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## **Tidings** The Newsletter of the Friends of Perdido Bay

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Jackie Lane -Editor

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### **Thank you to everyone who wrote letters to DEP and spoke at the hearing**

We have received copies of letters that many of you wrote to DEP concerning IP's second permit application for an overland application of their effluent. The letters were excellent. Thank you. Also at the public hearing on IP's proposed permit held May 13<sup>th</sup> at UWF, about 11 or 12 speakers spoke against the project. We think that this was a good turn-out considering the location of the hearing was pretty far from Perdido Bay.

### **Some Old History**

As we look back over the 20 + years that we have been fighting the paper mill, certain trends and obvious attempts to hide the real problems are apparent. Back in 1986 when Champion owned the paper mill and were applying for the state permit under which they are now operating, we knew that Champion was violating state standards in Eleven Mile Creek. Eleven Mile Creek is the creek into which the paper mill discharges. In the upper four miles or so of the creek, the paper mill's discharge comprises nearly the entire flow. As the flow continues, ground water and small tributaries dilute the 23 million gallons a day of flow from the mill but only to a small degree. In the last 2 ½ miles, the creek becomes tidally influenced by water from Perdido Bay. The creek becomes deeper and the flow slows. The large amount of organic material discharged by the paper mill causes dissolved oxygen to be used up in the creek. Ammonia which comes from the break down of nitrogenous wastes (protein) in their ponds is released into the creek and uses up oxygen. Ammonia is toxic as well. The organisms that live in Eleven Mile Creek are those that can tolerate the pollution - such as bloodworms. So the diversity of species is abnormally low. Eleven mile creek is locally referred to as "Stink Creek".

In 1987, DEP was going to give the paper mill a permit. Issuance of a permit implied that DEP thought Champion was complying with all

**We wanted you to know that your contributions and your contributions alone fund this newsletter. Thank you for your support. We also accept donations for our upcoming legal battle on the IP permit. The IP wetland project must be stopped. Ramsey Beach Homeowners have donated \$5000 to Friends of Perdido**

state standards in Eleven mile Creek. They were not and actually DEP knew they were not. But for years, DEP (which was then called DER) ignored the violations in the creek. Then citizens on Perdido Bay challenged the proposed permit because we knew from review of DEP's own data that there were numerous and continuous violations in the creek. We (my husband and myself) were among the group of people who challenged the permit. At that point, Vicki Tschenkel, who had been Secretary of DEP under Bob Graham, contacted the group of challengers on behalf of Champion, and promised that Champion would do a three year study to find out what was wrong with Perdido Bay and Eleven Mile Creek. She promised that the paper mill would fix the problems. My husband and I trusted the paper mill and agreed to drop our challenges to the permit for three years. At the time, we thought that it was odd that Champion did not know what the problems were, but we agreed to wait. Other challengers to the permit decided to go to an administrative hearing on the permit. During the "discovery" period for the hearing, it became clear that the paper mill was not meeting state standards and the permit was not defensible. The head of the local DEP office at that time, Bob Krigel, stated that he did not know about the violations in Eleven mile Creek until EPA studies done in 1986 and 1987 showed the violations. Right! DEP then withdrew the permit and replaced it with a Temporary Operating Permit and Consent Order. The temporary permit recognized that violations existed in the creek. The Consent Order was an Order to study the problems and fix them by expiration of the temporary permit, December 1994. This temporary permit was again challenged by a group of Perdido Bay residents, including members of the Perdido Bay Environmental Association, JoAnn Allen, Nelson Bethune, Fred Garth and others. The administrative hearing was held. Perdido Bay residents did not prevail at the hearing because the hearing officer said that the paper mill needed time to clean up. They had until December 1, 1994 (five years) to come into compliance with all state standards.

Residents on Perdido Bay actually did not lose. If the Perdido Bay Environmental Association had not persisted with the hearing, the paper mill would now have a full permit, not a temporary operating permit and consent order. This temporary permit which expired in December 1994 is what they are operating on today.

### **It is understandable**

The problems in Perdido Bay and Eleven mile Creek are fairly easy to understand. Paper mills process a lot of trees and are very polluting. For making paper, IP digests 3,000 to 4,000 tons of wood chips a day, using 25 million gallons of water for washing salts out of the pulp. The bleach process yields about 1,200 tons of wood fiber a day for making white paper. The unbleached process yields 2,000 tons of wood fiber which is made into liner board. Much of the salts, sodium, sulfur, calcium, are recaptured along with lost fiber from cooking and burnt in a recovery furnace. But there is still a lot of loss. Chemicals and wood fibers which are not captured in the mill or broken down in the wastewater treatment plant are released to the environment. While most of the chemicals are "natural" because trees produce them, they are present in unnatural quantities. Some of the chemicals such as turpentine and tall oil are useful products and are removed from the effluent. (We hope tall oil is removed since it is toxic). Other products pass into the wastewater treatment system and depending on the length of treatment and efficiency of the system may be broken down. Various alcohols, aldehydes, resin acids are partially degraded.

Trees produce thousands of chemicals, many of which are unknown. The chemical which causes female fish to become masculinized in paper mill streams is thought to be a hormone

produced by pine trees - a natural product. But nobody has really characterized this hormone as far as I know. There may be hundreds of other chemicals similar to this plant hormone. Retene which is present in paper mill effluent is toxic to certain animals. Dioxin and furans which result from bleaching chemicals combining with organic material are carcinogenic and were only discovered to be in paper mill effluent in 1982. Who knows of yet to be discovered harmful chemicals? But the major pollutant which produces low dissolved oxygen is the organic material.

