This parameter is being removed from the Verified List but will remain on the 303(d) List.

Per FDEP - Oxygen *Trend* is Impaired

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