by Rosemary Horvath

For the Herald

Environmental consultants will review findings of a Pine River sediment study tonight (Jan. 12) at the Healthy Pine River meeting. Open to the public, the meeting begins at 7 p.m. at the Alma Public Library Community Room.

Barr Engineering Co. of Ann Arbor was commissioned over the summer to estimate the location and volume of sediments that have deposited in the mill pond by the State Street dam in Alma, extending upstream of Honeyoe Creek.

Alma city officials, property owners, Gratiot County parks and recreation, Arcada Township and the HPR group together shared the cost of the $10,000 study.

Eleven straight lines or transects were measured two ways. First, the depth from the water surface to the sediment-water interface, and second, the depth from the water surface to the bottom of accumulated sediments.

Access to the river's edge was not possible to reach in some locations due to extensive areas of vegetation and lack of clearance for the boat to navigate to shore, the report stated.

Only after cold weather had settled in had the vegetation from the water surface disappeared had onlookers in places like the St. Louis M-46 bridge or Arcada Township Luce Road bridge been reminded just how much of the river is consumed with vegetation during warm weather months.

Alma College professor Murray Borrello and students of his 300-level Watershed Hydrology course took the sediment study a step further. They calculated the cost of removing both non-hazardous and hazardous sedimentation at different levels.

Barr calculated more than 420,000 cubic yards of sediment are deposited in the pond alone. A map shows sediment thickness is mostly between two to four feet while there are patches of sediment ranging from four to six feet. “Algal blooms continue to choke the Pine River behind the Alma Dam and appear earlier each year exacerbating the problem of making the back-dam condition more shallow,” the student report stated.

It went on to state as algae dies, it becomes part of the sediment column. Borrello maintains “the main culprit of algal blooms is agricultural run-off,” a conclusion he has drawn from related studies of the Pine River through Gratiot County over the decade aimed at analyzing water quality that show high levels of E. coli in certain locations. Besides ag runoff another probable source being investigated is runoff from faulty septic systems and rural areas that have no septic systems.

The student study analyzed costs of mechanical dredging versus hydraulic dredging in different scenarios. These ranged from removing all the sediment to removing various volumes.

For example, removing, transport and disposal the entire volume of sediment carried an estimated cost of nearly $44 million for non-hazardous material and nearly $309 million for hazardous, if the dredging were done mechanically. If done hydraulically the cost for both types of materials would increase by about $4 million.
Eliminate transport and disposal, the actual cost of mechanical dredging for both hazardous and nonhazardous materials, fell below $680,000. Lime stabilizer for each method was around $2 million.

A second part of the student study was related to testing the U.S. Environmental Protection Agency required of the city of Alma. The city was advised to monitor the wastewater treatment effluent discharged into the Pine River for nitrogen and phosphorous load.

Professor Borrello said students had taken samples of the river upstream and downstream, including east of Bridge Street and south on Bridge Street near the wastewater treatment plant.

There were no significant levels at those sites, but Borrello said higher levels were found upstream than downstream.