



The Vermont Legislative Research Service

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Open Air Drinking Water Source Regulation

Providing clean, safe drinking water is important for federal, state, and local governments. The federal Safe Drinking Water Act (1996) sets drinking water quality standards, but state governments are generally responsible for enforcement and oversight. States have differing restrictions in regards to the use of drinking water sources for recreation, and while some allow localities to set these regulations, drinking water sources are regulated by the State in Vermont. This report considers the potential concerns of recreational use of drinking water sources, regulations in neighboring New England states, and the current state of regulation in Vermont.

Issues Associated with Water Treatment

If a water supply is not protected at the original source, such as the lake or river, then the drinking water system becomes completely dependent on methods of filtration and disinfection to maintain public health. The more polluted the water is then the more disinfectants need to be employed.

Disinfectants are particularly problematic because they can form byproducts, which may cause illness. Byproducts are chemical compounds formed unintentionally when disinfectants react with certain organic materials in water. Chlorination byproducts have many byproduct effects and may affect the accessibility of drinking water. Chemicals having relatively few byproduct issues, including chloramination, chlorine dioxides, and UV, are not effective disinfectants. Ozone is a chemical with hardly any reported byproduct problems, but it is energy intensive and expensive to run making it impractical.¹

¹ Peter O'Reilly, "Water Treatment Manual: Disinfection," *Environmental Protection Agency* (2011), accessed April 6, 2015, http://www.epa.ie/pubs/advice/drinkingwater/disinfection2_web.pdf.

Despite concerns associated with byproducts there are no definitive conclusions on disinfectants causing harm.² Even the Environmental Protection Agency (EPA) concluded that despite evidence to the contrary, there is not enough evidence at this time to determine a causal link between disinfectants and disease.³

A potentially dangerous concern is the parasite *Cryptosporidium*, which originates from human and animal waste. Typically, humans infected with this parasite distribute it to other humans when they are in the drinking water.⁴ Chemical disinfectants are ineffective because *Cryptosporidium* has a hard outer shell, making it difficult to treat. Symptoms include diarrhea, abdominal cramps, headaches, vomiting, and low-grade fever. Symptoms are more severe for those with weakened immune systems and can lead to death in such individuals. There are recent examples where the severity of *Cryptosporidium* levels went undetected and caused water crises. In early 1993, there was an outbreak of *Cryptosporidium* in Milwaukee's water supply, Lake Michigan. Among the 285 surveyed who were confirmed to have cryptosporidiosis, 93% had diarrhea, 84% suffered from cramps, 57% had fever, and 48% experienced vomiting. There has been two other major water crises caused by cryptosporidium. One such event occurred in Carrollton, Georgia in 1987, which was traced to contamination of the municipal water system by *Cryptosporidium*.⁵ The other event happened in Sydney, Australia in 1998 where *Cryptosporidium* impacted the water source, Lake Burragarang.⁶ However, these instances are infrequent and the overall health risks are minimal compared with drinking untreated water.⁷

Federal Drinking Water Regulations

The 1996 amendments to the Safe Drinking Water Act, or SDWA, required states to perform source water assessment on the public water systems inside of the state.⁸ There is a requirement to map out the source of the water and create boundaries for a protection area.⁹ Once the protection area and source are mapped out, any possible sources of

² World Health Organization, "Chlorine in Drinking Water," modified 2003, http://www.who.int/water_sanitation_health/dwq/chlorine.pdf.

³ "Drinking Water Chlorination: A Review of Disinfection Practices and Issues," Water Quality and Health, accessed April 6, 2015, <http://www.waterandhealth.org/drinkingwater/wp.html>.

⁴ "Parasites-Cryptosporidium," Center for Disease Control and Prevention, accessed April 6, 2015, <http://www.cdc.gov/parasites/crypto/>.

⁵ "Cryptosporidiosis," Stanford University, accessed April 26, 2015, <https://web.stanford.edu/class/humbio103/ParaSites2005/Cryptosporidiosis/>.

⁶ Peter McClellan, "Sydney Water Inquiry," NSW Premier's Department, modified 1998, http://www.dpc.nsw.gov.au/_data/assets/pdf_file/0016/15361/05_Fifth_Report_-_Final_Report_Volume_2_-_December_1998.pdf.

⁷ William R Mac Kenzie, Neil J Hoxie, Mary E Proctor, M Stephen Gradus, Kathleen A Blair, Dan E Peterson, James J Kazmierczak, David G Addiss, Kim R Fox, Joan B Rose, and Jeffrey P. Davis, "A Massive Outbreak in Milwaukee of *Cryptosporidium* Infection Transmitted through the Public Water Supply," *New England Journal of Medicine* 331 (1994): 161-167, accessed April 6, 2015.

⁸ Environmental Protection Agency (EPA), "Protecting Drinking Water Sources," 2004, accessed April 7, 2015, http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_swp_web.pdf.

