



ANNUAL WATER QUALITY REPORT

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We have been navigating the pandemic and the many challenges that COVID-19 presented for over a year now. Our top priority has always been, and remains, the safety of our employees and partners so we can continue to serve customers with essential services. I'm proud to say our dedicated staff has gone to great lengths to ensure the reliability and quality of the public water supply were safeguarded throughout this unprecedented event.

We have adapted and made many changes over the past year in how we do business, engage with customers, and deliver services. Some are improvements that we will continue; others will return to pre-pandemic status when it is safe to do so. Rest assured, our commitment to delivering high quality drinking water, 24/7, will not waver.

I am pleased to share with you the 2021 Annual Water Quality Report, which once again shows water quality surpasses all federal and state standards.

Stay safe and healthy,
Carrie Lewis
General Manager

Over the past year, essential services like hydrant inspection and maintenance of critical infrastructure continued, despite the pandemic. Front line employees, like Joe, took extra precautions to ensure essential services were not interrupted. The Portland Water District inspects and maintains 5,123 public hydrants.

"Every situation is different, so communication was key to keeping customers informed and for our safety. The safety precautions take longer but keeping myself safe keeps my coworkers safe, my family safe, and it keeps me working."

Joe, Utility Specialist



Portland Water District

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The Water Source

Your source of drinking water is Sebago Lake, Maine's deepest and second largest lake. The quality of water in Sebago Lake is among the highest of any lake in the United States. It is so clean, in fact, that it is exempt from the requirement to be filtered before it is disinfected. This is a designation that only about 50 of the 13,000 surface water suppliers in the country can claim.

HAVING A CLEAN, UNFILTERED SOURCE MEANS THAT YOUR WATER:

- tastes better than most since filtration typically involves chemical addition which can impart a taste;
- is less expensive than most since a filtration plant could cost upwards of \$150 million; and
- is safer than most since keeping contaminants out of the water is more effective than trying to remove them from a polluted lake.

A SHARED RESPONSIBILITY

Sebago Lake is not just a drinking water supply. It is a treasured public resource that is used by so many for so much. PWD works with many committed partners to keep it clean. In 2020 alone, the District worked cooperatively with more than 100 organizations to protect the lake including state and federal agencies, colleges and universities, lake associations and land trusts.

MODERATE RISK OF CONTAMINATION

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material and can pick up substances resulting from human or animal activity. Although Sebago Lake is very clean today, human activities on and around the lake can pose a risk to water quality. In 2003, the Maine Drinking Water Program (DWP) evaluated all public water supplies as part of a state-wide evaluation known as the Source Water Assessment Program (SWAP). The assessment considered things like geology, hydrology, land uses, water testing information, and the extent of land ownership or protection by local ordinance to see how likely each Maine drinking water source is to being contaminated by human activities. Their report on Sebago Lake concluded that the lake is at moderate risk of contamination.

The most significant risks to the long-term protection of Sebago Lake, according to state officials, are boating and ice fishing in Lower Bay and development of properties around the shore. PWD maintains programs that are designed to minimize the risks of these activities. You can get a copy of the SWAP assessment for Sebago Lake by contacting PWD at (207) 761-8310 or by calling the Drinking Water Program at (207) 287-2070.



LOWERING THE RISK OF CONTAMINATION

Because the lake is used by so many for different purposes, our efforts to decrease the risk of contamination involve multiple approaches.

Our Sebago Lake protection program involves:

- water quality monitoring;
- land and water security;
- shoreland zone inspections and pollution prevention actions;
- environmental education and outreach; and
- land acquisition, conservation, and management.

You can view our recent videos that describe our Sebago Lake protection program here: pwd.org/outreach

THE FOREST IS THE FILTER—A SHARED RESPONSIBILITY

Keeping the land surrounding a lake forested is one key to protecting the water quality of the lake since forests naturally clean water. The forests around Sebago Lake act as a natural water filtration system which means higher quality drinking water which is less expensive to treat. To help conserve these forests, PWD works with local land trusts and others - a partnership known as Sebago Clean Waters (www.sebagocleanwaters.org) - to help willing landowners conserve forested land. PWD contributes up to 25% of the cost of conserving these priceless forests and the other partners raise the rest of the money. This effort has helped protect more than 6,000 acres of watershed forest in the last 20 years. These forests will be naturally treating your water forever and many of them allow free public access.

