

Meca River

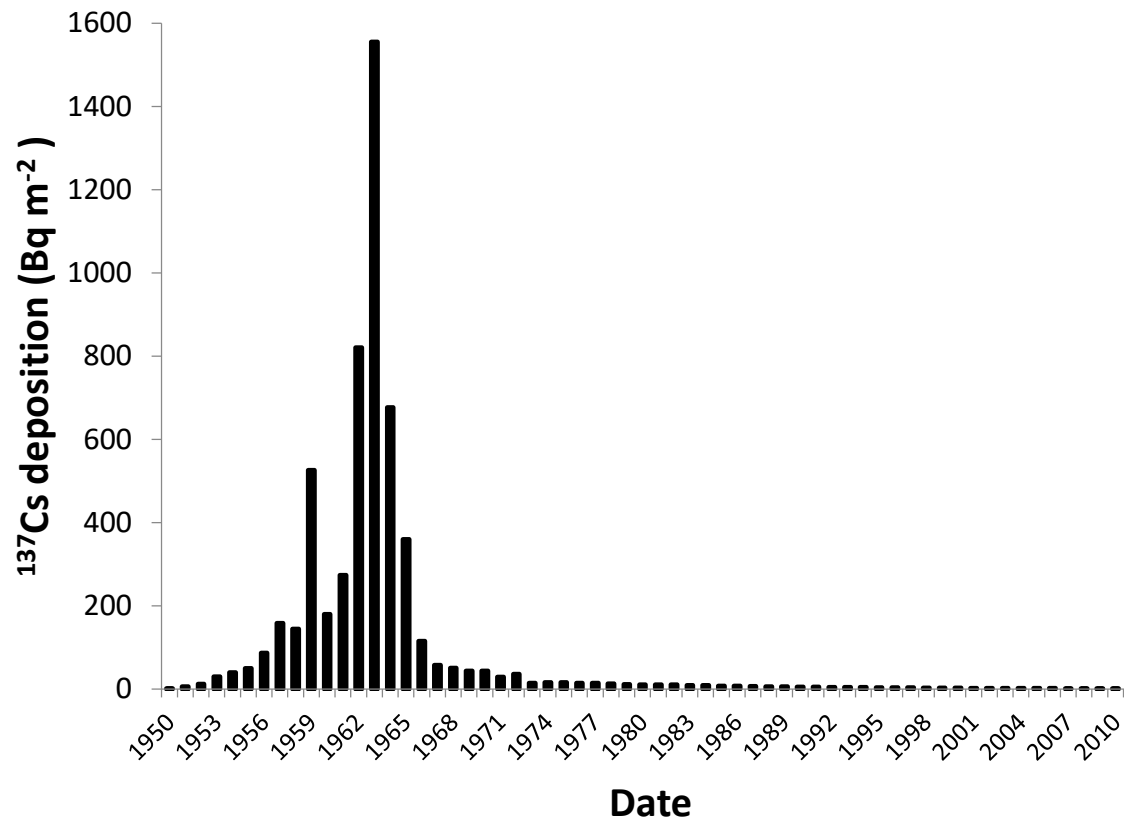
Core site

Dam

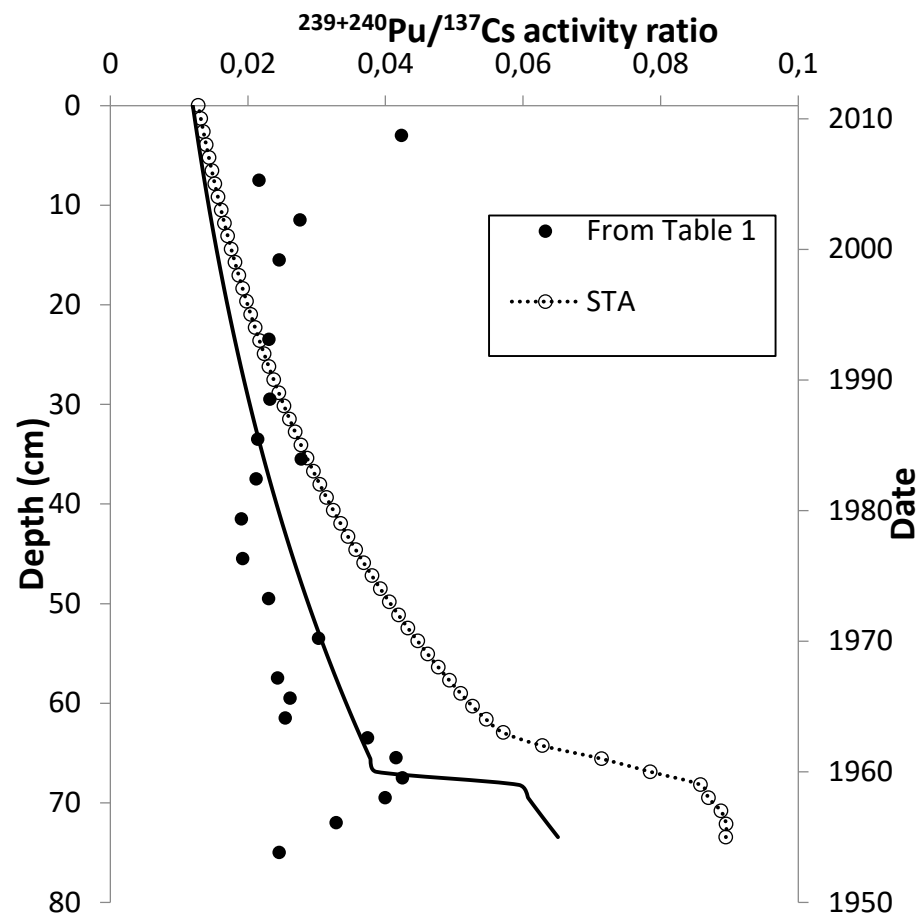
Odiel

Photogrammetric flight : 1956-1957

**Figure ESM-1.** Historical aerial photograph of the sampling site with the approximate location of the studied core before the construction of the dam. Image from the Spanish Instituto Geográfico Nacional (IGN; <https://fototeca.cnig.es/>), photogrammetric flight: 1956-1957.



**Figure ESM-2.**  $^{137}\text{Cs}$  atmospheric fallout recorded at Gibraltar (south of Iberian Peninsula) for the period 1955-1985 (Wright et al., 1999), extended to 1950 (based upon recorded data in Denmark; Aarkrog et al., 1992) and to 2011 (by extrapolating the exponential declining observed for the period 1975-1985).



**Figure ESM-3.** Measured (dots)  $^{239+240}\text{Pu}/^{137}\text{Cs}$  activity ratios vs depth in the sediment core from Sancho Reservoir along with those estimated from the annual atmospheric deposition (continuous line) and the STA-derived fluxes onto the SWI (open circles), both decay corrected to the date of sampling.