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Tidings The Newsletter of the Friends of Perdido Bay

December 2022 Volume 35 Number 6 Jackie Lane -Editor
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Thank You For Your Support And Happy Holidays

Thank you for your membership and support of Friends of Perdido Bay. We also want to wish you a joyous holiday season and a happy and healthy 2023. Your support has been crucial in our attempts to clean up Perdido Bay. While the environmental agencies have tried to ignore the problems in Perdido Bay and not do the testing which shows the problems, Friends has stepped up and done testing to demonstrate the problems. Our latest testing shows the water in Upper Perdido Bay is inhibitory to algal growth, with the inhibitory substance coming from International Papers discharge into Elevenmile Creek. This testing is possible because of your dues and contributions. And we are planning more. Upper Perdido Bay also appears to be toxic to certain larval forms of life. As soon as the lab which we use for our testing is set up to do the tests, we are also going to run oyster larvae toxicity testing. We are also going to do more nutrient testing. We monitor the water quality data which Escambia County is taking in Perdido Bay. Friends of Perdido Bay is what our environmental agencies call a "third party". Third parties are part of the public surveillance on our government's handling of environmental affairs. And we know, only too well, the cozy relationship which exists between the polluters and the regulators. So stayed tuned, there is more to come.

Just Too Much

In 1983, the Florida's environmental agency, DEP, issued a Consent Order for two local domestic wastewater treatment plants to close. One of the wastewater treatment plants was on Bayou Chico; the other was on Bayou Marcus (in those days called Avondale). Both plants were small and operated by ECUA (Emerald Coast Utilities Authority). The reasoning behind the call for closure was that both plants discharged into bays which did not flush well, and the nutrients would potentially cause nuisance algae blooms. The Bayou Chico plant closed. The Bayou Marcus (Avondale) domestic wastewater treatment plant, which at the time was discharging 700,000 gallons a day, went in a different direction. It stayed open and

expanded. Today it is discharging nearly 6 million gallons (5.88) (MGD) of effluent a day. A third of that discharge comes from the Navy. There was a 2 MGD pipeline built from NAS Pensacola to Bayou Marcus about ten years ago. I always wondered why the Navy would switch its discharge to a wastewater treatment plant which was located on a bay which certainly did not flush well. Maybe it was the addition of a wetland discharge by the Bayou Marcus plant.

In 1986, some developers from California bought the wetland property surrounding the Bayou Marcus plant and planned on building a subdivision. They began digging ditches to lower the water table. Even in 1986, this was illegal. The EPA stepped in and stopped the ditch digging and fined the developers. It was then, while use of the property was in limbo, that the ECUA decided to purchase the property. They approached Friends of Perdido Bay with their plans to discharge into these wetlands. At the time the discharge was just barely 1 MGD. Friends of Perdido Bay decided to give our blessing to this project as long as the discharge remained less than 2 MGD. ECUA had plans to build a boardwalk through the wetlands and it seemed like a good community project. The boardwalk was built (it is now a little decrepit) and many people have enjoyed walking in the wetlands over the boardwalk. But we watched as the discharge to the wetland increased and kept wondering when that discharge was going to cause algae blooms. As the Bayou Marcus discharge drifts by my beach, I was especially interested. Even Dr. Livingston (the paper mill consultant who studied the bay from 1988 to 2007) warned about excessive algae blooms from the Bayou Marcus Treatment Plant. Matter of fact, he said that part of the excessive nutrients which supposedly caused blooms of toxic algae and killed the bay, came from ECUA's Bayou Marcus plant.

Massive blooms of drift algae were a problem along our beaches in late 1980's and through the 1990's. We have a few pictures on our website of these massive blooms of algae. However, we never believed that it was nutrient-caused toxic algae blooms which killed the bay. But the drift algae which bloomed along our beaches was a nuisance. In those days, we still had shrimp, crabs, barnacles and clams in the bay. Fast forward to today - we have no drift algae and no crabs, shrimp, barnacles or clams. What has happened? This is what we are trying to figure out without any help from the DEP. We have a few ideas which we will explore by testing and elaborate in future newsletters .

In the meantime, we continue to monitor the discharges from Bayou Marcus Treatment Plant. Twice a year, ECUA is required to monitor a site (there is a marker here) just off Bayou Marcus Creek. It is slightly north of the mouth of the creek. Some of the recent nutrient data (from last summer) indicate that Total Nitrogen's are getting a little high (TN=0.75 mg/l) with most of that being organic nitrogen. Total

Date of values	TN (mg/l)	TP (mg/l)
DEP Recommended limits in early 1990	0.36 mg/l	0.05 mg/l
Site specific limits set in 2012 for Upper Perdido Bay per Dr. Livingston	1.27 mg/l	0.102 mg/l
Bayou Marcus summer 2021	0.75 mg/l	0.06 mg/l

phosphorus was 0.06 mg/l (a little too high). There was also some indication that these levels of nutrients were causing some algae blooms (chl a values were 15 mg/m^3). Anything over 11 mg/m^3 is high. You can see from the Table above, what the various limits for Total Nitrogen and Total Phosphorus may be. If you believe the "site specific limits" which were set for Upper Perdido Bay by DEP Rule 62-302 in 2012 using Dr Livingston's recommendation, then the total nitrogen and total phosphorus found at Bayou Marcus in Summer 2021 are O.K. If you believe the levels the DEP used to think were O.K (first line), then the Bayou Marcus numbers are too high. The real numbers are what is going to cause algae blooms measured as Chlorophyll a values.