In 2020, the Sebago Clean Waters partnership received an \$8 million grant from the US Department of Agriculture to help conserve these forested lands. This money and other matching funds will help conserve more than 10,000 more acres of forest in the next 5 years.



Water Quality Analysis

DETECTED REGULATED SUBSTANCES

Substance	Violation	Ideal Goal MCLG	Highest Level Allowed MCL	Amount Detected in 2020 (unless otherwise noted)	Source	
Microbiological						
Total coliform bacteria ¹	No	0% of monthly samples	No more than 5% of monthly samples	Highest % detected: 0.70% in the month of March Monthly Range: 0.0% - 0.70%	Naturally present in environment	
Inorganic Chemicals						
Barium (mg/L)	No	2	2	0.0035	Erosion of natural deposits	
Copper (mg/L) ² 90 th Percentile	No	1.3	AL = 1.3	0.415	Corrosion of household plumbing systems; erosion of natural deposits	
Lead (µg/L) ³ 90 th Percentile	No	0	AL = 15	3.32	Corrosion of household plumbing systems	
Fluoride (mg/L)	No	4	4	Average: 0.67 Range: 0.62 - 0.76	Water additive which promotes strong teeth; erosion of natural deposits	
Chloramine (mg/L)	No	MRDLG=4	MRDL=4	Average: 2.24 Range: 0.95 - 2.53	A water additive used to control microbes	
Turbidity (NTU)	No	None	5	Average: 0.25 Range: 0.17 - 0.51	Soil runoff	
Organic Compounds						
Total Trihalomethanes, TTHM (µg/L)	No	0	80	Average (LRAA)	Range	By-product of drinking water chlorination
Duck Pond Variety				0.55	<0.5 - 0.8	
South Windham Post				1.0	0.7 - 1.7	
Cumberland Town Hall ⁴				1.4	0.9 - 2.2	
Mackworth Booster Station				0.48	<0.5 - 0.8	
Total Haloacetic Acids, THAA (µg/L)	No	0	60	Average (LRAA)	Range	By-product of drinking water chlorination
Duck Pond Variety				7.1	5.0 - 10	
South Windham Post				9.0	5.8 - 13	
Cumberland Town Hall ⁴				9.4	6.3 - 12	
Mackworth Booster Station				7.4	4.6 - 9.9	

All other regulated drinking water contaminants tested for were not detected.

Footnotes: ¹ Annual detection - 1 in 1644 samples; monthly detection - March 1 in 142 samples or 0.70%.

² In 2020 the maximum value for copper was 0.62 mg/L.

³ In 2020 the maximum value for lead was 13.8 µg/L.

⁴ 1st Qtr DBP samples collected at Tuttle Rd Pump due to COVID concerns

UNDETECTED CONTAMINANT LIST

The following is a list of contaminants that were tested for in 2020 and **not detected** in the drinking water produced at the Sebago Lake Water Treatment Facility.

