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Friends of Perdido Bay
10738 Lillian Highway
Pensacola, FL 32506
850-453-5488

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Tidings

The Newsletter of the Friends of Perdido Bay

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Jackie Lane -Editor

www.friendsofperdidobay.com

Dark, Dirty and Dead

Maybe I should also add dangerous to the list of adjectives to describe Perdido Bay. It has become obvious that International Paper's effluent has changed considerably since they restarted their operation in April after the explosion in January. For those of us who watch Perdido Bay on nearly a daily basis, the bay just after the explosion was beautiful - clear with a light tan color. Algae had started growing on our seawalls and even a few fronds of grassbeds began showing up. Baby crabs and fish which eat the floating plankton began appearing. Foam was also present. All has disappeared, including the foam. The bay has become very dark and turbid. All algae has disappeared since IP began full operations again. The bay is definitely worse than before the explosion. Why?

I am tempted to speculate. Could the election of a new president who has turned back regulations have caused the deterioration in water quality and maybe air quality? We know that IP was not the only paper maker to have shut down just as Donald Trump was elected. Georgia Pacific in Brewton Alabama also shut down. What was obvious from the beginning of the Trump presidency was how he favored giving breaks to the really big companies. (NOTE: I am Republican.) These big companies already had a huge influence on decisions made by our government. Now it looks like the big companies run government. This is scary. These big companies only consider their earnings and will cut corners where ever they can to improve their bottom line. Emitting a few more cancer causing chemicals will hardly be noticed until later, but presently they are saving money.

Paper makers depend on dilution to make their toxic emissions less toxic. This is the reason IP gave for getting out of Eleven Mile Creek. They could not meet the

standards in the creek even when they were producing half of what they are producing today. So they piped their effluent to a wetland where they have killed nearly 90% of the trees in the wetland. That toxic effluent then dribbles out of the wetland into Perdido Bay with insufficient treatment - 27 million gallons of effluent a day is just too much for a little bay which does not flush.

It turns out that IP releases far more toxic pollutants to the air than to the water according to EPA's toxic release inventory . Over a ten year period, 2005 to 2015, IP released, on the average 17,901,959 pounds of toxic pollutants of which 13,485,946 were to the air. That is, approximately 75% of the toxic pollutants were released as air pollutants. In 2015 (the last year for which there is data), methanol represented about 43% of the toxic chemicals released. This amounted to 760,084 pounds of methanol per year out of 1,775,034 pounds of toxic chemicals. The levels of methanol had been going up since 2012, however there had been a big drop from 2009 to 2010. There were various other chemicals being released; acetaldehyde released in 2009 measured 55,130 pounds per year and a mere 42,489 pounds per year in 2015. The point I am trying to make is that there are a lot of toxic chemicals being released near to where people live. At one time, the mill was isolated in the Cantonment area, but now it is surrounded by development. In 2007, the University of West Florida and Georgia Institute of Technology did an epidemiological study of cancer rates in Escambia and Santa Rosa County (called the Perch Report). They found out that there were cancer clusters around many of the manufacturing facilities in Escambia and Santa Rosa Counties, including around the IP mill.

So if you are living in the Cantonment area, you are probably at a greater risk of health problems caused by releases from IP than if you were living in Gulf Breeze, but of course, people are unaware of these risks. The interesting thing about the toxic air pollutants is that there are no limits on any of these air pollutants so the paper mill is free to emit what ever it wants. No problem with violations! In 1990, Congress was supposed to put more stringent limits on many of these toxic air pollutants. But the big polluters, mainly the chemical and paper industry, were able to fight down any additional limits. Through the use of lobbyists and getting anti-environment people elected to Congress, regulation of toxic air pollutants ceased. President Obama, through executive orders, tried to develop some limits on air pollutants but these limits were quickly eliminated by the new Trump administration. While Trump tweets, the new EPA administration is "making America great again". But unfortunately people living around these industrial facilities, including us, will probably loose.

Too Many Nutrients?

Recently, a DEP official e-mailed me to tell me, that in DEP's latest nutrient survey on Perdido Bay, Upper Perdido Bay was violating the chlorophyll a limit. Chlorophyll a is the green pigment in plants and is usually a sign that the one celled

floating plants called phytoplankton are blooming excessively due to too many nutrients. Just think of the green slime which was blooming along Florida's East Coast last summer from excessive nutrients coming from Lake Ochochobee. I am sure the chlorophyll a values along the East Coast were exceeding high during this algae outbreak. In our bay, I don't think we will have to worry about huge blooms of green algae since IP's effluent is herbicidal and inhibits the growth of green algae, including seagrasses. Of course, the Florida DEP has always denied that this was true and the EPA, if it knew it to be true, ignored it.

