



# Cape Cod Water Supply

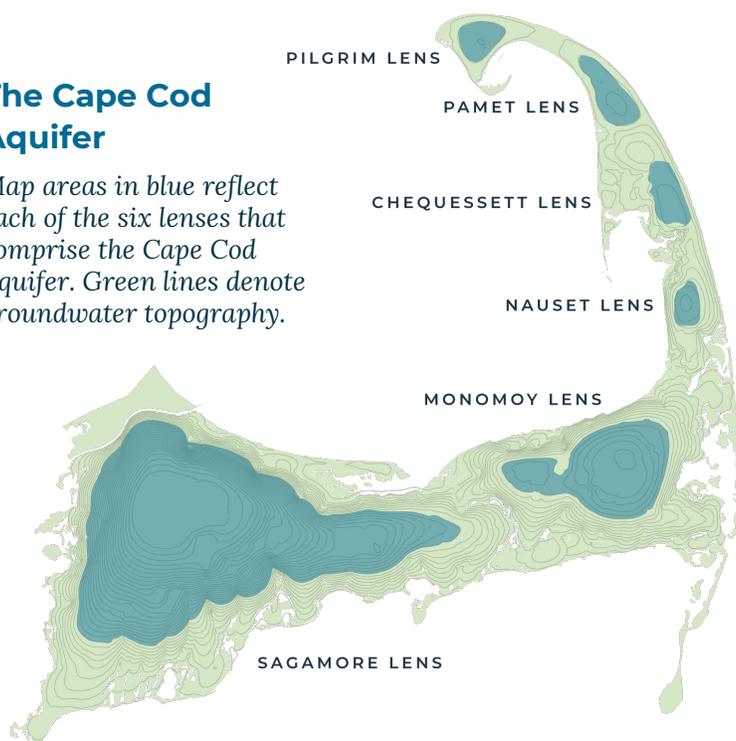
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## UNDERSTANDING THE CAPE COD AQUIFER

The Cape Cod aquifer is an unconfined aquifer – it is constantly being replenished by rainfall, and groundwater at the top of each lens is constantly moving toward the coast. Despite being designated as a single, sole-source aquifer, the Cape Cod aquifer is comprised of six lenses which are similar to one another but are not hydraulically connected. These aquifer lenses supply Cape Cod’s rivers, streams, wetlands, ponds, and drinking water supplies.

### The Cape Cod Aquifer

Map areas in blue reflect each of the six lenses that comprise the Cape Cod Aquifer. Green lines denote groundwater topography.



### How does the aquifer work?

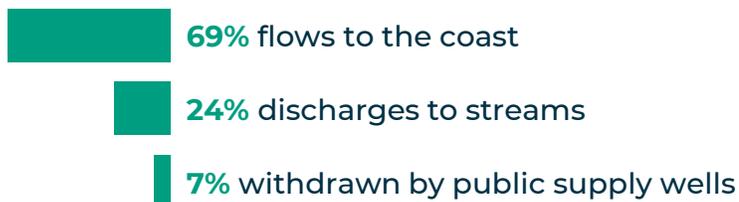
The Cape Cod aquifer is an underground layer of rock and sandy soil that is porous enough to hold water. The water, referred to as groundwater, is always moving through the sand and gravel towards the coast.

### How much water goes into the aquifer?

The Cape Cod aquifer is replenished solely by precipitation. Approximately **450 million gallons of water enter the aquifer daily** or about 164 billion gallons a year.

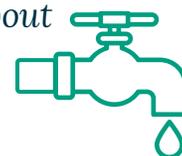
### What happens to the water in the aquifer?

Of the annual 164 billion gallons per year:



Water suppliers pump about

**11 Billion gallons** of water per year



Overall pumping will often fluctuate from year to year depending largely on precipitation and water restrictions, but average annual pumping remains relatively constant.

### Public water on Cape Cod

- Public Supply Wells
- Public Drinking Water System Service Area



### Public water supply by the numbers

- 85%** of Cape Cod water users are served by public water supplies
- 20** water districts, municipal divisions, and departments
- 160** gravel-pack water supply wells
- 1** surface reservoir

### Water pumping volumes governed by the Water Management Act

Public water supply wells are permitted through the Water Management Act. MassDEP considers safe aquifer yield, impacts to surface water resources, and determines when water use restrictions are required during the permitting process.

#### Not a water quantity issue

The amount of water pumped by public water supplies remains well below permitted amounts.



**PERMITTED TO BE PUMPED**  
*(estimated: permitted volumes may be more)*



**PUMPED ON AVERAGE**

#### Conservation and responsible management

Conservation remains critically important to:

- prevent water supply operations from impacting surface water resources (ponds, streams, wetlands)
- minimize drawdown during drought conditions
- preserve capacity for fire response and emergency operations
- maintain operational flexibility in the event of source water contamination (e.g. PFAS) or equipment failure

### Accessing the aquifer is the main challenge facing public water suppliers

Wells have daily permitted withdrawal limits and physical limits on the amount that can be pumped in the short-term. These short-term limits can constrain a supplier’s ability to meet peak summer demand, particularly when things like fire response or a contamination/equipment failure event reduce the number of wells a supplier has available to draw from.

### Futureproofing the water supply system

Existing permit and physical limitations are why new or additional wells may be needed to provide flexibility and redundancy even when existing wells can adequately supply demand.

A 2025 mapping analysis of Potential Public Water Supply Areas on Cape Cod indicates that:



less than **11%** of land area could be considered suitable for water supply development