1106-92-421 **James P Peirce*** (jpeirce@uwlax.edu), La Crosse, WI 54601, and **Greg Sandland**, **Barbara Bennie** and **Mary O'Driscoll**. *Modeling and analysis of a temperature-driven outbreak of waterfowl disease in the Upper Mississippi River.* Preliminary report.

Bithynia tentaculata is an invasive snail that was discovered in the upper Mississippi River in 2002. In addition to being a threat to native benthos, the snail harbors two parasite species that kill thousands of migrating waterfowl when infected snails are consumed. Both parasite species exhibit temperature-dependent transmission patterns with no transmission occurring when temperatures either fall below or exceed certain thresholds. The transmission window overlaps the waterfowl's seasonal migrations. Using data collected from our empirical work, we developed an annual model for the host-parasite system in which transmission is driven by water temperature.

Running simulations from annual temperature profiles selected from a random distribution, we quantify the dependence of the number of infected hosts to the annual average temperature. As the annual average temperature increases, the prediction intervals for infected populations initially increase, reaching a threshold, after which they decay. Results suggest that warming trends in water temperature may have a positive effect on future uninfected populations. (Received August 27, 2014)