



2022 Annual Drinking Water Quality Report

Village of Bald Head Island

Water System Number: NC0410130

Is my water safe? We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

Do I need to take special precautions? Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

When you turn on your tap, consider the source. Drinking water can come from surface water and ground water aquifers. Surface water is pumped from rivers, lakes, and reservoirs. Ground water is pumped from wells that are drilled into aquifers. Aquifers are geologic formations that contain water. The quantity of water and produced rates within a well depends on the nature of the rock, sand, or soil in the aquifer where the well screen is drawing water.

The water source for Bald Head Island is primarily island ground water and we are also supplemented with purchased water from Brunswick County public utilities. Our ground water wells draw water from a semi-confined aquifer located at depths ranging from fifty-five to sixty-five feet below the surface. Our well system currently has sixteen wells in inventory and each well produces thirty-eight to forty gallons per minute. All wells have been approved by the state of North Carolina public water supply section. These wells are known as production wells. The raw water from the production wells is pumped to the water treatment facility located at 256 Edward Teach Extension, this facility forces raw water through a pre-filter and then through reverse osmosis filtration. This method of filtration is highly effective at removing contaminants from the water. The filtered water is then disinfected by a combination of chlorine and ammonia gas, this creates chloramines. The now treated water is aerated to remove remaining gasses in the water. After aeration takes place, the water is stored in a four hundred-thousand-gallon tank that is constantly mixed. Once the water is in the tank it is ready to be distributed to our customers throughout the distribution system. The Village of Bald Head Island also purchases water from Brunswick County Public Utilities when necessary to meet the demand of water on the island. The Brunswick County water supply consists of ground water from the Castle Hayne aquifer and can be supplemented with surface water from the Cape Fear River above lock and dam number one. Brunswick County water is very compatible with Bald Head Island water therefore both supplies are stored and blended until distributed through our distribution system.

Source Water Assessment Program (SWAP) The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section. Source Water Assessment Program (SWAT) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of each source for the Village of Bald Head Island Utilities Department was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table on Page 2 titled Susceptibility of Sources to Potential Contaminant Sources (PCSs).

The complete SWAP Assessment report for the Village of Bald Head Island may be viewed online at: <https://www.ncwater.org/?page=600>. Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email requests to swap@ncdenr.gov. Please indicate your system name, number, and provide your name, mailing address and phone number. If you have any questions about the SWAP report, please contact the Source Water Assessment staff by phone at 919-707-9098. It is important to understand that a susceptibility rating of "higher" does not imply poor water quality, only the system's potential to become contaminated by PCSs in the assessment area.

Why are there contaminants in my drinking water? 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity: microbial contaminants, such as viruses and bacteria, that 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 stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

How can I get involved?

Description of Water Treatment Process

Your water is treated by filtration and disinfection. Filtration removes particles suspended in the source water. Particles typically include clays and silts, natural organic matter, iron and manganese, and microorganisms. Your water is also treated by disinfection. Disinfection involves the addition of chlorine or other disinfectants to kill bacteria and other microorganisms (viruses, cysts, etc.) that may be in the water. Disinfection is considered to be one of the major public health advances of the 20th century.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair, and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.

- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

Cross Connection Control Survey

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and ensuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below, please contact us so that we can discuss the issue, and if needed, survey your connection, and assist you in isolating it if that is necessary.

- Boiler/Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub (whirlpool tubs not included)
- Additional source(s) of water on the property
- Decorative pond
- Watering trough

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Additional Information for 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 Village of Bald Head Island 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 <http://www.epa.gov/safewater/lead>.

Additional Information for Arsenic

While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chloramine (as Cl ₂) (mg/L)	4	4	2.2	NA	NA	2022	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60	13	NA	NA	2022	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	16	NA	NA	2022	No	By-product of drinking water disinfection
Inorganic Contaminants								
Antimony (ppb)	6	6	3	NA	NA	2022	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; test addition.
Arsenic (ppb)	0	10	5	NA	NA	2022	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2	2	.4	NA	NA	2022	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beryllium (ppb)	4	4	2	NA	NA	2022	No	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	5	5	1	NA	NA	2022	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	100	100	20	NA	NA	2022	No	Discharge from steel and pulp mills; Erosion of natural deposits

