



2018  
Consumers'  
Annual Report  
on Water Quality

May 2019

Dear Consumer:

Water quality, service, reliability, affordability and sustainability remain at the core of what we do at the Regional Water Authority (RWA). We work hard each and every day to fulfill our purpose to make life better for people by delivering water for life.

Water is essential for public health, fire protection, economic growth and overall quality of life, which is why we take our purpose and role in the community so seriously. For 170 years, we have played a vital role in meeting the ever-changing water demands of our region. We are committed to complete transparency about our water quality testing. This Consumers' Annual Report provides you with a summary of our region's drinking water quality in 2018.

The water business is a complex industry. In this report, you can find out where your water comes from, discover how we make your water safe to drink and learn what's in your water. All of the information presented in this report says the same thing: the water we deliver to your tap is safe to drink – it meets or is better than all federal and state regulations.

If you have questions about your water or the information in this report, please call our Customer Care Team at 203-562-4020, or write to us at [ask.info@rwater.com](mailto:ask.info@rwater.com).

We will always provide you with water that is of the highest quality and service that is second to none. That has been our practice in the past and it is our promise for the future.

Sincerely,



Larry L. Bingaman  
President & Chief Executive Officer

**This report contains important information about your drinking water. Translate it, or speak with someone who understands it.**

**Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.**

**South Central Connecticut Regional Water Authority**

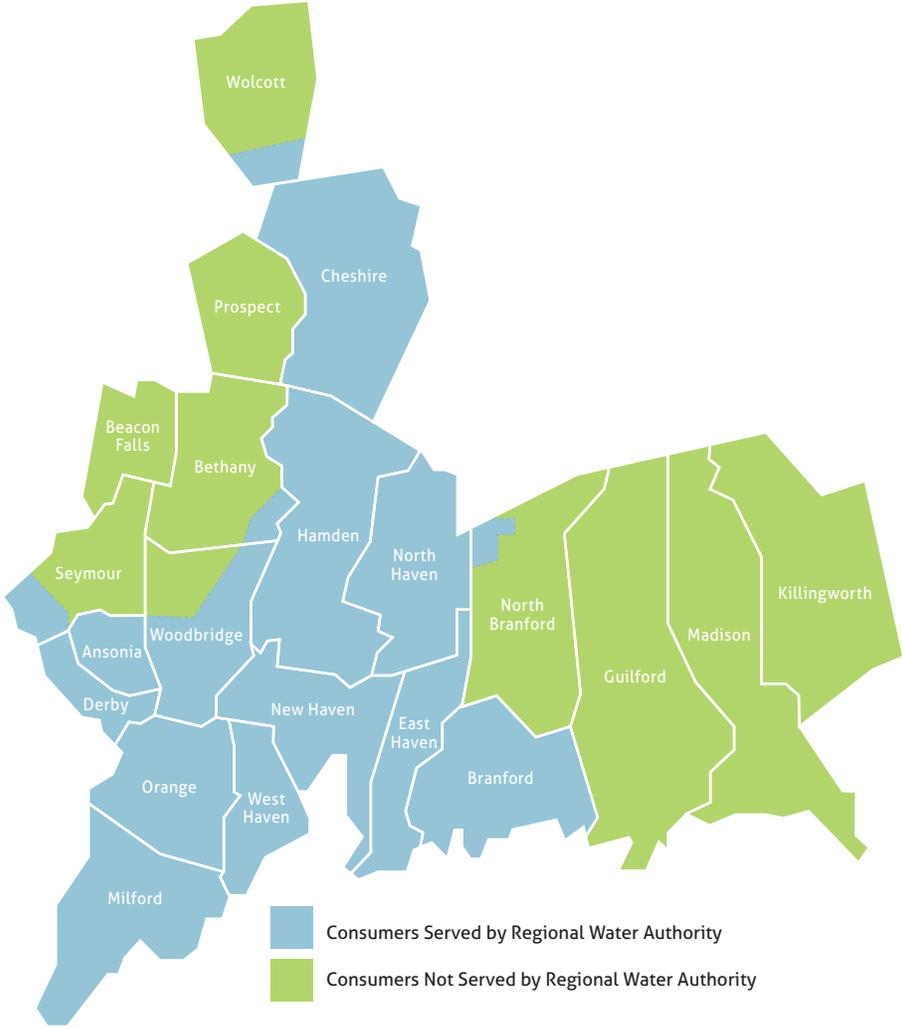
90 Sargent Drive  
New Haven, CT 06511-5966

