

Basin Profile: Dead Sea Basin

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Water Scarcity Status

- The Basin's feed-waters from the Jordan River have been quickly depleted and mistreated, with up to a 98% diversion rate, resulting in a water crisis.
- The water level of the Dead Sea is dropping by a meter per year.
- Many tourism operations have had to move or go out of business because of the rapidly receding lake shore, and the inconvenience of getting to the water.

Basin Overview

Border of Israel and Jordan

Area: 35,000 square kilometers

Climate: Arid

Basin population: 6,100,000



Figure 1. Map of Dead Sea Basin ("The Dead Sea.")

The Dead Sea Basin extends over six countries and territories, predominantly Jordan and Israel but also the West Bank, Syria and small parts of Egypt and Lebanon. The Dead Sea is fed by the Jordan River, and both are important historical and biblical markers to many faiths.

The Dead Sea is a terminal lake, and its only outlet is evaporation. The Sea has maintained a steady elevational equilibrium of around 400 meters below sea level for thousands of years because of a relatively steady cycle of evaporation and freshwater inflow, but the lake has recently been receding at a very rapid rate due to over-extraction of water from the Jordan River, its primary input. It is considered the world's second saltiest body of water, said to be ten times saltier than the ocean with a 34% salt content, or about 340 grams per liter.

Because of the arid climate, the area around the Dead Sea is sparsely populated, with only a few resorts and settlements. The basin itself provides water to 6.1 million people. The largest town directly surrounding the Sea is the one of Safi, which lies on the Wadi al-Arabah stream in Jordan and has a population of about 448,825. A dam built in 1964 by Israel to divert water from the Galilee for the National Water Carrier has been the major contributor to the water loss in both the river and the Dead Sea. Jordan and Syria have also contributed to the dwindling water supply by building channels and reservoirs to take advantage of another important water source

to the Jordan River – the Yarmouk River. Raw sewage and agricultural waste are being pumped back into the river, causing extreme amounts of pollution.

Because of water scarcity issues in the arid environment around the Dead Sea, there has been a continuous Israeli/Jordanian conflict over water sharing issues. In 1994, after many years of conflict in matters other than water, a Jordan-Israel Peace Treaty was signed, that included a section written to acknowledge water issues between the two arid environments, and stating that “water issues along their entire boundary must be dealt with in their totality” (Wolf 2000). Another significant proposal that has been moving at a rapid pace because of water scarcity is a Red Sea – Dead Sea Conduit. This \$17 billion venture would siphon 1,900 million cubic meters of water into the Dead Sea from the Red Sea, which is about 190 kilometers south. Otherwise known as the “Peace Conduit,” it is the first project that Israel, Jordan and Palestine have worked on jointly. However, many environmental and public safety concerns (as the project runs through a fault line) have complicated this endeavor.

Mineral buildup in the lake has created a large mining industry, specifically for the product potash, a form of salt that contains potassium that is water soluble, which is used all over the world for plant fertilizers. The mineral-rich water also generates a wonderful concoction of multi-faceted healing powers for those with health ailments from psoriasis to arthritis. In this, the Dead Sea area has built much of its economy, opening resorts, hotels, spas, and even cosmetic companies that harvest the powers of the mud and water of the Dead Sea to beautify people all over the world. It is the source to the Ahava Skin Care Company, from the Dead Sea Laboratories. It is a \$150 million dollar a year industry. The Dead Sea Laboratories is the only cosmetic company that owns rights to harvest the mud and natural salts of the Dead Sea. Ahava Skin Care products are sold all over the world. Tourism is also a very large industry