INORGANIC CONTAMINANTS: Asbestos, antimony, arsenic, beryllium, bromate, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, uranium, nitrate, nitrite, germanium; **MICROBIOLOGICAL:** E. coli bacteria; **VOLATILE ORGANIC COMPOUNDS:** 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,4-Dichlorobenzene, Benzene, Bromodichloromethane, Bromoform, Carbon tetrachloride, Chlorobenzene, Chloroform, cis-1,2-Dichloroethylene, Dibromochloromethane, Ethylbenzene, Methyl t-butyl ether (MTBE), Methylene chloride, Styrene, Tetrachloroethylene, Toluene, Total THMs, Total xylenes, trans-1,2-Dichloroethylene, Trichloroethylene, Vinyl chloride; **ALCOHOLS:** 1-butanol, 2-methoxyethanol, 2-propen-1-ol; **SEMIVOLATILES:** butylated hydroxyanisole, o-toluidine, quinolone; **PESTICIDES:** alpha-hexachlorocyclohexane, chlorpyrifos, dimethipin, ethoprop, oxyfluorfen, profenofos, tebuconazole, permethrin (cis & trans), tribufos; **DBP:** Bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, monobromoacetic acid, tribromoacetic acid, trichloroacetic acid, bromide; **Synthetic Organic Compounds:** 1,2-Dibromo-3-chloropropane, ethylene dibromide, aroclor 1016 screen, aroclor 1221 screen, aroclor 1232 screen, aroclor 1242 screen, aroclor 1248 screen, aroclor 1254 screen, aroclor 1260 screen, chlordanes, total PCBs, toxaphene, 2,4,5-TP, 2,4-D, dalapon, dicamba, dinoseb, pentachlorophenol, picloram, alachlor, aldrin, atrazine, benzo(a)pyrene, butachlor, Di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, dieldrin, endrin, heptachlor epoxide, heptachlor, hexachlorobenzene, hexachlorocyclopentadiene, lindane, methoxychlor, metolachlor, metribuzin, propachlor, simazine, 3-hydroxycarbofuran, aldicarb sulfone, aldicarb sulfoxide, aldicarb, carbaryl, carbofuran, methiocarb, methomyl, oxamyl and propoxur; **Radionuclides:** Radium 226, radium 228 and Ra226 + Ra228 (combined).



MINERAL CONTENT AND SECONDARY STANDARDS - 6/16/20

Substance	Maine Recommended Limit	Result	Likely Source
Chloride (mg/L)	250	10	Natural mineral, road salt
Color (PCU)	15	<5	Natural characteristic
Hardness (mg/L as CaCO ₃)	150	7.0	Natural mineral
Iron (mg/L)	0.3	0.014	Natural mineral
Manganese (mg/L)	0.05	0.0012	Natural mineral
Sodium (mg/L)	100	8.7	Natural mineral, road salt
Sulfate (mg/L)	250	3	Naturally occurring
Magnesium (mg/L)	50	<1	Natural mineral
Calcium (mg/L)	500	2.8	Natural mineral
Zinc (mg/L)	5	0.106	Natural mineral, corrosion control additive

DEFINITIONS

MCL: Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water.

MCLG: Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health.

MRDL: Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water.

MRDLG: Maximum Residual Disinfection Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

LRAA: Locational Running Annual Average. An annual average calculated at each monitoring site.

Variations and Exemptions: State permission not to meet MCL or a treatment technique under certain conditions.

AL = Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow. Action Levels for Lead and Copper are measured at the tap of "high risk" homes. Ninety percent of tests must be equal to or below the Action Level.

Turbidity: The measurement of cloudiness or suspended colloidal matter (silt). As you can see from the table, all of the samples taken of our water system were well below 5 NTUs.

Units:

ppm = parts per million or milligrams per liter (mg/L). pCi/L = picocuries per liter (a measure of radioactivity).

ppb = parts per billion or micrograms per liter (µg/L). NTU=Nephelometric Turbidity Units.

NOTES

Total Coliform Bacteria: Reported as the highest monthly number of positive samples, for water systems that take less than 40 samples per month.

E. Coli: *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Lead/Copper: Action levels (AL) are measured at consumer's tap. 90% of the tests must be equal to or below the action level.

Fluoride: For those systems that fluoridate, fluoride levels must be maintained between 0.5 to 1.2 ppm. The optimum level is 0.7 ppm.

TTHM/HAA5: Total Trihalomethanes and Haloacetic Acids (TTHM and HAA5) are formed as a by-product of drinking water chlorination. This chemical reaction occurs when chlorine combines with naturally occurring organic matter in water. Compliance is based on locational running annual average.

Ensuring Water Quality



WATER TREATMENT DESIGNED TO KILL PATHOGENS LIKE COVID-19

"To remove pathogens from drinking water, PWD uses a two-tiered primary disinfection system. First, the water is infused with ozone gas to achieve a 4-log (99.99%) inactivation of viruses and a single log (90%) Giardia Lamblia inactivation. Second, the water is penetrated with intense ultraviolet light which achieves a 2-log (99%) inactivation of cryptosporidium (protozoans) and an additional 2-log (99.9%) inactivation of Giardia Lamblia, all without the use of any chemicals.