Call Us: **203-562-4020**

Write Us: **[ask.info@rwater.com](mailto:ask.info@rwater.com)**

Visit Us: **[rwater.com](http://rwater.com)**

A five-member Authority and a 21-member Representative Policy Board (RPB) oversee our operations. The Authority meets on the third Thursday of each month at 12:30 p.m., and the RPB meets on the third Thursday of the month at 6:30 p.m. at our headquarters at 90 Sargent Drive in New Haven. Please call to confirm meeting day and time.



## Where Did We Get So Much Water?

The water cycle begins when water falls to the ground as rain, sleet or snow. Water then flows through the watershed to reservoirs or soaks into the ground and is tapped by our wells.

We have 10 active reservoirs and three aquifers. The reservoirs are filled by rivers. Aquifers are natural sand, gravel and bedrock areas below the ground that are saturated with water, typically from rainfall.

We draw most – about 88 percent – of our water from the 10 reservoirs. We pump the remaining 12 percent of the water from wells in Cheshire, Hamden, Derby and Seymour.

The water is distributed to the region through a 1,700-mile-long network of pipes, pumping stations and storage tanks. Because of this interconnected system, water from two or more sources may be delivered to some neighborhoods. For example, water supplied to parts of Orange and West Haven may come from Lake Gaillard or from West River, while water in other neighborhoods of these towns may come from both sources.



## What Do We Do to Make Your Water Safe to Drink?

**PROTECT:** Our source water protection program focuses on pollution prevention and watershed management. Source water is untreated water from reservoirs and aquifers that serve as a community's water source. Protecting these sources is one of the best ways to prevent drinking water from becoming polluted. We own 27,000 acres of land in this region and manage it carefully. We vigilantly monitor the quality of the water and all activity on the surrounding land, constantly watching for potential contamination of our supplies. Here's how you can help us protect source water:

- ▶ Pick up after your pet.
- ▶ Never dump anything in streams, lakes or storm drains.
- ▶ Compost yard waste and use natural fertilizers.
- ▶ Check vehicle fluid levels and repair leaks.
- ▶ Properly dispose of household hazardous waste; visit [rwater.com](http://rwater.com) to learn if your community participates in HazWaste Central.

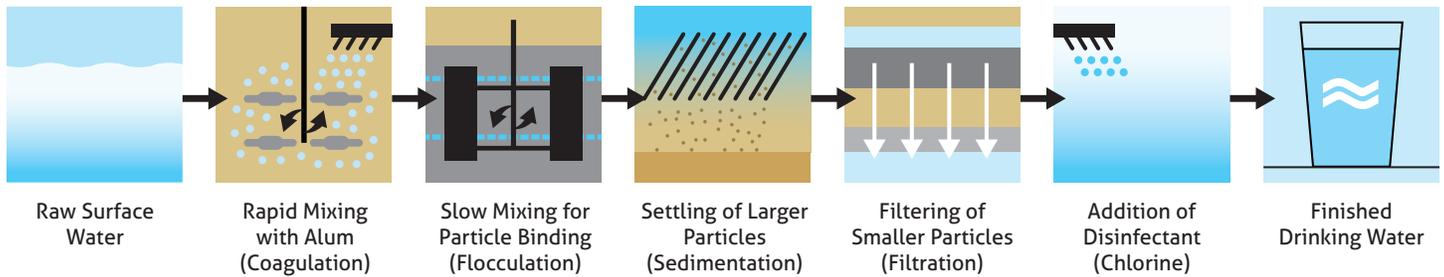
**TREAT:** Aquifer water is naturally filtered underground. Reservoir water is filtered at our treatment plants. Both reservoir and aquifer water are disinfected with chlorine to kill microbes that can cause illness. We add fluoride to prevent dental cavities, as required by Connecticut Department of Public Health (DPH) regulations, and phosphate to minimize corrosion of pipes.

**DISTRIBUTE:** We supply clean, reliable, high-quality water through a 1,700-mile-long network of pipes, pumping stations and storage tanks. We carefully maintain our extensive distribution system to ensure that high-quality water is fed to your tap.

