

WATER SUPPLY OF THE WORLD

(Source: U.S. Geological Survey)

The abundance of water on the planet Earth is readily seen on a globe by the percentage of the surface covered by oceans (72-73%). This abundance of water is unique among the planets in our solar system. The Earth happens to orbit the sun at just the right distance for water to exist in its liquid (life-supporting) form.

However, better than 97% of the Earth's supply of water is *salt water*, a form which does not directly support life. Even ocean-dwelling life forms must divert a significant portion of biological energy to maintain a supply of fresh water for their own uses. As yet, there is no large-scale, economical method of desalinating ocean water; therefore, we must use the limited supply of Earth's fresh water wisely. Modern threats to this supply include groundwater pollution; once contaminated, a groundwater aquifer is virtually impossible to clean up.

The Antarctic icecap is the largest supply of fresh water, comprising nearly 2 percent of the world's total of fresh and salt water. As can be seen from the table below, the amount of water in our atmosphere is over ten times as large as the water in all the rivers taken together. The fresh water actually available for human use in lakes and rivers and the accessible ground water amounts only to only about 1/3 of 1 percent of the world's total water supply.

Water Body	Surface area (square miles)	Volume (cubic miles)	Percentage of total
SALT WATER The oceans	139,500,000	317,000,000	97.2%
Inland seas & saline lakes	270,000	25,000	0.008%
FRESH WATER Freshwater lakes	330,000	30,000	0.009%
All rivers (average level)	--	300	0.0001%
Antarctic icecap	6,000,000	6,300,000	1.9%
Arctic icecap and glaciers	900,000	680,000	0.21%
Water in the atmosphere	197,000,000	3,100	0.31%
Groundwater within 0.5 mile of the surface	--	1,000,000	0.31%
Deep-lying groundwater	--	1,000,000	0.31%
TOTAL (rounded)	--	326,000,000	100%