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Cyanide (ppb)	200	200	50	NA	NA	2022	No	Discharge from plastic and fertilizer factories; Discharge from steel/metal factories
Fluoride (ppm)	4	4	.2	NA	NA	2022	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Mercury [Inorganic] (ppb)	2	2	.4	NA	NA	2022	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
Nitrate [measured as Nitrogen] (ppm)	10	10	1	NA	NA	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	50	50	10	NA	NA	2022	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Sodium (optional) (ppm)	NA		23	NA	NA	2022	No	Erosion of natural deposits; Leaching
Thallium (ppb)	.5	2	1	NA	NA	2022	No	Discharge from electronics, glass, and Leaching from ore-processing sites; drug factories
Synthetic organic contaminants including pesticides and herbicides								
Atrazine (ppb)	3	3	.1	NA	NA	2022	No	Runoff from herbicide used on row crops
Carbofuran (ppb)	40	40	.9	NA	NA	2022	No	Leaching of soil fumigant used on rice and alfalfa
Oxamyl [Vydate] (ppb)	200	200	2	NA	NA	2022	No	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
Volatile Organic Contaminants								
1,1,1-Trichloroethane (ppb)	200	200	.5	NA	NA	2022	No	Discharge from metal degreasing sites and other factories
1,1,2-Trichloroethane (ppb)	3	5	.5	NA	NA	2022	No	Discharge from industrial chemical factories
1,1-Dichloroethylene (ppb)	7	7	.5	NA	NA	2022	No	Discharge from industrial chemical factories
1,2,4-Trichlorobenzene (ppb)	70	70	.5	NA	NA	2022	No	Discharge from textile-finishing factories
1,2-Dichloroethane (ppb)	0	5	.5	NA	NA	2022	No	Discharge from industrial chemical factories
1,2-Dichloropropane (ppb)	0	5	.5	NA	NA	2022	No	Discharge from industrial chemical factories
Benzene (ppb)	0	5	.5	NA	NA	2022	No	Discharge from factories; Leaching from gas storage tanks and landfills
Carbon Tetrachloride (ppb)	0	5	.5	NA	NA	2022	No	Discharge from chemical plants and other industrial activities
Chlorobenzene (monochlorobenzene) (ppb)	100	100	.5	NA	NA	2022	No	Discharge from chemical and agricultural chemical factories
Dichloromethane (ppb)	0	5	.5	NA	NA	2022	No	Discharge from pharmaceutical and chemical factories
Styrene (ppb)	100	100	.5	NA	NA	2022	No	Discharge from rubber and plastic factories; Leaching from landfills
Tetrachloroethylene (ppb)	0	5	.5	NA	NA	2022	No	Discharge from factories and dry cleaners
Toluene (ppm)	1	1	.0005	NA	NA	2022	No	Discharge from petroleum factories
Trichloroethylene (ppb)	0	5	.5	NA	NA	2022	No	Discharge from metal degreasing sites and other factories
Vinyl Chloride (ppb)	0	2	.5	NA	NA	2022	No	Leaching from PVC piping; Discharge from plastics factories
Xylenes (ppm)	10	10	.0005	NA	NA	2022	No	Discharge from petroleum factories; Discharge from chemical factories
cis-1,2-Dichloroethylene (ppb)	70	70	.5	NA	NA	2022	No	Discharge from industrial chemical factories
o-Dichlorobenzene (ppb)	600	600	.5	NA	NA	2022	No	Discharge from industrial chemical factories
p-Dichlorobenzene (ppb)	75	75	.5	NA	NA	2022	No	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene (ppb)	100	100	.5	NA	NA	2022	No	Discharge from industrial chemical factories
Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
Inorganic Contaminants								
Copper - action level at consumer taps (ppm)	1.3	1.3	.328	2022	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead - action level at consumer taps (ppb)	0	15	3	2022	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	

Additional Contaminants

In an effort to ensure the safest water possible the State has required us to monitor some contaminants not required by Federal regulations. Of those contaminants only the ones listed below were found in your water.

Contaminants	State MCL	Your Water	Violation	Explanation and Comment
Asbestos	7 MFL	0 MFL	No	

Undetected Contaminants

The following contaminants were monitored for, but not detected, in your water.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Violation	Typical Source
Radium (combined 226/228) (pCi/L)	0	5	ND	No	Erosion of natural deposits

Additional Monitoring

As part of an on-going evaluation program the EPA has required us to monitor some additional contaminants/chemicals. Information collected through the monitoring of these contaminants/chemicals will help to ensure that future decisions on drinking water standards are based on sound science.

Name	Reported Level	Range	
		Low	High
perfluorobutanesulfonic acid (PFBS) (ppb)	.0178	.000896	.0178
perfluoroheptanoic acid (PFHpA) (ppb)	.00771	.000887	.00771
perfluorohexanesulfonic acid (PFHxS) (ppb)	.00528	.000769	.00528
perfluorononanoic acid (PFNA) (ppb)	.00222		.00222
perfluorooctanesulfonic acid (PFOS) (ppb)	.00356		.00356
perfluorooctanoic acid (PFOA) (ppb)	.0231	.00128	.0231

Unit Descriptions	
Term	Definition
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
mg/L	mg/L: Number of milligrams of substance in one liter of water
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	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.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

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