



The Dead Sea: a highly disturbed water balance, outcomes and possible solutions

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The Dead Sea is a hypersaline terminal lake located in the Dead Sea Rift Valley. Exploitation of water resources in its drainage basin by Israel, Jordan and Syria as well as salt extraction by the chemical plants located in the southern Dead Sea, have severely disrupted the water balance of the lake, resulting in more than 25 meter water level drop during the 20th century. Presently (2006) the Dead Sea level is about 418 meters below mean sea level and lake level continues to drop at an average rate of 1 m/yr. Salt precipitation and accumulation at the seafloor at a rate of about 0.1 m/yr imply that the lake's water reservoir diminishes at an even faster rate than observed. Thus, the current annual water deficient of the lake is over 700 MCM. Yet, because of its salinity and unique Ca-chloride composition, the Dead Sea cannot completely desiccate. If the present situation persists, lake level is expected to stabilize in about 200 years at about -550 m, i.e. some 130 meter lower than present level. The declining level of the Dead Sea results in exposure of mud flats, development of hazardous sinkholes and enhanced geomorphological processes around the lake which impact on daily life and on the development of the region. Restoration of even some of the historical flows to the lake in order to stop this degradation is an unlikely scenario in this water-scarce region. In fact, future inflow is only expected to decrease further, as more of the water still flowing to the Dead Sea (<350 MCM/yr) will be diverted. An alternative to stabilizing and possibly raising lake level to historical levels is being considered today whereby seawater will be conveyed from the Red Sea to the Dead Sea (the "Peace Conduit"). A feasibility study for this project, outlined by the interested parties and to be coordinated by the World Bank, will examine, among others, the impact of mixing seawater with Dead Sea brine. It must first be established that stabilizing the Dead

Sea level by introduction of seawater will not impact negatively on the lake and its surroundings and change their unique characteristics.