

# How to treat water in the wilderness



Why all the fuss about water treatment outdoors? The answer is that there's no easy way to tell whether or not that pristine-looking stream a few hundred yards away from your camp is harboring bacteria or other microorganisms. If any animal, including humans, can reach an area, so can disease-causing microorganisms.

You might find people who claim they've been happily drinking untreated backcountry water for years. Beyond mere good fortune, it's possible they have especially robust immune systems. Such symptom-free people can, of course, still carry their microbiological secret with them to each and every new campsite.

The best practice is to treat water from any source.

## Primary Types of Waterborne Threats

Any water source on Earth could contain microscopic pathogens.

Types of pathogens:

**Protozoa** These have a hard outer cyst that protects them against certain chemicals. Their relatively large size, though, makes them easier to filter out of water.

**Bacteria** These midsize microorganisms can also be removed by water filters.

**Viruses** Because they are smaller than protozoa and bacteria, they are difficult to filter out of water. Technically speaking, treating water by removing or neutralizing them is when you're "purifying" water.

**Tip: Always carry a backup treatment system.** A filter can be lost; batteries can drain; a device can get broken. Chemicals offer extra security with negligible weight.

Boiling is a surefire backup option: Bring water to a rolling boil for 1 minute, or for 3 minutes if you're above 6,500 feet.

## Where to Gather Water

### What to look for in a water source:

- Flowing water, especially in a stream or river. This is a good option because it isn't conducive to the growth of algae or the accumulation of microorganisms. A bonus is that mosquitoes don't lay eggs in fast-flowing water.
- If no clear flowing source is available, then look for calm water (a lake, a pool, a slow-moving stream) without a lot of sediment or silt. Clearer water passes through a filter more swiftly and reduces the chance of clogging.
- A location that allows you to reach well away from the shore, where microorganisms tend to accumulate in higher concentrations.

**Tip: After a heavy rain, wait before gathering water for treatment.** When streams are on the rise, rain has washed surface material into them, as well as lakes and other water sources. This increases bacterial loads and muddies up gathered water.

### Danger signs in a water source:

The following tipoffs suggest a much greater likelihood of contamination. If you can choose another water source, do so. If not, then follow water treatment directions for your product carefully.

- Water (particularly at lower elevations) near meadows or pastures where animals have grazed or near popular, established campsites.
- Evidence of pack animal traffic or other domesticated animal activity.
- Signs of sloppy human behavior or a prolonged human visit.
- Excessive amounts of foam or brown scum, which can indicate algae blooms; though algae itself is rarely harmful, it indicates a nutrient-rich environment for microorganisms to grow.
- Dirty snow, which indicates human visitors and impacts; also, don't assume that even clean-looking snow is "safe" because bacteria can live for months in ice.

## How Water Filters and Purifiers Work

Every filter and many purifiers include an internal **element** or **cartridge**, a component that has microscopic pores that catch debris, protozoa and bacteria. Over time, strained matter gums up an element's pores, requiring it to be cleaned and eventually replaced.

Most purifiers use **chemicals** (such as iodine) to kill viruses, which are too small for most filter elements. Another purification method relies instead on ultraviolet light to treat the pathogens.

Many filters and purifiers also include **activated carbon** in their elements because it's effective at removing unpleasant tastes from things like leaf tannins. Activated carbon also reduces contaminants like pesticides and other industrial chemicals.



The **LifeStraw** can filter up to 4,000 liters (1,000 gallons). This would mean, if **you** used the **LifeStraw** every day, for all of your drinking water, it **will** last for almost four years. If **you** just **use** it for travel and outdoor activities, it **will** last **much** longer.

<https://www.youtube.com/watch?v=i82YD7uvi2s>

check out the short youtube video on use of the life straw. For every one that is purchased, donations are given to third world countries and it supplies one school child with fresh water for a year.