**MONITOR:** We continually monitor the water treatment process and verify the high quality of our water by testing samples in our state and federally certified laboratory. Based on these test results – which are regularly reported to state health officials – we know that the water we deliver to you meets or is better than all state and federal water quality standards.

# Transforming Source Water Into Drinking Water

Turning raw water into drinking water requires several treatment and purification steps



## Source Water Assessment Information

A Source Water Assessment lists possible contaminants that might affect the quality of your water sources. You can find the DPH Drinking Water Section's assessment of the RWA's sources of water at [bit.ly/2H2rJ18](https://bit.ly/2H2rJ18).

## How Safe Is Your Water?

In 2018, the RWA collected more than 10,000 water samples and conducted over 110,000 tests to ensure that high-quality water reached your tap. The 2018 test results presented in this report demonstrate that your drinking water meets or is better than the water quality standards established by the U.S. Environmental Protection Agency (EPA) and the DPH.



## What the EPA Says About MCLs and Health Effects

The EPA wants you to know that drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information can be obtained by calling the EPA's Drinking Water Hotline at 1-800-426-4791 or by visiting [epa.gov/safewater](https://epa.gov/safewater).

The Maximum Contaminant Levels (MCLs) established by the EPA are very stringent. To understand the possible health effects described for many regulated contaminants, a person would have to drink two liters of water at the MCL level every day for a lifetime to have a one-in-a-million chance of experiencing the described health effect.

The Maximum Contaminant Level Goals (MCLGs) established by the EPA are also set at very stringent levels. MCLGs are the levels of a contaminant in drinking water below which there is no known or expected risk to health. Think of MCLGs as allowing for a safety margin.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those undergoing chemotherapy, those who have received organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk of infection. These people should seek advice about drinking water from their healthcare providers.

## Water Quality Overview

In order to ensure that tap water is safe to drink, the EPA and the DPH set regulations that limit the amount of certain contaminants in water provided by public water systems. For more information, visit the DPH website at [ct.gov/dph](http://ct.gov/dph).

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals. In some cases, water can also pick up radioactive material or substances resulting from the presence of animals or from human activity. Generally, untreated source water can include the following kinds of contamination:

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

**Inorganic compounds**, such as salts and metals, can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, or farming.

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

**Organic chemical compounds**, including synthetic and volatile organic chemicals, which are by-products of industrial processes, can come from gas stations, urban stormwater runoff and septic systems.

**Radioactive contaminants** can be naturally occurring or may be the result of oil and gas production and mining activities.

## Radon

Radon is a radioactive gas that you cannot see, taste or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. It can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water during showering, washing dishes and other household activities. In most cases, however, radon entering the home through tap water is a small source of all the radon in indoor air.

Radon is a carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air. Testing is inexpensive and easy. If the level of radon in your air is four picocuries per liter of air (pCi/L) or higher, you need to take steps to reduce it. For additional information, call the state's radon program or EPA's Radon Hotline at 1-800-SOS-RADON.

Although state and federal regulations do not require monitoring, we regularly test for radon in our Cheshire, Hamden, Derby and Seymour wells. Because radon dissipates quickly in the open air, it is not a concern with reservoir water.

## Lead and Drinking Water

The EPA developed the Lead and Copper Rule (LCR) to protect public health by minimizing lead and copper levels in drinking water. The LCR established an action level of 15 parts per billion (ppb) for lead and 1.3 parts per million (ppm) for copper, based on the 90th percentile level of tap water samples. This means that no more than 10 percent of the samples can be above either action level. The MCLG for lead is zero; the MCLG for copper is 1.3 ppm.

### What Can I Do in My Home to Reduce Exposure to Lead?

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. The RWA is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components in home construction. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for up to five minutes, or until it becomes cold or reaches a steady temperature. Use only cold water for drinking, cooking and making baby formula.



If you are concerned about lead in your water, you should consider having your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the EPA's Safe Drinking Water Hotline at 1-800-426-4791 and [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

### Copper Testing

The major sources of copper in drinking water are the corrosion of household plumbing systems and the erosion of natural deposits. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. To minimize exposure to copper, please follow the previous flushing instructions for lead.

