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made it "[un]lawful to use external felt-soled boots or external felt-soled waders in the waters of Vermont, except that a state or federal employee or emergency personnel, including fire, law enforcement, and EMT personnel, may use external felt-soled boots or external felt-soled waders in the discharge of official duties."[1]

This report will examine three main issues surrounding the use of and the ban on felt-soled wading boots: (1) the diseases associated with felt-soled waders; (2) the correlation between the use of felt-soled wading boots and other external factors that could contribute to the spread of harmful waterborne microorganisms and diseases; and (3) the potential safety issues resulting from the ban on felt-soled waders. The report will ì°e³¥‰'ƒ(wh[illegible]Disease), F*Ç'' Cerebralis

Spiny Waterflea, VHS disease, Fish, and Faucet Snails.[2] However, only Didymo and whirling disease have been discovered in Vermont waterways.[3]

[1] Vermont Statues, Title 10: Conservation and Development, Ch. 111: Fish. § 4616, "Felt-soled boots and waders; use prohibited," Vermont General Assembly, April 1, 2011, accessed January 28, 2014, http://legislature.vermont.gov/statutes/section/10/111/04616

[2] Minnesota Department of Natural Resources, "Anglers and Waders Users: Felt-soled Wader Issues and Alternatives," accessed January 28, 2014, http://www.dnr.state.mn.us/invasives/felt.html

[3] Vermont Department of Environmental Conservation, Watershed Management Division, "Didymo or Rock Snot (Didymosphenia geminate) in Vermont and the Northeast," May 2013, accessed January 26, 2015, http://www.watershedmanagement.vt.gov/lakes/htm/ans/lp_didymo.htm

Whirling disease is a neurological disorder caused by a parasite[9] that primarily affects juvenile trout, causing severe deformities of the skeleton and skull leading to mortality rates as high as 100 percent.[10] The parasite releases spores into the fish, attacking cartilage tissue, particularly in the head, causing serious physical damage to the fish.[11] Whirling disease was reportedly found in the Batten Kill River in 2002.[12]

Research Studies

In 2008, the North American Journal of Fisheries Management published a report examining the retention rate of M. cerebralis (whirling disease) in rubber, felt, lightweight nylon, and neoprene waders.[13] The study found that felt retained the highest the percentage of myxospores out of the four materials.[14] The pore size of the felt waders creates a moist environment within the shoe sole "allowing cells and parasites to remain viable for hours, or even days, after leaving a river."[15] The study concluded that the potential for felt to carry even small numbers of myxospores suggests that it is probable that felt soled wading boots leads to the introduction of whirling disease.[16] Laboratory tests conducted by the Coastal Oregon Marine Experiment Station at Oregon State University with felt soled waders confirmed these findings. The OSU researchers also tested whether the parasite could be passed through birds – especially mergansers, mallards and crows that might feed on the juvenile fish or worms, but results were inconclusive.[17]

With regard to Didymo, research reported in Fisheries in 2009 found that "the pattern of didymo spread among rivers on Vancouver Island correlates with the activity of fishermen and the commercial introduction and widespread use of felt soled waders in the late 1980s."[18] A more recent report published in 2014 by the Canadian Journal of Fisheries and Aquatic Sciences examined the caus

Quebec.[19] The researchers found that the region surrounding Gaspesie is "experiencing substantial environmental shifts related to recent climatic warming and provides strong support that the recent rise in Didymo is, at least in part, climate related."[20] The study concluded, "given Didymo's habitat and environmental preferences, we propose that climate-related changes in regional rivers are likely an important factor that favors its proliferation."[21]

Moreover, in May 2014 the journal BioScience published a report that found evidence indicating that Didymo blooms were "not caused solely by [human] introduction," and may be attributed to, "environmental conditions that promote excessive stalk production."[22] The BioScience study concluded that "observational and experimental evidence shows that the nuisance or invasive characterist

Conclusion

This report discussed the potentially harmful effects that Didymosphenia geminate (Didymo) and whirling disease may have on Vermont waterways if they are spread. Studies have concluded that felt-soled waders are the likely cause of the spread of whirling disease. While some studies have also implicated felt-soled waders in the spread of Didymo, more recent studies have found that climate change may also be responsible. States affected by Didymo and/or whirling disease have responded in a variety of ways ranging from educational information dissemination to legislative bans on the use of felt-soled waders. Fishers and anglers have voiced safety concerns regarding the prohibition of felt-soled waders, however, systematic safety studies have yet to be conducted to test this claim. There are alternatives products to felt-soled waders, which the produces, and some anglers, claim to be just as good a product, if not better, than felt-waders.

http://www.fish.state.pa.us/water/habitat/ans/didymo/faq_didymo.htm