IS-8: Modeling Seasonal Dynamics of Swimmer's Itch and the Efficacy of Potential Treatment Options

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Swimmer's itch is a skin condition that results when people come in contact with water containing parasitic worms that are released from snails and typically infect waterfowl. Due to both the health and financial concerns associated with this interaction, swimmer?s itch is now considered an emerging, neglected disease. Based on the migratory patterns of waterfowl hosts, we created connected differential equation models for lakes that serve as stop-over (transient) sites and those that are utilized by birds as summer resident locations. Furthermore, we explored the possibility of controlling swimmer itch by giving waterfowl anti-parasite drugs at both transient and resident lakes. We found that treating birds at a transient lake during the spring migration significantly lowered the likelihood of swimmer's itch cases at the resident lake and was a more efficient control strategy than treating waterfowl at the resident lake itself. These findings could be used by both state agencies such as the Department of Natural Resources and/or lake managers as a tool for optimizing treatment plans to best manage future outbreaks of swimmer's itch.