### Sodium

Sodium is an essential nutrient in your diet. It helps maintain the right balance of fluids in your body and transmit nerve impulses to your muscles. Sodium in drinking water normally presents no health risks, since 99 percent of your daily salt intake is from food and only about one percent is from water. However, elevated sodium in water may be considered a health concern for those on a restricted salt diet. If you have been placed on such a diet, please inform your physician that our water can contain as much as 38 milligrams per liter of sodium. For comparison, whole milk has a sodium content of 530 milligrams per liter.



## Water Quality Analysis and Results for 2018

### All test results well below allowable levels

Municipal drinking water is a unique product – it is the only life-sustaining resource reliably delivered by others to your home around the clock for your convenient use on demand. As shown in the tables on the following pages, the water that the RWA delivers to your tap meets or is better than all federal and state requirements for safe drinking water. Of the more than 100 regulated and unregulated substances for which we test annually, only a few have been detected, and the detection levels were below allowable limits.

### Drinking water quality report highlights

- ▶ RWA's drinking water quality and its stringent monitoring program met or were better than all state and federal regulatory standards in 2018.
- ▶ Our professionals conduct many routine tests beyond those reported here to monitor and optimize water quality. Additional testing focused on building a better understanding of our water quality from source to tap.
- ▶ Our water treatment systems employ multiple barriers to protect our water from disease-causing microorganisms and other contaminants.
- ▶ All of our treatment plant operators maintain a Class IV Water Treatment Operator Certification, the highest standard in the state.
- ▶ We continuously take steps to deliver even higher-quality drinking water to your tap through technology and innovation.
- ▶ In 2018, we devoted approximately \$44 million to building and maintaining our region's water system, from installing and cleaning hundreds of miles of main to updating the filtration systems that sustain our infrastructure.
- ▶ As part of our land management and source-protection programs, in 2018 we invested more than \$300,000 to acquire over 43 acres of land in our region.

## Regulated Contaminants Found in Reservoirs and Aquifers

Substance	MCL	MCLG	Average Level and Range Detected	Potential Sources of Contaminant	Met Regulatory Standards
Barium	2 ppm	2 ppm	0.075 ppm Range 0.009–0.311	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits	Yes
Chloride	250 ppm	N/A	38 ppm Range 14–130	Naturally present in the environment	Yes
Fluoride	4 ppm	4 ppm	0.7 ppm Range ND–2	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Yes
Microbial Pathogens (a)	TT=100% of 4–log removal based on chlorine residual	N/A	100%	Naturally present in the environment	Yes
Nitrate (as nitrogen)	10 ppm	10 ppm	0.926 ppm Range 0.013–3.331	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits	Yes
Total Haloacetic Acids (THAA)	60 ppb Average	N/A	43 ppb Range 14–70 (b)	By-product of drinking water chlorination	Yes
Total Organic Carbon (TOC)	TT=Removal Ratio >1 (c)	N/A	1.65 Range 1.0–2.85	Naturally present in the environment	Yes
Total Trihalomethanes (TTHM)	80 ppb Average	N/A	61 ppb Range 41–82 (b)	By-product of drinking water chlorination	Yes
Turbidity (aquifers)	TT=5 NTU	N/A	0.09 NTU Range ND–1.0	Soil runoff	Yes

Substance	MCL	MCLG	Highest Level Detected	Potential Sources of Contaminant	Met Regulatory Standards
Total Coliform Bacteria	Presence of coliform bacteria not to exceed 5.00% of monthly samples	0%	0.49% (April 2018)	Naturally present in the environment	Yes
Turbidity (reservoirs)	TT=95% of samples <0.3 NTU (d)	N/A	100% 0.18 NTU	Soil runoff	Yes

Substance	MRDL	MRDLG	Average Level and Range Detected	Potential Sources of Contaminant	Met Regulatory Standards
Chlorine	4 ppm	4 ppm	1.6 ppm Range 0.6–2.2	Water additive used to control microbes	Yes

**Notes:** (a) Treatment that reliably achieves at least 99.99% (4-log) treatment of viruses using inactivation; (b) Individual sample and individual location; (c) Ratio is a value derived from monthly TOC percent removal calculation; (d) 95% of samples within a given month