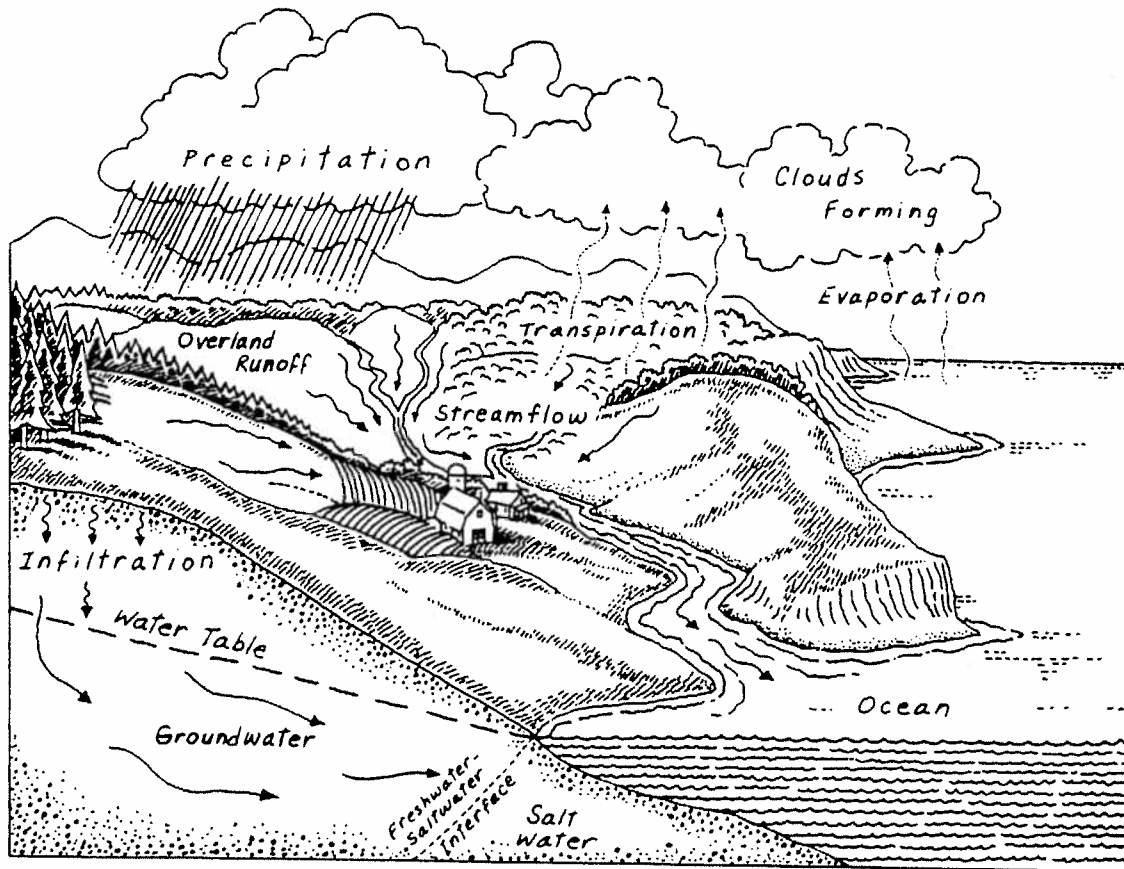


Figure 7.1 The Water Cycle

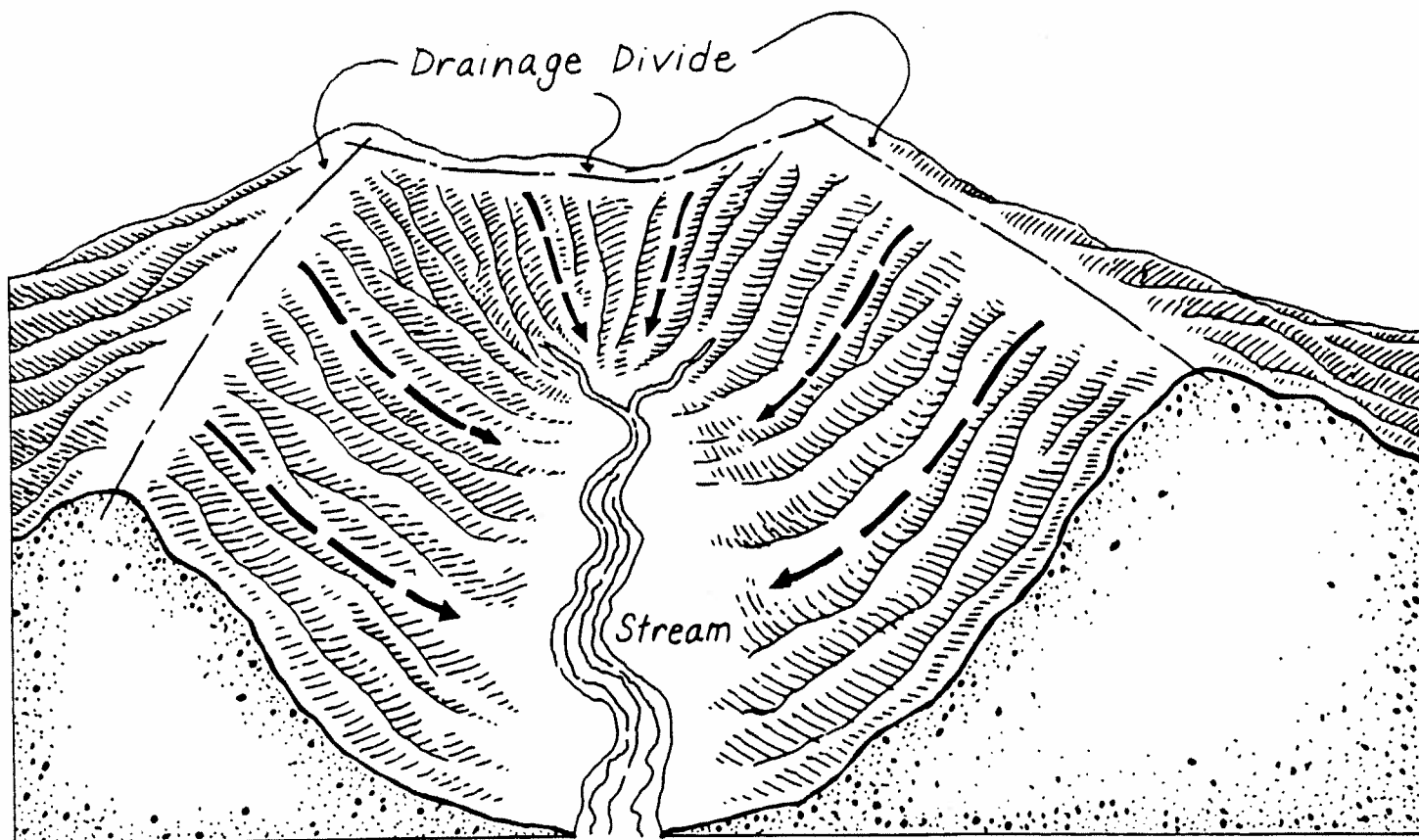


Figure 7.2 Watershed

A watershed, or drainage basin, is a land area that drains surface runoff to a stream, river, pond, or lake. Coastal watersheds drain to the ocean.

