

2 Discovery of vast fluvial deposits provides evidence for
3 drawdown during the late Miocene Messinian salinity crisis

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9 **METHODS**

10 **Seismic interpretation**

11 Reflections were mapped on zero-phase full-stack two- and three-dimensional (2-D and
12 3-D) seismic data in two-way travel time (TWTT), using commercial seismic-interpretation
13 software (SeisEarth® by Paradigm®). High-amplitude peak reflections were used to trace the
14 base and top of the Nahr Menashe deposit (i.e., intermediate erosional surface [IES] and top
15 erosional surface [TES], respectively); the base of evaporitic accumulations was mapped via
16 tracing high-amplitude trough reflections. Thickness maps in TWTT (isochrons) were created for
17 evaporites and the Nahr Menashe via the subtraction of the top and base of the deposits and are
18 displayed in Fig. 3A–3B and Fig. DR3.

19 **Spectral decomposition**

20 Spectral decomposition was calculated on four 3-D volumes using commercial seismic-
21 interpretation software (GeoTeric® by Foster Findlay Associates). The Uniform Constant Q
22 routine was used to maintain an optimal relationship between dominant and bandwidth

23 frequencies, which resulted in a balance between vertical resolution and frequency resolution,
24 respectively (see Fig. DR4).