This organic material which consumes oxygen is dissolved in water as well as a component of the suspended solids. Paper mills release large amounts of suspended solids - fine wood fibers, dead and live bacteria from the treatment ponds, calcium salts, etc. In the new permit which DEP wants to give to IP, IP is allowed to release on the average 11,000 pounds per day of suspended solids and up to 27,000 pounds per day maximum. Domestic wastewater treatment is required to filter the wastewater through sand filters to reduce solids. But not paper mills. Paper mills located on large rivers may be able to discharge these heavy loads of solids without doing much environmental damage (we don't really know about this), but paper mills like IP located on small streams and tidally-influenced bays become quickly overloaded with oxygen consuming material. Much of this suspended and oxygen consuming material takes a long time to degrade. Research by EPA has shown that it may take over 100 days to degrade paper mill waste whereas domestic waste is mostly degraded after 10 days of treatment.

The days necessary to treat the wastes depends heavily on the amount of oxygen in the treatment system. Both domestic wastewater treatment plants and paper mills use biological treatment. This means bacteria and other microorganisms actually break down organic material. Running a successful wastewater treatment system requires that the microorganisms are happy and that there is sufficient numbers of organisms to treat the level of waste. Microorganisms which live in oxygenated environments break down wastes faster than organisms which live in poorly oxygenated environments. Hence the more oxygen provided to the waste treatment systems the faster and better the break down of organic material.

Wastewater treatment requires that all components of the effluent be reduced, not just the organic material. Domestic wastewater contains pollutants of nitrogen and phosphorus which are of concern because they cause plant growth. Too much nitrogen and phosphorus are called "over-nutrication". For domestic wastewater, organic material in the form of alcohol, must be added in the treatment process as food for bacteria so that the nitrogen and phosphorus will be more completely degraded. Bacteria grow, using up the nitrogen and phosphorus. The bacteria then die, settle to the bottom and become part of the sludge which is removed. Paper mill wastes are just the opposite. Paper mill waste is nitrogen and phosphorus poor, and organically rich. For more complete removal of organic material, nitrogen and phosphorus must be added to the treatment ponds in order to keep the population of bacteria high. Paper mill treatment pond managers have a rule of thumb on how much nitrogen and phosphorus must be added to get a certain level of treatment. Recently addition of nitrogen and phosphorus has been automated at the IP plant in Cantonment. So, the paper mill, in order to meet the limits for organic material (as measured by Biochemical Oxygen Demand or BOD) must provide a certain level of nitrogen, phosphorus and oxygen in their wastewater treatment ponds.

Other factors also influence biological treatment of wastes. Warm temperatures speed up the growth of bacteria, cooler temperatures slow it down. The difference in the summer and winter BOD limits in IP's draft permit reflect the influence of temperature on rate of treatment. It has nothing to do with how much the environment can take, as I once thought. Length of time the effluent remains in the treatment ponds is a big factor in how much treatment takes place. Rain falling on the ponds increases the flow through the ponds and decreases treatment. Whether or not the paper mill cleans out their ponds to maintain a certain depth and volume in the ponds is

another factor. Certainly after periods of heavy rain, the effluent which flows from the paper mill is very poorly treated.

### **Deception**

Even though paper mill wastes are known to be organically rich and nutrient poor wastes, the biological consultant for the paper mill, Dr. Robert Livingston, never addressed the problems caused by organic wastes in Perdido Bay or Eleven mile Creek. The issue of the fate of the suspended solids was ignored. Instead Dr. Livingston concentrated on the nutrients, nitrogen and phosphorus, as the culprits in the decline of Perdido Bay. Dr. Livingston's data shows that the main source of nitrogen and phosphorus into Perdido Bay is the paper mill. The Perdido River and all other smaller tributaries like Bayou Marcus, into Perdido Bay contribute small amounts of nitrogen and phosphorus compared to the paper mill. The huge amounts of algae that we saw on our beaches in the 1990's should have been easy to stop. The paper mill only had to cut back on its use of nitrogen and phosphorus in its ponds to stop the algae blooms. Why didn't they? Why didn't the DEP, which obviously knew what was going on, stop the mill from adding so many nutrients? One can only guess. Maybe the mill was corroborating the fraudulent theories of Dr. Livingston in order to hide the real problem of too much organic carbon. Maybe the change over to chlorine dioxide bleaching in 1995 caused some problems in the treatment system. There were published reports on the inhibition of the uptake of nitrogen by the bleaching chemical, chlorate. Maybe the algae blooms were used as explanations to hide toxic effects of chlorate on the ecosystem. We may never know. But whatever the reason, the 20 years of Dr. Livingston's data is pure fiction because he ignored the real problem in Perdido Bay - too much organic carbon.

The sudden disappearance of the algae blooms, grass beds as well as shoreline vegetation along most of the bay in 2000 when IP took over the mill is yet another mystery. The records IP sends to DEP reveal nothing. I clearly remember the island by the pilings in the upper bay that had small trees in which white herons nested at dusk. The herons looked like big white flowers against the darkening sky. Suddenly there were no herons, no trees, no vegetation of any sort on the island. There still isn't and the rocks of the island are only visible at low tide. The DEP said it was high salinity which killed the small trees which had been on the island for as long as I remember. We know that Florida's environmental agency, DEP, is part of the deception. Too bad. But the deception is obvious.

### **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 \$10.00 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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