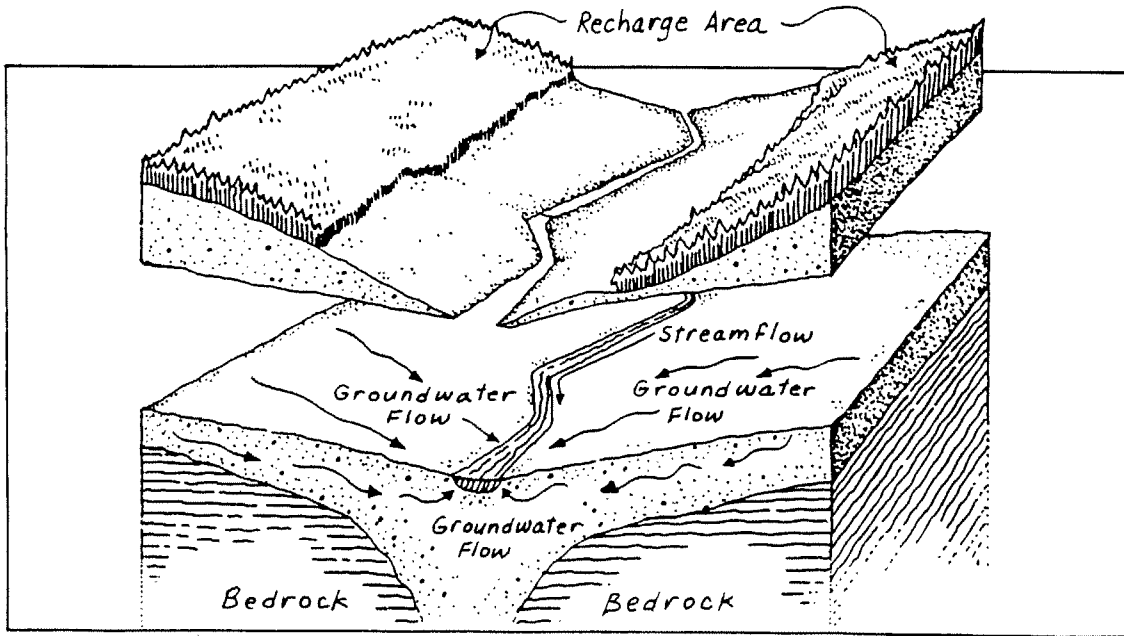


Figure 7.3 Groundwater Recharge Area

Groundwater flows from the recharge areas down to the stream, where it discharges. The stream flows down the valley of the watershed toward the ocean.

Courtesy of the Massachusetts Audubon Society, Community Groundwater Protection Project.

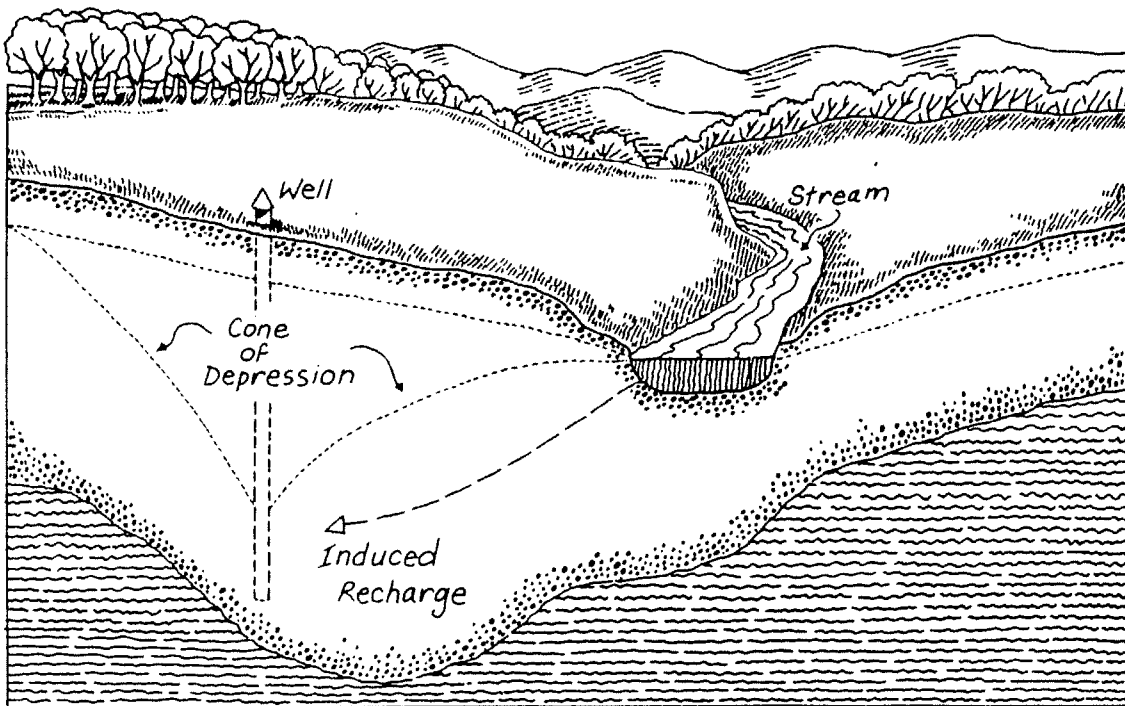


Figure 7.4 Cone of Depression

Pumping a public water supply well may draw recharge from a nearby stream.

