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Tidings The Newsletter of the Friends of Perdido Bay

August 2025 Volume 37 Number 4 Jackie Lane-editor
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Thank you for your support

Friends of Perdido Bay operates on your generosity. I am sure there are a few people who wish we would go away, including some in government agencies. But we are here to stay until our bay is cleaned up. Some would say "Why Bother. It looks OK." But looks are deceiving. Do you see people out fishing? Or swimming? Or shrimp boats going up and down the bay for shrimp. NO. The bay's productivity has been killed. And Friends of Perdido Bay's job is to bring it back. We know it can happen, and we will work on it. When the International Paper Mill in Cantonment Florida blew up in 2017, the bay immediately returned to life. I was amazed at how fast life returned and how fast it disappeared once the mill started back up. It is no doubt that the mill is the cause of most of the lost productivity in the bay. We have tried to understand why over the years. I will explain some of what we have found.

A Historical Overview of Perceived Problems

Perhaps the first problem we saw was **low dissolved oxygen** in the bottom waters. The mill in Cantonment always denied that they were causing or contributing to this problem. But it was hard for citizens to believe that dumping 5,000 pounds daily of total suspended solids which was mostly organic didn't contribute to the low oxygen. The stuff didn't just evaporate. It decayed and used up oxygen.

Then, the consultant hired by the paper mill said it was **plant nutrients** which were causing algae blooms. These algae died, sank to the bottom, and caused the goo and low dissolved oxygen. That was possible but it didn't explain the disappearance of life in shallow areas. In those years (1995-2004), we did see lots of algae at our beaches. It was

easy to believe nutrients were a problem. The lack of life was attributed to blooms of **toxic algae** caused by the plant nutrients. We didn't see any massive fish kills, but who knows?

So the paper mill went to disposing of its effluent in a "wetland". This wetland was supposed to remove the nutrients and life was supposed to return. But alas, life in Perdido Bay just didn't come back**.** Matter of fact, it got worse**. Why?**

The Real Problems in Perdido Bay

The real problems in Perdido have evolved over time. As Mike Papantonio said in TV ads in 1999, the paper mill effluent is toxic. The people on Escambia Bay didn't want that stuff in their bay. Toxic? Maybe not for all forms of life, but certainly to some. Oyster larvae which live in the water for several weeks must be affected by paper mill effluent. If they weren't, we would have oysters in the Upper part of Perdido Bay. And to corroborate this story, old timers remember oysters living here before the papermill started. The millions of clams we used to have on the bottom of Perdido Bay years ago, are gone. My children must remember these clams well. They used to get into trouble throwing clams at each other. These missiles of destruction are gone. This indicates that the mill effluent is probably getting more toxic. From what?

In 1995, the mill converted to a new form of bleaching – chlorine dioxide. At the time, the old owners of the mill, Champion International, told us that this new bleaching agent was going to make a huge difference. The old bleaching agent, chlorine, produced dioxin and other chlorinated chemicals. It was dangerous. But when we checked for dioxin in Perdido Bay sediments in 1999, we didn't find any. When we checked again in 2004, the dioxin values were high. The conversion to chlorine dioxide bleaching in 1995 didn't really prevent dioxin formation. What we did find was – that the known disinfectant, chlorine dioxide, was present in Elevenmile Creek at a pretty high concentration. The EPA had told us that chlorine dioxide would break down rapidly. It didn't. Our studies in Elevenmile Creek showed that chlorine dioxide was present at the same concentration from the beginning of the creek (the papermill's discharge point) to the end of the creek as it entered Perdido Bay. There was no breakdown of this chemical. Chlorine dioxide was probably disinfecting Perdido Bay for a certain distance from the mouth of the creek.

In addition to finding a disinfecting chemical, our testing in Elevenmile Creek also showed chlorate. Chlorate is a well-known herbicide. The presence of chlorate would explain the disappearance of little algae which I was trying to grow on glass plates in Upper Perdido Bay. This was part of my research which I had been doing since the early 1980's at my beach in Upper Perdido Bay. We don't live too far from the mouth of Elevenmile Creek. Another alarming sign was the red fronds on the sea grasses especially near the surface. It was obvious something was wrong. In the mid-2000's, the drift algae disappeared, but we still had some clams at our beaches.