The Bayou Marcus Treatment Plant's discharge to wetlands, is better than a direct discharge to Upper Perdido Bay. However wetlands are not the panacea which some people think. The more effluent which is discharged into a wetland, the less efficient the wetland becomes. Also treatment wetlands become less useful as time goes on. Eventually those wetlands begin to export the nutrients. It is hard to say if the Bayou Marcus wetlands are still absorbing nutrients. But in time, those wetlands will give up the nutrients which they have absorbed. That is when things start getting bad. But of course, if you have a little herbicide to throw at those nutrient rich waters which may cause blooms of algae, it won't be a problem. Pass the herbicide please. Chlorine does the same thing in a swimming pool.

Help With the Florida Referendum

A coalition of Florida environmentalists is proposing to get a referendum on the 2024 ballot in Florida. "This amendment creates a fundamental right to clean and healthy waters. The amendment may be used to sue State executive agencies for harm or threatened harm to Florida's waters, which include aquatic ecosystems....". This amendment will help to give state agencies a little backbone by allowing lawyers to sue the agencies if they allow, like they have on Perdido Bay, one industry to continue to kill a beautiful bay. International Paper has been allowed to operate on an expired permit for 35 years while "trying" to "clean up". Of course, IP's attempts have been kind-of-half hearted. They haven't spent too much money and IP has been making plenty of money making linearboard at the mill. Well if lawyers could sue the environmental agencies for allowing this to happen, things may be a little different.

The other side, which is the Pulp and Paper industry of Florida goes to court every time the agencies pass a rule which the paper industry doesn't like. The result: rules which don't address the problems caused by the industry or very complex or watered down rules. An example is the rule for allowable metals in wastewater. Because the paper industry puts out a very alkaline effluent, the rule for allowable metals in wastewater is based on pH of the effluent. The more alkaline the effluent, the more metals are allowed in the effluent. It doesn't matter if this is good or bad for the environment. In a small bay, like Perdido, which doesn't flush, it is bad. So this amendment would allow lawyers, who are always looking for new ways to make money, the ability to sue the environmental agencies, irrespective of whether or not the discharger, ECUA included, was meeting the standards or not. This amendment would definitely put more pressure on the agencies to actually "protect the environment". And Perdido Bay would be a great place to start.

So Florida residents, please sign the enclosed Petition form and send it back to the address on the form. You can copy this form and take it around to your neighbors, or take it to

a Christmas party. The goal is to get 223K petitions by March 1, 2023 to get in on the 2024 ballot.

Too Good

Ten years ago, the dissolved oxyegn in Perdido Bay was not good. Perdido Bay, especially with depth, did not meet the water quality standard for dissolved oxygen. It was listed as impaired for low dissolved oxygen. In 2007, a Total Maximum Load determination was done for Perdido Bay by the Florida DEP. Based on the loading of organic material going into Perdido Bay, the levels of dissolved oxygen looked pretty bad, especially in the summer and especially on the bottom.

Today things are all different. If you look at the percent saturation of dissolved oxygen in Perdido Bay waters, the dissolved oxygen is great. Escambia County has begun sampling some water quality parameters on a monthly basis in Perdido Bay. You can find them at this website - https://www.arcgis.com/apps/dashboards/ad41dd1cb28642fe806e2f3588b11ff8. In the upper right part of the site, you can choose the parameter, the site (Perdido Bay), Upper or lower Perdido Bay and the date (from January 2018 to present). Looking at percent oxygen saturation, in this graph or Table, you will see that for 2022 Upper Perdido Bay has over 100% saturation in all months. How good is that? This is for the surface only. Escambia County doesn't want to know what the dissolved oxygen is with depth. Lower Perdido Bay is only a little less good. During some months, the percent saturation dropped to less that 100% saturation at the surface, especially during the summer 2022. The salinity was also especially low in the lower Bay with all the rain.

In spite of the fact that dissolved oxygen saturation was so good in 2022 (140% in September 2022) life in the bay doesn't seem to have improved. If low dissolved oxygen had been the reason for little life in Perdido Bay, you would have expected it to improve. It hasn't. Matter of fact, if percent saturation of dissolved oxygen gets too high, it can actually kill larval life in Perdido Bay. Is it possible that Perdido Bay can be super saturated with oxygen? Maybe on a rare ocassion, with a big bloom of algae. The chlorophyll a values in June 2022 were only 6µ/L, which is a "normal amount". So excessive blooms of algae are not the reason for the excessive levels of oxygen. I think the dissolved oxygen is being manipulated in Perdido Bay. This is interesting, if not alarming.

Membership and Renewals

Tidings is published six times a year by Friends of Perdido Bay and is mailed to members. To keep up with the latest news of happenings on Perdido Bay, become a member or renew your membership. For present members, your date for renewal is printed on your mailing label.

Membership is $30.00 per **year per voting member**. To join or renew, fill out the coupon to the rightand mail with your check to the address on the front.

Friends is a not-for-profit corporation and all contributions are tax-deductible. Funds received are all used for projects to improve Perdido Bay. No money is paid to the Board of Directors, all of whom volunteer their time and effort.

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