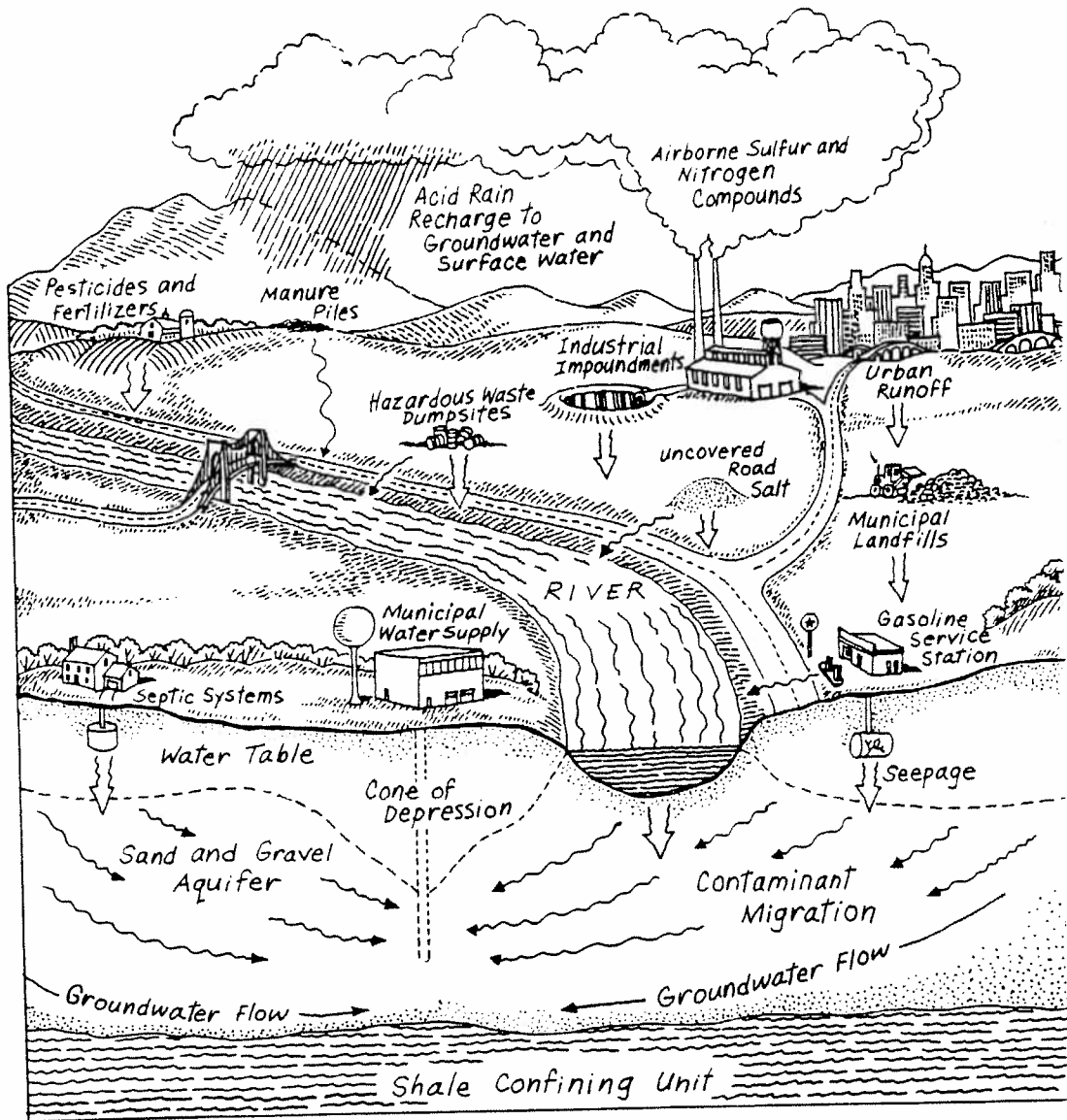


Figure 8.1 Sources of Groundwater Contamination

Figure 17.2 Point sources (such as industrial plants and storm sewer outflow) and nonpoint sources (for example, fields and dispersed litter) of water pollution in a stream. Downward infiltration of contaminant-laden water from the nonpoint sources eventually also pollutes the groundwater.

Diagram courtesy of U.S.D.A. Soil Conservation Service.

