

## **‘Wick profs to discuss Susquehanna bacteria study at OCCA dinner**

Professors Mary Allen and Zsuzsanna Balogh-Brunstad, both of Hartwick College, will present preliminary findings of research conducted on the Susquehanna River at the Otsego County Conservation Association’s annual dinner, to be held Friday at Stella Luna Ristorante. OCCA has contributed \$2,000 toward the completion of their studies, begun in July 2009 and scheduled for completion in May 2010.

The study came about due apparent changes in bacterial reaction to antibiotics, whose purpose is to kill or inhibit growth of bacteria. Increasingly, bacteria are becoming resistant to the effects of antibiotics, creating a new challenge in the fight against infectious diseases.

Conventional wisdom has held that bacteria fend off antibiotics by blocking access to targeted cells. However, recent discoveries have found that some bacteria, isolated from soil, use antibiotics to support their own growth. In this case, bacteria offer the potential to clean up environments polluted with antibiotics. Conversely, they could serve as a mechanism to spread antibiotic-resistant genes to other disease-causing bacteria.

According to Allen, chair of Hartwick’s biology department, the goals of the study are to investigate seasonal changes in proportions of antibiotic-resistant bacteria and to look for bacteria capable of “eating” antibiotics. The OCCA funding helped support investigation of two groups of bacteria – microbes found in the human intestines which serve as indicators of fecal pollution, as well as naturally occurring microbes capable of “eating” antibiotics.

“Data from this research will establish a baseline for determining the impacts of continued development along the Upper Susquehanna River,” Allen said.

During the course of the study, samples were taken from multiple locations, ranging from Phoenix Mills in the north to 500 meters downstream of the outflow of the Oneonta waste water treatment plant. Results revealed resistance of bacteria to five different antibiotics.

“Pharmaceuticals were detected and identified, especially after storm occurrences, but total amounts have not been quantified,” said Balogh-Brunstad, who teaches chemistry at Hartwick.

“We are also planning to sample water when the treatment plant is over capacity and releasing minimally treated sewage so we can evaluate the effect of such events,” she said.

“At this point, only data from three months – July, August, and September – has been analyzed, so our conclusions are preliminary,” Allen said.

More information will be disseminated by professors Allen and Balogh-Brunstad at the OCCA dinner, to be held at Stella Luna Ristorante on Friday. Reservations may be made contacting occa at 547-4488 or [admin@occainfo.org](mailto:admin@occainfo.org) by Wednesday.