⁹ EPA, "Protecting Drinking Water Sources."

pollution must be inventoried.¹⁰ The susceptibility of water to contamination can then be calculated, with the requirement that these results are made public.¹¹ There are no federal regulations that limit the use of surface water sources for recreation.

The EPA, or Environmental Protection Agency, controls the regulations on what proper water standards will be, but most direct oversight is left to the states.¹² All states, excluding Wyoming and the District of Columbia, have applied for primacy, which allows the states to exert regulatory control as long as they can prove it will be at least as stringent as EPA standards.¹³ Water quality standards are controlled by the Agency of Natural Resources in the state of Vermont.

Vermont Regulations on Open Air Drinking Water Rights

In 2012, a court case decided that State of Vermont controls the access to open air drinking water sources, rather than the communities that may use the drinking water.¹⁴ The case stemmed from Montpelier's attempt to control recreational use of the source of their drinking water, Berlin Pond.¹⁵ It was determined that under the public trust doctrine the state of Vermont has the exclusive right to regulate Vermont ponds and lakes.¹⁶ In an attempt to change the legislation and hand over regulatory control of public open-air water sources to municipalities who use the water, H.33 was introduced to the Vermont House of Representatives in 2015.¹⁷

Currently, there are little protections on Vermont open-air water sources. The state has not banned shoreline fishing, ice fishing, swimming, boating or ice shanties. The state does hold a ban on internal combustion motors.¹⁸ There is not any water source intake area defined on open-air water sources, or a clearly marked area around where the water is taken from the open source into the water delivery system, which is a useful to prevent hazardous materials entering through the water intake. There are over 12 brooks, lakes, and ponds that are open air drinking water sources at risk in Vermont, that have varying protection by

¹⁰ EPA, "Protecting Drinking Water Sources."

¹¹ EPA, "Protecting Drinking Water Sources."

¹² Environmental Protection Agency (EPA), "Understanding the Safe Drinking Water Act," 2004, accessed April 7, 2015,

http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_sdwa_web.pdf.

¹³ EPA, "Understanding the Safe Drinking Water Act."

¹⁴ *City of Montpelier v. Barnett, Sanborn and Natural Resources Board*, (S.C. VT, 2012),

<http://info.libraries.vermont.gov/supct/current/op2011-067.html>.

¹⁵ *City of Montpelier v. Barnett, Sanborn and Natural Resources Board*, (S.C. VT, 2012).

¹⁶ *City of Montpelier v. Barnett, Sanborn and Natural Resources Board*, (S.C. VT, 2012).

¹⁷ House Bill 33, 2015, Reg. Sess. (VT 2015).

<http://legislature.vermont.gov/assets/Documents/2016/Docs/BILLS/H-0033/H-0033%20As%20Introduced.pdf>.

¹⁸ Rep. Warren Kitzmiller, Statement to Vermont House Fish and Wildlife committee, "Drinking Water Source Protection 6 NE States," Hearing February, 24 2015, accessed April 27, 2015, retrieved from

<http://legislature.vermont.gov/assets/Documents/2016/WorkGroups/House%20Fish%20and%20Wildlife/Bills/H.33/Witness%20Testimony/H.33~Rep.%20Warren%20Kitzmiller~Drinking%20Water%20Source%20Protection%206%20NE%20States~2-24-2015.pdf>;

local charters and ordinances. Only municipalities that regulate water sources through their local charter, which made regulations on the water when the municipality was founded, hold protections on their sources, leaving many unregulated.

Vermont Open Air Water Sources¹⁹

Water Sources	Municipality Served	Local Control
Berlin Pond	Montpelier	No
Dix Reservoir	Barre	Maybe, municipal charter gives authority to regulate water source. No ordinances have been issued, leaving it unclear if the municipality holds any control.
Howe Pond	Readsboro	No
Inman Pond	Fair Haven	No
Minards Pond	Bellows Falls	Yes, municipal charter prohibits going in to waters.
Pensioner Pond, May Pond, Barton Reservoir	Barton	Maybe, charter prohibits “corrupting water or rendering it impure.” Vague as to where the control really is, or what making water impure entails.
St. Albans Reservoir, Silver Lake	St. Albans	No
Stiles Pond	St. Johnsbury	No
Sunset Lake, Pleasant Valley Reservoir	Brattleboro	No
Bolles Brook	Bennington	No
Basin Brook	North Bennington	Some control, swimming or making water impure prohibited by municipal charter. Vague as to what making water impure entails.
Mendon Brook	Rutland	Yes, municipal charter gives authority to regulate, and an ordinance prohibits swimming in brook.

¹⁹ Guertin, Jed. Statement to Vermont House Fish and Wildlife committee. *Public Water Supplies at Risk – ponds, some brooks*, hearing February, 24 2015. Available at <http://legislature.vermont.gov/assets/Documents/2016/WorkGroups/House%20Fish%20and%20Wildlife/Bills/H.33/Witness%20Testimony/H.33~Jed%20Guertin~Public%20Water%20Supplies%20at%20Risk%20-%20ponds.%20some%20brooks~2-24-2015.pdf>, accessed 4/27/2015.