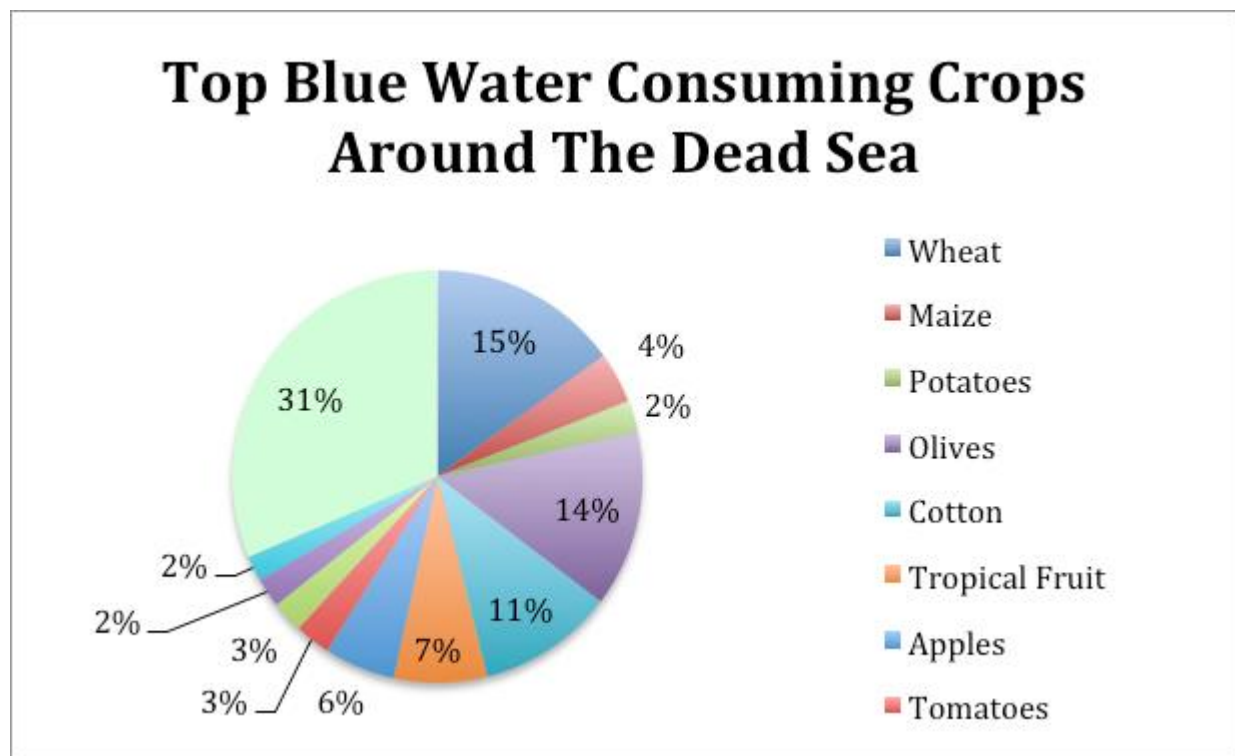


Figure 1. Blue water consumption by crop.

Water Scarcity Impacts

Environmental Impacts

The Dead Sea lacks any mammal or fish species, but one of the more unique features of this water system is its wide variety of strange and rare algae species. They are species that are especially adapted to the extreme levels of salinity, but tolerate fluctuations of freshwater from feed waters and underwater freshwater craters that were discovered on the sea floor recently. Alterations in environment, such as an unusually rainy winter, can cause a

special algae phenomenon, where the algae blooms turn the Dead Sea's floor red, as has happened twice in the past thirty years.

Economic and Social Impacts

Unfortunately, many tourism and spa operations have had to move or go out of business because of the rapidly receding lake level, and the inconvenience of getting to the shore. There is also the dangerous threat of thousands of massive sinkholes, many up to 60 meters deep, which have appeared around the area and threaten to swallow up tourists. Many of the spas, resorts, and hotels have actually relocated to the southern basin of the Sea, where the evaporation pools of the potash mining industries reside and the water level is more consistent.

The Dead Sea is a very important cultural prop for human history, especially for those of the Christian and Jewish faiths. The Sea's main water supply, the Jordan River, is the supposed site of Jesus' baptism by John the Baptist, and thousands of Christians to this day make the pilgrimage to the northern part of the river to be baptized. The Dead Sea is most recently famous for the discovery of the Dead Sea Scrolls, which is a set of ancient documents, written by a group of Jewish thinkers called the Essenes. The disappearance of this body of water would devastate members of these faiths.

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