

Introduction

Swimmer's itch, which occurs in some Wisconsin lakes each year, is a localized skin irritation (dermatitis) caused by the larvae (immature stage) of certain flatworms that can be picked up while swimming. Technically known as schistosome dermatitis, swimmer's itch appears as red itching, bite-like welts within minutes to several hours of leaving the water. When the larva penetrates the skin, it causes a small red welt. The degree of discomfort and bodily reaction varies with the person's sensitivity and the degree of infestation. In some people, the reaction may be hardly noticeable. Others have considerable pain, fever, severe itching, and swelling. The swelling usually subsides within a week, but the redness can last longer. Once acquired, there is no cure for swimmer's itch. Management is based on minimizing the symptoms of itching, burning, etc. through the use of topical (lotions, creams) and systemic anti-inflammatory treatments. On affected lakes, the presence of swimmer's itch may not only interfere with activities typically enjoyed by lake users, but if widespread also have the potential to negatively affect property values. As such, we believe it to be worthwhile for property owners and lake-users alike to further explore this issue.

Methods

Epidemiological surveillance

Surveillance forms will be distributed to all property owners. The forms will include case definition, photo and case reporting forms. Definition is: "Small red plaques accompanied by itching. They appear suddenly after swimming and all at the same time, contrary to insect bites. They affect all uncovered parts of the body. After several hours papules (raised bumps) appear. They range in size from 3 - 10 mm (roughly from the size of a pencil eraser head to the size of a dime) and produce even more intense itching." The forms will ask property owners to report all the cases they saw during the summer season that are compatible with the given definition. Respondents should include location and number of the lesions, the swimming location and date, the type of swimming (i.e. wading, swimming in shallow water, swimming in deep water) and if preventative measures were attempted (i.e. lotions/clothing).

From this information it can be determined if outbreaks are indeed consistent with cercarial dermatitis, while temporal and geographic distribution may also be obtained. Collectively, this information will define the extent of the problem so that ultimately we can initiate collaborative efforts to help manage swimmer's itch on our lakes.

Future goals

Environmental investigation

Control of cercarial dermatitis

Control of cercarial dermatitis is linked to the parasite's life cycle, which includes the presence of a definitive host (waterfowl) and an intermediate host (water snail). Measures can be implemented related to these two steps in the life cycle.

Waterfowl control efforts on other lakes have included hunting and disruption of nesting to significantly reduce/eliminate the lake's resident merganser population. This method is a known multi-year project and one lake reported a 3 year interval before a reduction of cercarial dermatitis was appreciated. Another lake reported that once the merganser population was reduced through

hunting and nesting disruption, Canada geese began to inhabit the lake and may then have become a new waterfowl host for the parasite. Another method which focuses on waterfowl is to trap and treat the ducks with pharmaceuticals to clear them of the parasite. Treating the resident population of mergansers would likely require at least annual trapping and treatment.

Methods to try and control snail populations on other lakes are varied. Historically, the use of molluscicides such as copper sulfate and niclosamide has been tried. These can potentially have harmful effects on aquatic life. Manual collection of snails and clean-up/disruption of habitat by boat-mounted rototiller or a tractor rake is another method which has been utilized. A third method is removal of snail habitat (which is primarily organic waste) in a limited area if a localized population of snails can be identified by the environmental investigation. These can be removed by divers using a suction pump device normally used for cleaning septic tanks (in the study reviewed the work done focused on one “beach” and was completed in 8 hours).

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