

Reducing Merganser Broods on Great Pond to Manage Swimmer's Itch



Photo credit www.Birdinfo.com

2009 Final Report

Prepared by:

**United States Department of Agriculture
Animal and Plant Health Inspection Service
Wildlife Services
79 Leighton Road, Suite 12
Augusta, Maine 04330
(207) 629-5181**

Prepared for:

Belgrade Lakes Association



Protecting People | Protecting Agriculture | Protecting Wildlife



INTRODUCTION

Swimmer's itch is a skin reaction caused by a free swimming aquatic trematode parasite (schistosome) which utilizes certain species of birds and aquatic snails as hosts to complete its life cycle. An infected bird releases eggs in its fecal material which hatch into larvae and search for specific species of aquatic snails to develop into the next life stage. Following further development in the snail, the next life stage (known as the cercariae) is released into the water which then search for an appropriate bird host where the cycle is repeated. Each free swimming life stage is short-lived unless it finds a suitable host. Humans become exposed to swimmer's itch via the cercariae after it burrows into the skin and causes an immune reaction. Treatment normally does not require medical attention and symptoms can be managed by over the counter corticosteroid creams (Centers for Disease Control and Prevention 2008).

Research has suggested managing the parasitic infection in intermediate avian hosts may reduce the incidence of swimmer's itch (Blankespoor et al. 2001). The authors used the anthelmintic drug praziquantel (Droncit®, Bayer Animal Health Division, Shawnee, KS) in wild-caught common mergansers (*Mergus merganser*) and noted a marked decrease in the number of eggs present in recaptured birds that received the highest dose. Common mergansers have been identified as the primary vertebrate host for swimmer's itch on Great Pond, Maine (Blankespoor and Reimink, unpublished data). To assist with their ongoing efforts to reduce swimmer's itch, the Belgrade Lakes Association (BLA) requested assistance from the U.S. Department of Agriculture, Wildlife Services (WS) program to capture and relocate common mergansers.

METHODS

Initial efforts to locate nesting common mergansers began on 11 May 2009. The goal of these early surveys was to locate nest cavities and addle eggs to prevent hatching, thus reducing the number of mergansers utilizing the lake. Surveying for broods began in June 2009. Three different trapping techniques were attempted beginning 26 June and concluding on 27 August.

All trap designs required the birds to be driven toward the trap using motorized boats and kayaks. We used a 15' flat-bottom Lund with a 40 hp Yamaha Jet Drive motor, which allowed us to safely get close to shore in shallow water. We also used 12 foot kayaks when a second boat was needed.

FUNNEL TRAP

The funnel trap is used to capture a variety of waterfowl by allowing birds to go in via a narrow opening where they are unable to find their way out. The trap itself is net material which creates a complete box with 4 sides, a top, and a bottom held up by 4 posts (Figures 1 and 2). The "wings" of this trap are net material, one of which starts the trap box and stretches to the shoreline, while the other stretches toward the middle of the pond. One wing creates the door to the trap and is positioned at an angle so the birds can enter but are unable to exit. The birds are slowly driven toward the wings which help guide birds into the trap. Lead core line was weaved through the bottom of the netting to assure that the bottom of the wings and box rested on the lake floor.



Figure 1. Funnel trap side view.



Figure 2. Funnel trap front view

SUITCASE TRAP

The suitcase trap was designed and built by WS and was based on a trap design used for catching aquatic rodents. This trap acts like a very large suitcase that is approximately 12 feet long when opened and hinged in the middle allowing both sides to move. A pulley is bolted to each outside corner and two pulleys have a rope connecting them to another rope used to activate the trap. When set it lies approximately 6 inches beneath the water surface. One rope is activated from shore and the other is activated from an anchored boat. When the birds reach the edge of the trap, the ropes were pulled causing each half to close simultaneously. In principle this trap would work, but further refinements would be needed to make it faster and more reliable.

MIST NETS

Mist nets are commonly used to capture small birds by allowing them to fly into a finely knit mesh and become entangled (AVINET, Inc., Dryden, NY). The initial effort with this type of net was with a 210 denier, 2-ply nylon net with 100mm mesh that was 36 feet long, but the openings were too large to entangle a young merganser. We then used a 75 denier, 2-ply nylon net with 38mm mesh that was about 3 feet tall and 18 feet long which proved too fragile to hold the birds once they became entangled. We reinforced the 38mm net with the 100mm mesh without making it visible enough to reduce effectiveness. The nets were placed perpendicular to shore, with them extending well below the surface of the water to prevent mergansers from swimming beneath them.

