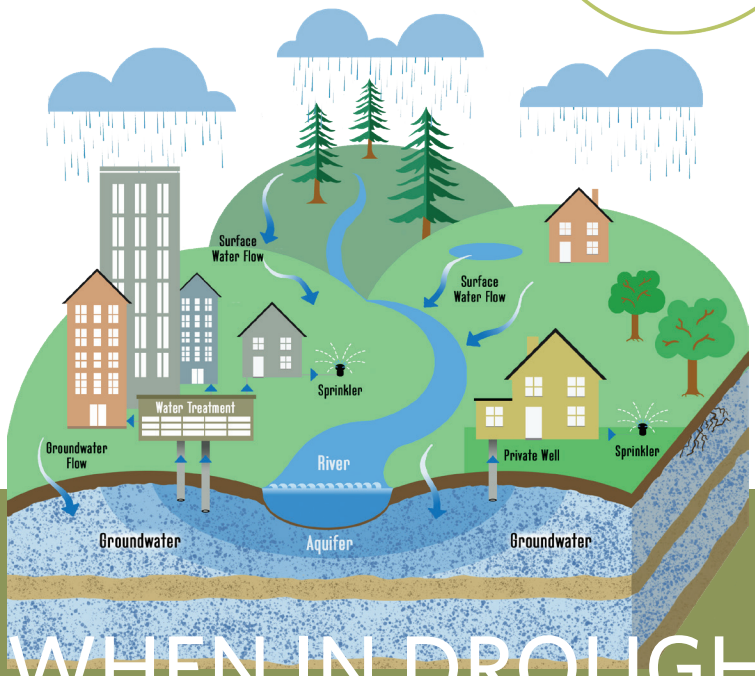
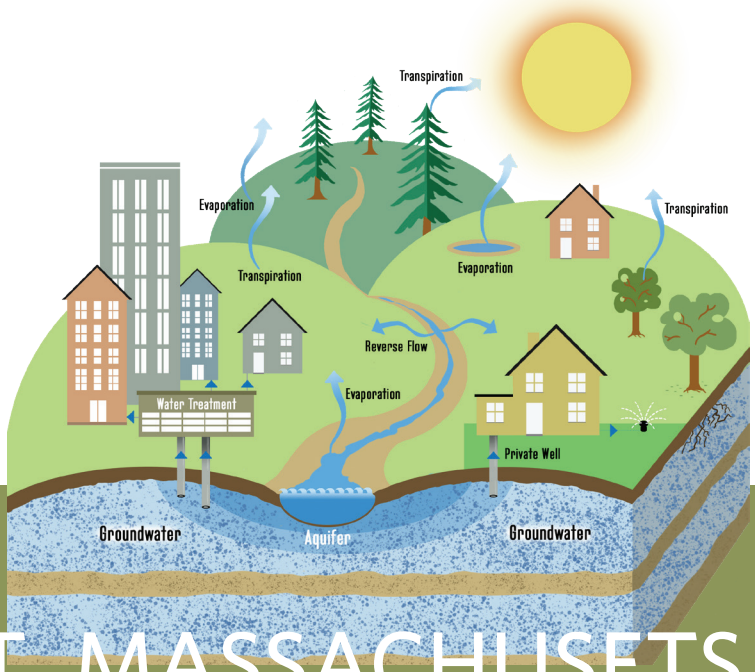
TURNAROUND FILMS





WHEN IN DROUGHT, MASSACHUSETTS

When we hear the word "drought," we may think of the American southwest or other arid regions of the Earth. In Massachusetts, our green landscape and regular, gentle rains have led us to believe that water is an abundant and endless resource. But, water in Massachusetts is as finite a resource as it is in other parts of the world. This has been made obvious as the human population grows and the climate changes.

Over the past century, we could predict what the average seasonal temperature would be, how much precipitation to expect, and when to expect it. Gentle rains and snow melt would soak into the earth, recharging our surface water, groundwater, and aquifers. Armed with this knowledge, we built our reservoirs, water treatment plants, water delivery, and drainage systems to stand up to a climate we understood.

In Massachusetts, as in the rest of the world, the air is warming, causing the water in soils to evaporate faster and sapping liquid from plants. We are actually getting more rain but, between storms, the number of frequent and sudden droughts is also increasing. The earth dries out, hampering its ability to absorb new rainfall. Instead of soaking into the ground and replenishing the groundwater, downpours overwhelm our drainage systems, flooding over land and running out to sea.

We are now seeing the effects of these problems play out in Massachusetts streams and rivers. Droughts occurring across the state in 2016, 2020, and 2022 dramatically reduced stream and river flows to the detriment of wildlife and threatened our supply of drinking water. In times of drought, water use in some Massachusetts communities is beginning to exceed nature's ability to replenish it. Drought is forcing us to rethink how we can distribute and manage water in more sustainable and equitable ways.

Watch **When in Drought, Massachusetts** and other environmental/climate change films on turnaround-films.com.

Potential Impacts of Drought on Massachusetts

- Decreased plant growth causing crop failures and unstable finances for local farmers
- Increased wildfires
- Greater insect outbreaks
- Decline in water quality and rising water temperatures
- Increased local species extinctions
- Reduced water availability and habitat for aquatic species
- Lower stream flows and freshwater delivery to estuarine habitats
- Increases of saltwater intrusion into coastal ecosystems
- Water shortages for drinking and firefighting

Illustration Glossary

Surface Water Water that collects on the surface of the ground including both the saltwater in the ocean and the freshwater in rivers, streams, lakes, and reservoirs.

Groundwater is the water found underground in the cracks and spaces in soil, sand and rock. It is stored in and moves slowly through geologic formations of soil, sand, and rocks called *aquifers*.

Aquifer Water-bearing rock that readily transmits water to wells and springs. Wells can be drilled into the aquifers and water can be pumped out. *Precipitation* eventually adds water into the porous rock of the aquifer.

Evaporation The process by which a liquid turns into a gas.

Precipitation Rain, snow, sleet, or hail that falls to the ground.

Transpiration The *evaporation* of water from a plant's leaves, stem, or flowers.

Water Treatment Any process that improves the quality of water to make it appropriate for a specific end-use.

Reservoir A large natural or artificial lake used as a source of water supply.

Private Wells Sources of water intended for household, groundwater source heat pumps, agricultural use, industrial use, or other nonpublic water wells.

Reverse Flow In dry conditions, when *surface water* flows into the *groundwater* system.