

## **South River Surface Water**

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### **Summary**

In August 2004, Ralph Turner and Dick Jensen conducted a South River surface water survey, from the USGS station above the plant to the McGaheysville Dam below Port Republic. At each of 16 stations, filtered and unfiltered samples were taken for total and methyl mercury. At each station a liter of water was submitted for high resolution TSS. From these analyses, the TSS-bound values of total and methyl mercury can be accurately calculated. Additional control samples were included from the North River in Port Republic. These results are in hand and will be reported at the November meeting.

In September 2004, Ted Turner of DEQ and Dick Jensen repeated many of the August sampling stations during an unusually high water event: Hurricane Jeanne. The water was very muddy. In addition, Ted was able to obtain samples at Harriston as the water was rising the day prior to this river sampling event. Filtered Hg and TSS samples were obtained. These data have not been received as of this writing, but results should be in hand by the November meeting.

### **Results from August**

Data are still being reviewed, and Science team and Expert Panel analysis will be invited. Initial review of the August results suggests that this data set is very well-behaved. Both dissolved total and dissolved methyl mercury appear to rise steadily from the plant to near Crimora, where they both then assume an approximately steady value (~10 ppt for total and ~0.6 ppt for methyl) to Port Republic. At Port Republic, the levels of both dissolved total and dissolved methyl are diluted to a lower value by the North River. Outside the main stream, a sample from the Ox Bow near Basic Park was unusually high in methyl mercury, relative to total mercury, and the samples from the North River were at background levels, as expected.

Mercury levels on TSS in August had risen to above 10 ppm (dry) by Dooms and remained high until Port Republic, where they dropped to below 5 ppm with the North River dilution. The level exceeded 30 ppm at Harriston but dropped to slightly greater than 10 ppm by Grand Caverns and Port Republic.

The August data were consistent with earlier samplings, such as the high intensity samplings in 2002 and 2004, but they greatly expanded the overall range of river miles.