Ozone and UV light are extremely effective, but a secondary disinfectant is needed to provide long-term protection in the piping network. Chloramines are added to ensure the drinking water remains pathogen-free all the way to customers' taps. Approximately 2,000 samples are collected annually throughout the distribution system and tested for pathogens. PWD has never detected the presence of pathogens in these samples.

Although ozone gas has proven to be very effective at destroying the COVID-19 virus, it's important to remember that the COVID-19 virus has never been determined to be a waterborne disease."

Joel, Water Plant Manager

WATER PURIFICATION AND DISINFECTION

Delivering high quality water to our customers is our first priority. We know your water is safe because we regularly monitor and test it. Our water quality experts performed over 15,000 analyses last year. Many inorganic and synthetic volatile organic chemicals, and disinfection by-products are routinely monitored for and never detected.

Primary disinfection: ozone and ultraviolet light

Secondary disinfection: chloramine

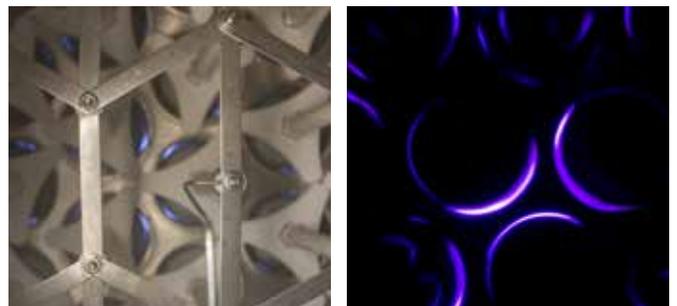
Filtration: None, PWD holds a waiver from filtration due to the purity of Sebago Lake

pH adjustment: sodium hydroxide

Corrosion control: zinc orthophosphate

Dental health additive: fluoride (hydrofluorosilicic acid)

In 2020, your water met or surpassed every state and federal requirement. Water samples are tested by state-certified testing laboratories including two Portland Water District laboratories which are certified by the Maine Department of Health and Human Services.





ABOUT THE REGULATIONS

The federal Safe Drinking Water Act directs the state, along with the EPA, to establish and enforce drinking water standards.

The standards set limits on certain substances sometimes found in drinking water. Two types of standards have been established.

Primary drinking water standards set achievable levels of drinking water quality to protect your health. **Secondary drinking water standards** provide guidelines regarding the taste, odor, color, and other aesthetic aspects of your drinking water, which do not present a health risk.

HEALTH NOTICES

Drinking water, including bottled water, may reasonably be expected to contain impurities or contaminants. However, these contaminants do not necessarily indicate that water poses a health risk and may include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban runoff, and septic systems.

Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or at the following link: www.epa.gov/ccr/forms/contact-us-about-consumer-confidence-reports

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Portland Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at the following link: www.epa.gov/safewater/lead

MORE INFORMATION

The Portland Water District Board of Trustees generally meet the second and fourth Monday of every month. Meeting are live-streamed and available On Demand: www.pwd.org/trustee-meetings. The public is welcome to attend meetings.

207.761.8310 (Monday through Friday between 8:00 a.m. and 4:30 p.m.)
225 Douglass Street | PO Box 3553 | Portland, Maine 04102
www.pwd.org | Customerservice@pwd.org
www.twitter.com/MyPortlandWater | www.facebook.com/MyPortlandWater

Environmental Protection Agency
800.426.4791 | www.epa.gov/safewater/

American Water Works Association
303.794.7711 | www.awwa.org

National Centers for Disease Control
404.639.3311 | www.cdc.gov

Maine Drinking Water Program
207.287.2070 | www.maine.gov

Steep Falls, Standish Supplemental Information

Steep Falls water system is separate from the Greater Portland water system. See below for components of the Water Quality Report that apply to the Steep Falls system only.

YOUR SOURCE OF WATER AND ENSURING WATER QUALITY

The Steep Falls well system in Standish supplies approximately 300 people with drinking water. Treatment includes sodium hypochlorite for disinfection, sodium hydroxide for pH adjustment and corrosion control, aeration for radon removal, and sodium fluoride for dental health.

