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A 1921 Western Australian tropical cyclone underscores the utility of historical records for hazard analysis in areas of marginal cyclone influence.

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The Shark Bay Marine Park in Australia is a UNESCO World Heritage Property in a region of marginal tropical cyclone influence and its sustainability requires a deep consideration of cyclone hazards. Here, we analyse historical records of a large storm surge from a Tropical Cyclone in 1921 that generated remarkable overland flow leaving fish and sharks stranded over 9 km inland. We weight information from the historical archives in a new framework and model event scenarios to reconstruct its magnitude. The plausible event scenarios imply that the cyclone was a marginal Category 4 or 5 storm with a return interval equivalent or slightly greater than the regional planning level. The outcome underscores the importance of examining the pre-instrumental events in areas of marginal cyclone influence as they are commonly of key economic importance. Our work also implies that TC risk affects marine conservation in the Shark Bay World Heritage Property and requires attention.