RESULTS

WS personnel made approximately 30 trips to Great Pond for surveys and capture attempts of common mergansers between 11 May 2009 and 14 August 2009. We approached 500 hours of personnel time for all aspects of the project. One brood with an adult female and 6 hatch year (HY) young were discovered along the southern end of Great Pond and this brood was seen many times between this cove, Pinkham Cove and Hatch Cove. Two HY birds were captured from this brood; one was given to a wildlife rehabilitator but subsequently died due to unknown lesions on its liver. The other was released on the Kennebec River. Another brood with a female and 4 HY young was discovered near the boat launch area in early August and all of these birds were captured and relocated to the Kennebec River on 14 August 2009. Due to the late capture near hunting season and unknown withdraw time of praziquantel, these birds were not injected with the drug.

Eight adult common mergansers were seen periodically throughout the summer but were not captured. No other merganser broods were identified on the lake despite the many surveys that were conducted. Other species of birds observed included double-crested cormorants, herring and ring-billed gulls, wood ducks, mallard ducks, green-winged teal and Canada geese.

DISCUSSION

Managing vertebrate hosts to reduce swimmer's itch infections proved to be difficult, but remains a viable management approach. To be most effective, management programs should include an educational component, designated sentinel spotters, management of vertebrate hosts and potential management of invertebrate hosts. Prevalence of the parasite is dynamic and depends upon many factors, including the availability of intermediate hosts, water temperature, water quality and perhaps other unknown variables. Current preventative guidance from medical professionals to prevent swimmer's itch includes limiting time in shallow water, towel drying and swimming where there is little or no vegetation. Treatment of swimmer's itch is normally done with over the counter corticosteroid creams.

Capturing common mergansers proved to be more difficult than we anticipated based on our experience capturing other waterfowl. One particularly challenging aspect was the frequent capture attempts of one brood, which became increasingly difficult to approach throughout the summer making capture incrementally more difficult each time. With these challenges, however, we were able to refine our techniques and when a second brood was identified we were able to capture the entire group. We only identified two broods on the lake.

Several attempts were made to capture non-breeding adult common mergansers when they were molting which yielded no captures. These birds were wary and could not be "driven" toward the net as easily as a brood. We could move adult birds a short distance but once they felt slightly threatened they were able to dive and swim long distances toward deeper water or vegetative cover along the bank. Common mergansers molt and become flightless in mid-August, but capturing and injecting them with praziquantel late in the summer is unlikely to affect the

incidence of swimmer's itch. Harassment remains a potential solution to reduce adult non-breeding bird's use of the lake.

Early season nest surveys were not successful, although this technique may still have application. If this project were to extend into future years, nest boxes similar to those used for wood ducks could be established to encourage females to lay their eggs where they could be easily added to reduce brood use of Great Pond. Nest boxes could potentially be used by other species of cavity nesters and eggs from these species would not be disturbed.

The time involved searching for broods, whether on our own or investigating a reported brood, was significant. A future component of this project should include interested residents who are trained to identify waterfowl and other bird species and who could act as sentinels to notify designated individuals when a brood is spotted. It would be critical that these people could identify common mergansers with an established degree of certainty to reduce investigations of non-target broods.

The large suitcase trap was applied once, but was not successful due to the speed with which it closed. Displacing water across a large area and having water enter the trap frame made it difficult to deploy this trap fast enough to capture the birds. No further attempts were made using this design.

The mist nets were first applied using only one net, which was 12m in length with 100 mm mesh, but this net proved to have openings too large to entangle a young merganser. We then applied a mist net with smaller mesh (38mm) and this net proved too fragile to hold the birds. Finally, on 14 August we combined the larger and smaller mesh mist nets and successfully captured the adult female and her brood and relocate them to the Kennebec River.

Throughout the project many adult common mergansers were observed. During nest cavity searches 3 adults were routinely observed around Oak Island, 4-8 were observed loafing on docks in Hatch cove throughout the summer, and 4-6 were occasionally observed in the cove between Long point and Abena point. These birds were not always observed at the same time or on the same day and cannot be distinguished as separate birds; however, it shows that adults utilize the lake at all times of the year and are capable of moving freely to different areas of the lake.

Surveys were conducted around the entire lake on 19 August and 26 and 27 August and no additional broods were discovered. The original brood in Hatch and Pinkham Coves were observed.

RECOMMENDATIONS

During the first year of attempting to capture diving waterfowl our understanding of the techniques and efforts required has continued to develop and evolve into a workable capture system. Future work should include sentinel spotters, trained biologists and education about the causes and treatment of swimmer's itch.

LITERATURE CITED

- Centers for Disease Control and Prevention. 2008. Division of Parasitic Diseases.
http://www.cdc.gov/ncidod/dpd/parasites/cercarialdermatitis/factsht_cercarialdermatitis.htm
- Blankespoor, C.L., R.L. Reimink and H.D. Blankespoort. 2001. Efficacy of praziquantel in treating natural schistosome infections in common mergansers. *Journal of Parasitology*, 87 (2): 424-426.