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Using empirical and theoretical approaches to control outbreaks of an emerging disease (swimmer's itch) in the Midwest of the U.S.A.

Greg Sandland^{1,3*}, James Peirce^{2,3}, Morgan Holt⁴, Ryan Holzhauer⁵, Carley Middleton⁶, Josey Sorenson⁷

¹Department of Biology, University of Wisconsin, La Crosse, WI 54601

²Department of Mathematics & Statistics, University of Wisconsin, La Crosse, WI 54601

³UWL River Studies Center ⁴Liberty University, Lynchburg, VA 25401

⁵State University of New York, Binghamton, NY 13902

⁶Ohio State University, Columbus, OH 43210

⁷University of Wisconsin, La Crosse, WI 54601

gsandland@uwlax.edu

Swimmer's itch is an emerging disease caused by flatworm parasites that typically use water birds as definitive hosts. When parasite larvae accidentally penetrate human skin they initiate localized inflammation that leads to intense itching and discomfort. Concerns about this issue have been growing recently due to an apparent increase in the global occurrence of swimmer's itch and its subsequent impacts on recreational activities and revenues. Past work has identified the common merganser as a key definitive host for these worms in the Midwest of the United States; a number of snail species serve as intermediate hosts. Although past attempts at controlling swimmer's itch have targeted snails, a handful of efforts have concentrated on treating water birds with the anti-parasitic drug, Praziquantel. Here I will provide an overview of swimmer's itch in the Midwest region and will introduce a mathematical model aimed at its control.