Substance	MCL	MCLG	90th Percentile <sup>(e)</sup>	Potential Sources of Contaminant	Met Regulatory Standards
Lead	AL=15 ppb <sup>(f)</sup>	0	2 ppb <i>Analyzed 2017<sup>(g)</sup></i> No. of sites above AL = 0	Corrosion of household plumbing systems; erosion of natural deposits	Yes
Copper	AL=1.3 ppm <sup>(f)</sup>	1.3	0.34 ppm <i>Analyzed 2017<sup>(g)</sup></i> No. of sites above AL = 0	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	Yes

## Unregulated Contaminants Found in Reservoirs and Aquifers

Substance	MCL	Average Level and Range Detected	Potential Sources of Contaminant	Met Regulatory Standards
Bromodichloromethane	N/A	9 ppb <i>Range 5–16</i>	By-product of drinking water chlorination	N/A
Chloroform	N/A	51 ppb <i>Range 27–73</i>	By-product of drinking water chlorination	N/A
Dibromochloromethane	N/A	5 ppb <i>Range ND–12</i>	By-product of drinking water chlorination	N/A
Dichloroacetic Acid	N/A	16 ppb <i>Range 3–26</i>	By-product of drinking water chlorination	N/A
Monochloroacetic Acid	N/A	3 ppb <i>Range ND–6</i>	By-product of drinking water chlorination	N/A
Trichloroacetic Acid	N/A	24 ppb <i>Range 10–45</i>	By-product of drinking water chlorination	N/A

Substance	Notification Level	Average Level and Range Detected	Potential Sources of Contaminant	Met Regulatory Standards
Radon (aquifers only)	N/A	564 pCi/L <i>Range 2–1970</i>	Naturally present in the environment	N/A
Sodium	28 ppm	23 ppm <i>Range 12–38<sup>(h)</sup></i>	Naturally present in the environment; sources such as road salt storage and application, industrial wastes, sewage and fertilizers are usually the cause of elevated levels in drinking water supplies	N/A

**Notes:** (e) Calculated value derived from the analysis performed on high-priority customers; (f) Test frequency as determined by state and federal regulatory agencies; (g) Action level is based on the calculated 90th percentile; (h) See sodium notice on page 4

## Unregulated Contaminants for the Unregulated Contaminant Monitoring Rule List 3

During 2014, the RWA participated in the third phase of the Unregulated Contaminant Monitoring Rule (UCMR3). Unregulated contaminants are those for which the EPA has not established drinking water standards. Under the 1996 amendments to the federal Safe Drinking Water Act, the EPA is required to issue a new list of up to 30 unregulated contaminants every five years for which public water systems must

monitor. Monitoring assists the EPA in determining the occurrence of these compounds and whether or not regulation is warranted. Detections are summarized in the following table, along with typical sources. For general information on UCMR3, visit [epa.gov/dwucmr](http://epa.gov/dwucmr) or contact EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Parameter	MCL	Average Level and Range Detected	Potential Sources of Contaminant
1,4 Dioxane	N/A	1.57 ppb Range ND–11 Analyzed 2014	Used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos
Chlorate	N/A	252 ppb Range ND–1990 Analyzed 2014	By-product of the drinking water disinfection process; a number of compounds can react to release chlorate ion in water, including some in herbicides, fireworks and other explosives
Chromium	N/A	0.38 ppb Range ND–1.10 Analyzed 2014	Discharge from steel and pulp mills; erosion of natural deposits
Hexavalent Chromium	N/A	0.25 ppb Range ND–0.78 Analyzed 2014	Naturally occurring element used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation
Strontium	N/A	70.1 ppb Range 20.5–123.0 Analyzed 2014	Erosion of natural deposits
Vanadium	N/A	0.67 ppb Range ND–1.58 Analyzed 2014	Naturally occurring metal found in many different minerals and in fossil fuel deposits; the primary industrial use of vanadium is in the strengthening of steel

## Helpful Drinking Water Quality Definitions

The following definitions will help you better understand the water quality results presented in this report.

### **AL Action Level**

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

### **BDL Below Detection Level**

Calculated value resulting in below detection level.

### **MCL Maximum Contaminant Level**

The highest level of a contaminant allowed in drinking water. Maximum Contaminant Levels are set as close to the Maximum Contaminant Level Goal as feasible, using the best available treatment technology.

### **MCLG Maximum Contaminant Level Goal**

The level of a contaminant in drinking water below which there is not a known or expected risk to health. Maximum Contaminant Level Goals allow for a safety margin.

