Changes in the Level of Lake Lisan/Dead Sea in the Jordan Valley ca. 60,000a to Present

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During the last continental glacial stage, ca. 60,000a to 15,000a, a large pluvial lake, lake Lisan, filled the Dead Sea basin. The maximum level reached an elevation of -180m MSL. At its maximum extent the lake filled the modern valley to a high shoreline underlain mostly by bedrock. Because the drainage basin of the Dead Sea/lake Lisan was closed, lake-level responded to regional climate change.

Previous work on the Dead Sea level curves shows a complicated record with many major oscillations in lake level. In contrast, we have constructed a lake level curve consistent with a near steady state lowering of lake level from -180m at 13,000a to a level very near the present (-400m) ca. 3,000a. The previously published complicated curves are based only on a few isolated C14 dates and interpretations of historical and Biblical records. Our curve, based on extensive archaeological data, does not require major oscillations.

Our data consist of over 100 archaeological sites, mostly on the Jordanian side, that have been well-dated, in addition to published reports of radiometrically dated land snail shells and marginal oolites. Recent surveys using differentially corrected GPS, have confirmed that location and elevation of the critical sites. This data set shows a continual withdrawl of Lake Lisan shorelines to form the present day Dead Sea controlled by climatic change in the region. We argue that Lake Lisan responded in a similar manner to interior-drained lakes in the western U.S., Africa, and South America to climatic warming since the Younger Dryas.