The State Drinking Water Program waives the requirement to sample for pesticide, herbicide, carbamate and PCB in the Steep Falls water system based on past water quality test results and the absence of certain land use around the wells. Other testing continues at required frequencies

DETECTED REGULATED SUBSTANCES

Substance	MCLG Ideal Goal	MCL Highest Level Allowed	Amount Detected in 2020 (unless otherwise noted)	Violation	Source
Radionuclides					
Radon (pCi/L)	4000	4000	1864	No	Erosion of natural deposits
Uranium (• g/L)	0	30	3.5	No	Erosion of natural deposits
Organic Compounds					
Total Trihalomethanes (• g/L) ² 2019	0	80	10	No	By-product of chlorination
Total Haloacetic Acids (µg/L) ² 2019	0	60	1.7	No	By-product of chlorination
Inorganic Chemicals					
Barium (mg/L)	2	2	0.0046	No	Erosion of natural deposits; discharge of drilling waste and metal refineries
Copper (mg/L) ¹ 2018 90 th Percentile	AL=1.3	AL=1.3	0.072	No	Corrosion of household plumbing systems
Chlorine (mg/L)	MRDL=4	MRDL=4	Average 1.30 Range 1.02 - 1.69	No	A water additive used to control microbes
Fluoride (mg/L)	4	4	Average 0.64 Range 0.57 - 0.70	No	Water additive which promotes strong teeth Erosion of natural deposits
Nitrate - Nitrogen (mg/L)	10	10	0.98	No	Fertilizer runoff; leaching septic tanks; erosion of natural deposits

¹The maximum value for copper was 0.096 mg/L (2018)

²Trihalomethane and Haloacetic Acid collected from Steep Falls School (2019)

Please refer to page 5 of the booklet for definitions

ADDITIONAL NOTES:

Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health provider.

Gross Alpha: Action level over 5 pCi/L requires testing for Radium 226 and 228. Action level over 15 pCi/L requires testing for Uranium. Compliance is based on Gross Alpha results minus Uranium results = Net Gross Alpha.

Radon: The State of Maine adopted a Maximum Exposure Guideline (MEG) for Radon in drinking water at 4000 pCi/L, effective 1/1/07. If Radon exceeds the MEG in water, treatment is recommended. It is also advisable to test indoor air for Radon.

UNDETECTED CONTAMINANT LIST

The following is a list of chemical contaminants that were tested for in 2020 and **not detected** in the drinking water produced at the Steep Falls Water Treatment Facility.

MICROBIOLOGICAL: Total coliform bacteria, E. coli bacteria; **Inorganic Contaminants:** Iron, antimony, arsenic, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, nitrite; **Volatile Organic Compounds:** 1,1,1,2-Tetrachloroethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethylene, 1,1-dichloropropylene, 1,2,3-trichlorobenzene, 1,2,3-trichloropropane, 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, 1,3,5-trimethylbenzene, 1,3-dichlorobenzene, 1,3-dichloropropane, 1,4-dichlorobenzene, 2-chlorotoluene, 4-chlorotoluene, 4-isopropyltoluene, benzene, bromobenzene, bromochloromethane, bromodichloromethane, bromoform, bromomethane, carbon disulfide, carbon tetrachloride, chlorobenzene, chloroform, chloromethane, cis-1,2-dichloroethylene, cis-1,3-dichloropropylene, dibromochloromethane, dibromomethane, dichlorodifluoromethane, diethyl ether, diisopropyl ether, ethyl tert-butyl ether, ethylbenzene, hexachlorobutadiene, hexachloroethane, isopropylbenzene, m&p-xylenes, methyl tert-butyl ether, methylene chloride, naphthalene, n-butylbenzene, n-propylbenzene, o-xylene, sec-butylbenzene, styrene, tert-amyl methyl ether, tert-butyl alcohol, tert-butylbenzene, tetrachloroethylene, tetrahydrofuran, toluene, total THMs, total xylenes, trans-1,2-dichloroethylene, trans-1,3-dichloropropylene, trichloroethylene, trichlorofluoromethane, vinyl chloride, ethanol, ethyl acetate and methyl isobutyl ketone