Things really declined in 2017 just after the paper mill started back up after their explosion. It was several months before we found out from the Florida environmental agency what IP had done. In 2017, IP got a new air permit. Remember, they are still

operating on a water permit which expired in 2017. These water discharge permits had been administratively continued since 1994. They have never met the water quality standards. In the new 2017 air permits, we discovered that IP was using wet alkaline scrubbers to remove certain pollutants from their air emissions. These fluids and the materials removed from the smokestacks were flowing into their treatment ponds and then into Perdido Bay. At the same time, we noticed that the bay was becoming increasingly alkaline. In pH measurements, I noticed the bay waters off my beach were rising from pH 7.8 to measurements over 8. At the same time, swimming in the bay was becoming more and more uncomfortable. You would get out and your skin would feel hot, even after a shower. IP was discharging their effluent into a wetland and they were reporting a wastewater which had a pH of about 7 S.U. This was a legal limit.

The pH continued to rise in the bay. I sent several letters to Governor DeSantis about the problem. Never heard a word back. In 2020, I went up and measured the pH in Elevenmile Creek, just after it flowed off IP's property at Kingsfield Road. One day, I found a pH of 8.4. This number is very high and alkaline since the pH of the local waters is on the acidic side. In 2023, Friends of Perdido Bay decided to test to see if Elevenmile Creek water was toxic. In 2023, we found that Elevenmile Creek water was toxic to mussel larvae. Upper Perdido Bay water was not. This was a little puzzling since the paper mill was not supposed to discharge anything but stormwater into the creek, and it had not been raining. The USGS has a flow gage on Elevenmile Creek and the online records of this gage, showed that there were large periodic influxes of water into the creek.

In addition to the pH going up, we saw from data that our consultants were taking and from the data which the county was taking that the dissolved oxygen was also going up. There was nearly a direct correlation between increasing pH and increasing percent saturation of dissolved oxygen. It was amazing. We began to check the literature for what could be happening. We found many research papers, including one from a professor from the civil engineering department at South Alabama, which showed that chlorine dioxide broke down into various chemicals and gave off **oxygen**, especially under alkaline conditions. This was amazing! It was the perfect chemical for the paper industry, especially since the industry discharged enormous amounts of oxygen-consuming materials.

What could be wrong with oxygen? This was the question from an audience member at a recent talk? Well, nothing. It is good, but the other chemical released is **chlorate – an herbicide**. And this is exactly what appears to be the case. We no longer see algae blooms or grass beds or even a healthy assemblage of phytoplankton. The primary productivity of the bay has been compromised. The type of plankton which blooms in the bay is not good food for the schools of fish which we previously saw, the menhaden and the alewives. To prove that this is true, Friends of Perdido Bay has contracted with a company to study the types of phytoplankton blooming in the bay. We will let you know what we find. But for sure. There is an herbicidal impact in the bay.

Air Emmissions going into the Water

On our request, the Florida DEP kindly provided a list of all the air emissions which are discharging alkaline fluids to the wastewater treatment plant. There were ten sources of air pollutants which use wet alkaline scrubbers at the mill. It is a dizzying area of various places in the mill and the processes which use wet scrubbers. I will put this list on our website so that you can inspect all the places. Pollutants such as particulate matter, pH, sulfur dioxide, and total recoverable sulfur are captured on the smokestacks and put into the wastewater treatment system. Some of the natural combustion products such as arsenic and barium are also released. Arsenic is common if coal is being used as fuel in their power boilers.

As I looked at the mill's discharge monitoring reports I realized that this transfer of materials from the air to the water has probably been going on a long time. In the mill's monthly report, IP reports on the two different streams coming from the bleach plant – an alkaline stream and an acid stream. Three chemicals are found in both alkaline and acid streams – chloroform, chlorophenols, and dioxin. Yes, these are not chemicals you would want in the air or in the water**. And yes, the bleach plant is still operating.**

Current Numbers

On October 18, 2023, the IP mill in Cantonment announced that they were shutting down one of their two pulping lines. The bleach plant remains operational. The mill sends monthly operating reports to the Florida DEP. I do not know what their production is currently. With one pulping line shut down, maybe one-half of their past production which was 23,000 tons per day of wood pulp. For the month of June 2025, the average water flow from the mill was 20 Million gallons per day (MGD). IP is also reporting a flow from their stormwater discharge point of 22 (MGD). I don't know why this number is so high. Maybe this flow includes the discharge of water which IP gets from ECUA. Remember, IP agreed to take 7 MGD of treated wastewater from ECUA's wastewater treatment plant over on Escambia Bay. I wonder if IP is actually using this wastewater in their treatment or just disposing of it? **This may be important**.

The levels of Biological Oxygen Demand coming from the mill have dropped although the permit limits are the same. The levels of Total Suspended Solids (TSS) has also dropped to an average of 3,656 pounds per day (Permit Limit is 8,000 pounds per day).

Friends of Perdido Bay Testing Results

Our weekly testing shows occasionally high bacteria counts but no large blooms of algae. Occasionally very alkaline pH and Total Suspended Solids is high; i.e., the bay is turbid.

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 right and 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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