

AVIAN PISCIVORES VECTOR IN THE GREATER YELLOWSTONE ECOSYSTEM

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Although often blamed on movement of trout, the dispersal vector of *Myxobolus cerebralis* among aquatic habitats often remains unknown. Occurrence of whirling disease in native Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*) within the highly protected environment of Yellowstone Lake is one example. Given their local abundances, we sought to clarify the potential role of highly mobile piscivorous birds in the dissemination of *M. cerebralis* to otherwise isolated habitats. Six each of American White Pelicans (*Pelicanus erythrorhynchos*), Double-crested Cormorants (*Phalacrocorax auritus*), and Great Blue Herons (*Ardea herodias*) were held in an aviary and fed known-infected or uninfected rainbow trout (*O. c. mykiss*). Fecal material produced during 10-day periods before and after feeding was collected to determine if *M. cerebralis* could be detected and, if so, remained viable after passage through the gastrointestinal tract of these birds. Fecal samples from all (100%) of the nine birds fed known-infected trout and collected during days 1-4 following feeding tested positive for the presence of *M. cerebralis* by PCR. In addition, *Tubifex tubifex* fed fecal material from known-infected herons produced triactinomyxons in laboratory cultures, confirming the persistent viability of the parasite. Given the infection prevalence of cutthroat trout within Yellowstone Lake, pelicans, cormorants, and herons can move an estimated 1.27 billion *M. cerebralis* myxospores in the ecosystem during a 100-day breeding season each year. Piscivorous birds have the potential to concentrate and release *M. cerebralis* myxospores with fecal material into habitats highly suitable for *T. tubifex*, forming the basis of a positive feedback loop where the proliferation of *M. cerebralis* is supported.