### **MRDL Maximum Residual Disinfectant Level**

The level of disinfectant added for water treatment that may not be exceeded at the consumer's tap without adverse health effects.

### **MRDLG Maximum Residual Disinfectant Level Goal**

A non-enforceable health goal. It does not reflect the benefits of adding the chemical for the control of waterborne microbial contaminants.



### **DID YOU KNOW?**

Last year, our consumers used nearly **17 billion gallons of water.**

That means we are producing an average of 45 million gallons per day of safe, clean water for our 430,000 consumers.

### **How much water is that?**

Imagine New Haven's Yale Bowl full of water. That's approximately how much water we provide in a typical week.

### **ug/L Micrograms per Liter**

A unit of concentration for dissolved substances based on their weights.

### **N/A Not Applicable**

Not applicable or required.

### **ND Not Detected**

Not detected.

### **NTU Nephelometric Turbidity Units**

A measure of clarity of water. Turbidity more than five NTU is just barely noticeable to the average person.

### **ppb Parts per Billion**

A measure of the concentration of a substance roughly equivalent to half a teaspoon of water in one Olympic-size swimming pool.

### **ppm Parts per Million**

A measure of the concentration of a substance roughly equivalent to one half of a dissolved tablet of aspirin in a full 50-gallon bathtub of water.

### **pCi/L Picocuries per Liter**

A measure of radioactivity in water.

### **TT Treatment Technique**

A required process intended to reduce the level of contaminants in drinking water.

## Learn More



### Use Water Wisely

Water is a precious resource. To ensure we have sufficient water to meet the needs of all our consumers and put less stress on local water sources and the environment, we encourage consumers to take the following steps:

- ▶ Fix dripping faucets and leaky toilets.
- ▶ Run dishwashers and washing machines with full loads.
- ▶ Turn the water off when you brush your teeth or shave.
- ▶ Install water-efficient appliances; look for the WaterSense label.
- ▶ Water your lawn and plants in the early morning or later in the evening.
- ▶ Use a broom to clean outdoor areas instead of a hose.

For more tips, visit us at [rwater.com](http://rwater.com) or the EPA at [epa.gov/WaterSense](http://epa.gov/WaterSense).



### Discover Nature's Wonderland

The RWA has nine recreation areas in 13 communities throughout Greater New Haven that offer great water views and four seasons of fun. With an RWA recreation permit, you can enjoy miles of wide, well-kept trails through a wilderness that is just minutes from your home. We provide easy-to-read trail maps and offer special family events such as guided nature walks and fishing derbies. Buying a recreation permit is easy and affordable; visit us at [rwater.com](http://rwater.com) to sign up. Discounts are available for senior citizens, veterans, students and people with disabilities.



### Explore the Water World

We offer innovative educational programs for preK–8 students across our district to use water as a teaching tool inside and outside the classroom. Our educator loves visiting schools and teaching young people about the importance of water and a healthy environment to the community. To schedule a free program, please call us at 203-777-1142.



### Safeguard Water Quality

HazWaste Central helps areas residents protect water quality by safely disposing of household hazardous waste. Located at our headquarters at 90 Sargent Drive in New Haven, HazWaste Central is open 9 a.m. until noon on Saturdays, May through October. To see if your community participates and to find out what household wastes can be dropped off, visit us at [rwater.com](http://rwater.com) or call 203-401-2712.



### Protect Your Pipes

Our PipeSafe protection programs can help you avoid unexpected, costly repairs to your underground water, sewer and septic lines. These programs, available for a nominal fee, offer the peace of mind that comes with knowing that you are covered for repair costs and the hassle of finding qualified contractors. For more information, visit us at [rwater.com](http://rwater.com) or call 203-562-4020.

## When Was the Last Time You Got a Bottled Water Quality Report?



VS.



We test our water every day to ensure it is of the highest quality.



Bottled water is tested less frequently, and independent studies have found microplastics and other contaminants in it.

We proudly publish our testing results online and in reports like the one you're reading now!



Many bottled water companies keep the results of their tests a secret. Who knows what's in those bottles!

We protect thousands of acres of land in your community to bring you clean, safe drinking water.



Bottled water uses 17 million barrels of oil annually and creates more than 2.7 million tons of plastic waste.