

QUARTERLY PROGRESS REPORT

April, 1 2010 to June, 30 2010

In this reporting period we received additional 30K from Michigan and 15K from Georgia for the project. The total funding received for the TPF-5(164) study so far is \$240,000.

In this reporting period the installation of the new tilting mechanism for the culvert flume was finalized (Figure 1 and Figure 2). The specially designed screw-jack system can tilt the culvert flume to achieve slope of 6%. A tilt sensor mounted on the bottom of the rigid tilting frame measures the accrual slope of the culvert flume. As already mentioned in previous progress reports the tilting process will change the non-uniform flow regime into a uniform flow regime. This uniform flow regime will be used to determine the roughness coefficients for low flows for different culvert test pipes. Currently control logic is being programmed to automate the flow regime change. A series of ultra sonic sensors mounted above and in line with the culvert pipe measure the change in flow depth during the tilting process. The culvert pipe is attached to the rigid tilting frame (Figure 3).

The Transportation Research Analysis and Computing Center (TRACC) at the Argonne National Laboratory continued performing computer modeling for the study. The current status of the high performance Computational Fluid Dynamics (CFD) modeling for the fish passage study is presented in the TRACC-CFD quarterly progress report.

In the period from 04-01-10 to 06-30-10 no TPF funds were spent.



Figure 1: Finalized construction of the tilting mechanism for the culvert flume.

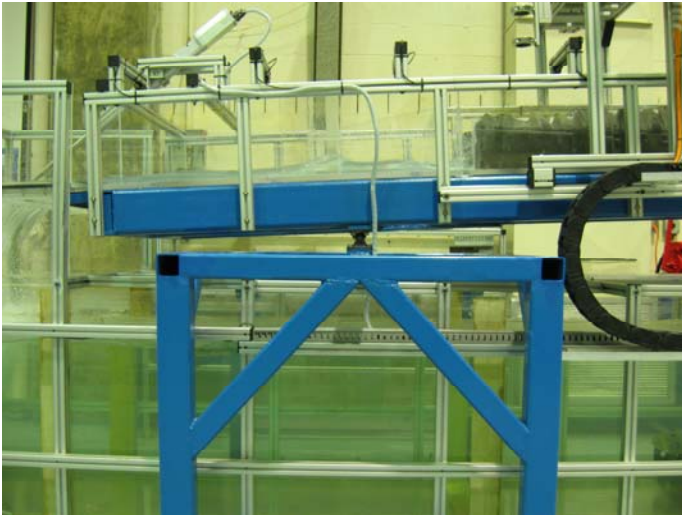


Figure 2: Pivot point of the culvert flume with 6% slope of the culvert flume



Figure 3: A series of ultra sonic flow depth meters mounted above the tilted culvert flume