Last Fall I did think the Upper bay had a slight green tinge, so Friends of Perdido Bay did some Chlorophyll a analysis. The Chlorophyll a values were only about half of the Chlorophyll a limit set for Upper Perdido Bay by the state of Florida. According to the Florida Rules, the Chlorophyll a values can not exceed 11.5 µg/L in more than 10% of the samples over the most recent seven year period. This is one of the highest chlorophyll a limits for any segment of any bay in Florida. I also sent preserved water samples off to a friend who works for the Florida Wildlife Commission Lab in St. Petersburg. Most of the organisms were small flagellated organisms and blue-green algae. There were no toxic species present like *Heterosigma*. Some of you folks may remember that *Heterosigma* was the organism which bloomed in Perdido Bay beginning in 1995 and lasted until 2007. These were the years when Dr. Livingston studied the bay and he claimed it was the blooms of this toxic algae which killed life in the bay. Many of us never believed this was true, but rather it was the paper mill chemicals which were killing life in the bay, **and still are**. There may have been *Heterosigma* present but the algae were not the reason for the disappearance of life in the bay. Interestingly, *Heterosigma* blooms which Livingston found were never associated with increases in Chlorophyll a as you would expect.

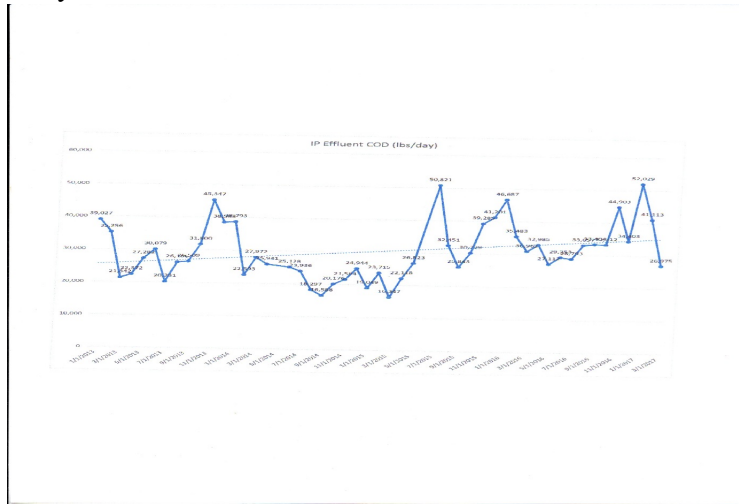
Just what the DEP plans to do with this information about Chlorophyll a is hard to know. Perhaps they will place Upper Perdido Bay on the list of water bodies which are "impaired" due to nutrients. If Upper Perdido Bay becomes "impaired", the DEP will have to do a TMDL (Total Maximum Daily Load) on Perdido Bay. TMDL's are modeling studies to determine the level of nutrients a bay can have without causing algae blooms. A TMDL was already done for Perdido Bay in 2007. But having Perdido Bay impaired for nutrients would do one good thing: it would keep ECUA from discharging anymore sewage into our bay. Maybe it would even make ECUA have to remove some sewage. Right now, ECUA is discharging approximately 15 million gallons a day of Pensacola's domestic sewage into our bay. Even through this domestic wastewater runs through wetlands, there is a limit.

International Paper in its annual scientific report on Perdido Bay noted that levels of phosphorus were increasing slightly. Phosphorus is the main nutrient which causes algae blooms since the other plant nutrient, nitrogen, is usually so high and so soluble it is difficult to control. IP didn't really say where this phosphorus was coming from, but implied it was coming from the domestic wastewater they were receiving from ECUA. Of course we are all hoping that some of this ECUA effluent will be removed from Perdido Bay. International Paper also noted excessive levels of Chlorophyll a at one of its 4 sampling stations, indicating algae blooms. This one station was just at the mouth of

the Perdido River. This station receives sufficient dilution from the Perdido River so that it is less impacted by IP's herbicidal effluent. Because IP's effluent after the explosion is so dark, this dark color will also inhibit algae blooms as well.

Going Up ↗

International Paper sends in a monthly report to the Florida DEP giving values on many different parameters in their discharge. Someone at the Florida DEP must look at the report to see if IP is reporting any violations in their permit limits. The permit limits are so high it would be difficult to violate any of them, but occasionally it happens. One parameter which IP reports is the value for Chemical Oxygen Demand (COD). There is no limit for this parameter although there should be. As with the toxic air pollutants, heavy pressure from the big polluting industries has kept this important constituent in the discharge from being regulated. The chemicals which exert an oxygen demand are some of the most toxic and use up oxygen upon discharge. Below is the graph of the amount of COD emitted monthly from 2013 to 2017.



This may be a little hard to read but in 2013 IP was discharging 26,000 pounds a day of COD on the average. It has gone up to 33,000 pounds per day with some very big spikes in the 50,000 pounds per day range. This is the reason we see very little life in the bay.

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