New England State Regulations

Other New England states have various restrictions on recreational use of drinking water sources and some delegate regulatory authority of these sources to towns and municipalities. Information in this section is largely drawn from a memorandum written by Cameron Wood, Legislative Council, to Rep. Warren Kitzmiller.

Connecticut

In Connecticut, the Department of Public Health has jurisdiction over the regulation of drinking water sources.²⁰ While there is no provision that specifically delegates regulatory authority to municipalities,²¹ Connecticut statute allows the legislative body of any Connecticut city or borough to “regulate or prevent fishing, trespassing, or any nuisance” on reservoirs.²² Swimming is not permitted in reservoirs or in any water source to the reservoirs. Passive recreation, such as fishing, is allowed through a permitting process.²³ Connecticut statute provides for the commission of police officers to patrol reservoirs and enforce these regulations.²⁴

Rhode Island

Drinking water is regulated under the Rhode Island Department of Health.²⁵ Statute prohibits swimming, bathing, or discharge of other “polluting matter” in drinking water sources. Further, the Department of Health is permitted to regulate or prohibit any activities “deem[ed] to render the water supply injurious to health or to pose a potential significant risk to public health.”²⁶ No provision of Rhode Island law specifically delegates regulatory authority to municipalities.²⁷

Massachusetts

The Department of Environmental Protection regulates all inland waters.²⁸ According to Massachusetts Code of Regulations, swimming and bathing in drinking water sources is prohibited. Fishing, boating, walking on or cutting the ice, or bringing animals onto or into the water are all prohibited unless one is given a written permit by the Board of Water

²⁰ Conn. Gen. Stat. §25-32(a).

²¹ Cameron Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations,” *Office of Legislative Council*, November 10, 2014, retrieved from <http://legislature.vermont.gov/assets/Documents/2016/WorkGroups/House%20Fish%20and%20Wildlife/Bills/H.33/Witness%20Testimony/H.33~Page%20Guertin~Drinking%20Water%20Regulations~2-24-2015.pdf>.

²² Conn. Gen. Stat. §25-45.

²³ Conn. Gen. Stat §25-43 (a), (b), (c).

²⁴ Conn. Gen. Stat §25-44.

²⁵ State of Rhode Island Department of Health, “Drinking Water Quality Regulations,” accessed April 7, 2015, <http://www.health.ri.gov/regulations/?parm=Drinking%20Water%20Quality>.

²⁶ R. I. Gen. Laws § 46-14-1.

²⁷ Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations.”

²⁸ Mass. Gen. Laws ch. 111, § 159.

Commissioners.²⁹ While municipalities do not have express regulatory authority, they can “impact recreational use through local land use controls and also have input into their local management plans.”³⁰

New Hampshire

Drinking water sources are regulated on the municipal level in New Hampshire. If local regulation is not sufficient, local authorities or citizens may petition the New Hampshire Department of Environmental Services to regulate drinking water sources.³¹ Therefore, regulations vary by municipality. According to Wood, “Most seem to prohibit all general recreational use (swimming, boating, fishing).”³²

Maine

In Maine, municipalities are authorized to regulate drinking water sources.³³ However, 22 § 2647-A holds that a utility or municipality and the Department of Health have authority to regulate pollutants in the drinking water supply in accordance with § 2642.³⁴ Wood says this is somewhat contradictory, “because the State has granted authority to some water districts to govern certain water supplies.”³⁵ Similarly to New Hampshire, recreational prohibitions depend on local regulations.³⁶

Conclusion

Recreational use of drinking water sources can present potential health risks. While the federal government regulates drinking water through the Safe Water Drinking Act, the EPA typically delegates regulatory authority to the states. In most New England states, recreational use of drinking water sources is restricted. In Maine and New Hampshire, drinking water source use is regulated on the local level. In Vermont, use is regulated at the state level. Compared to other New England states, Vermont permits more recreational activity on drinking water sources.

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Disclaimer: This report has been compiled by undergraduate students at the University of Vermont under the supervision of Professor Anthony Jack Gierzynski, Professor Robert Bartlett and Professor Eileen Burgin. The material contained in the report does not reflect the official policy of the University of Vermont.

²⁹ 310 Mass. Code Regs. 22.20B.

³⁰ Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations.”

³¹ N.H. Rev. Stat. Ann. § 485:23 & § 485:24.

³² Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations.”

³³ Me. Rev. Stat. tit. 22, § 2642.

³⁴ Me. Rev. Stat. tit. 22, § 2647-A.

³⁵ Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations.”

³⁶ Wood, “Memorandum to Rep. Warren Kitzmiller: Drinking Water Regulations.”