A SUMMARY OF INFORMATION FROM OTHER STATES ON PULP MILLS SIMILAR TO THE PROPOSED BIG SKY MILL ON THE FLATHEAD RIVER, MONTANA

By
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In late 1963, letters of inquiry were sent to the California Fish and Game Department, Oregon Game Commission, Oregon Fish Commission and Tennessee Game and Fish Commission requesting information on pulp mills with processes similar to the process planned for the proposed Big Sky Mill on the Flathead River near Columbia Falls, Montana. These mills were: Diamond National on the Sacramento River in California, Crown Zellerbach and Publishers Paper Company on the Willamette River in Oregon, and Bowaters Engineering and Development, Inc. on the Hiwassee River in Tennessee. Specific information requested was:

1. Has the effluent from these plants been detrimental to the downstream fish habitat, fish population or aquatic organisms? If so has the effect been from temperatures, chemicals, fibers, or some other quality of the effluent?

2. Has there been any problem with Sphaerotilus growth?

3. What water quality or fish habitat standards do you feel are most likely to be affected by the effluent from this type of mill?

All agencies questioned replied and some referred our inquiries to other agencies for additional comments.

Following is a summary of comments received:

Reply from California Fish and Game

The Diamond National Plant near Red Bluff has the following waste treatment:

1. Clarifier - Alum speeds settling of fiber.

2. Filtrate from clarifier is vacuum filtered.

3. Some filtrate is reused and some goes to percolation ponds, but inflow exceeds percolation rate.

4. Flow from percolation pond goes to 40 acre log pond.

5. Log ponds overflow goes to Red Bank Creek which is an intermittent stream and has no fishery value.

   This very low flow (less than 2 cfs) of highly treated effluent is unnoticeable in the 3,000 cfs Sacramento River.

The Company plans to bypass the log pond and put the percolation pond effluent in the river through a diffuser. No effect is anticipated from bioassay tests. Over 50% survived 96 hours in 75% effluent by volume, and 100% survived 96 hours in 60% effluent. In an earlier test with smaller fish the 96 hour TLM was 37.5% and there was no mortality at 15%. However, California urged caution in comparing their situation to what we might expect on the Flathead River.

Replies from Oregon Game Commission, Oregon Fish Commission and Oregon State Sanitary Authority

Apparently there are many mills on the Willamette and some are worse than others. Both the Oregon Game and Oregon Fish Departments report large amounts of fiber and slime in the Willamette which makes fishing by net or angling very difficult. Their goal on D.O. is 5.0 ppm. This will maintain salimonid fish but does not permit their reproduction. The State Sanitary Authority does not expect any more sulphite pulp mills and says on new Kraft mills where D.O. or slime production is of primary concern, complete treatment of effluent might be required. However, Oregon Fish Commission says "We have had no experience with any pulp mill operation where control over pollutants is 100 percent. As a general rule it seems that anything kept out of the water goes into the air. None of the mills is without odor and some are much worse than others."

Referring to the two mills in question the Oregon Fish Commission reports, "There are two mills and both are the ground wood, complete cook, sulphite type.

There is no question that the pulp mills have had detrimental effects on the fish habitat of the Willamette River. Fiber losses of the Crown Zellerbach plant run about 4 percent of the total mill production. Publishers Paper Company, the other pulp mill, also contributes to the fiber load. A tapered wedge of this material, having a depth up to 8 to 10 feet in the vicinity of the mills, coats the bottom of the river for several miles downstream. After partial decomposition one may find large mats of fibrous material rising to the surface and floating with the current. The odor is quite unpleasant and the fibers exert a major BOD load on the stream.

During the low-water season the concentrated waste liquor effluents are ponded by Crown Zellerbach for later discharge into the Willamette River at higher flows. Publishers collect their effluents in tanks on barges which are transported and discharged periodically into the Columbia River where more adequate dilution is available. Considerable foam is associated with the release of waste liquor into the water at Oregon City, particularly from the Crown Zellerbach plant and to a lesser extent from Publishers. A general blackening of the water also occurs. Toxicity is not known to be of major concern outside of the immediate outfall area. Sphaerotilus is a severe detriment to sport fishermen who concentrate in the area downstream from these mills during the spring chinook run. Drifting bacterial slime material collects on the fishermen's lines and lures."

Reply from Tennessee Game and Fish Commission

The Bowaters Engineering and Development Company on the Hiwassee River is a 25% sulfate, 75% groundwood process. They have 160 acres of settling ponds and the mill produces 1,200 air dry tons per day. Tolerance limits are set in the permit for color, BOD, and chlorides. According to the Tennessee Department, their standards have been met. The mill has been cooperative and Sam Sullivan, Bowaters' Pollution Control Chemist at the Tennessee plant, has done some aquatic organism and water quality analysis work on the Flathead for Big Sky. Tennessee Game and Fish reports Sullivan thinks we will have no problem with the Big Sky plant except possibly with color, because the Flathead is larger than the Hiwassee and Big Sky effluent flow will be lower.

However, in reply to our first specific question, Tennessee answered first that the Bowaters Mill had not influenced the downstream fish habitat in the Hiwassee River and then mentioned that there is very little aquatic life in this section of the Hiwassee anyway due to copper and silt pollution and very low fertility. They add that a few smallmouth bass live below Bowaters effluent and they have had no trouble with chemicals or fibers and that slime growth has been negligible.

From these replies, and from the lack of information on what effluent we may expect from the proposed Big Sky Mill, it is not possible for us to predict the mill's expected effect on the fishery of the Flathead River. Therefore, the Fish and Game Commission has authorized the Director to engage the engineering research laboratory of the Research and Development Foundation at Montana State College to try to determine exactly the nature and volume of expected waste from the proposed mill. Until this is done it would seem illogical for our department to take an official stand either for or against the construction of the Big Sky Mill.

In the meantime, these replies from the Fish and Game Agencies of other states do give us reason to suspect that the Big Sky Mill may have a harmful effect on the fishery of the Flathead River.