Determining the evaporation regime for small, intermittent estuaries

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# ABSTRACT

# This project provides a methodology to calculate the evaporation component of the water balance for small estuaries, and demonstrates the procedure by application to two such estuaries, Durras Lake and Lake Wollumboola, on the South Coast of NSW, Australia. There are numerous small intermittent tidal estuaries on most temperate coasts (Roper et al., 2011; McSweeney et al., 2017). Such estuaries are generally known as Intermittently Open or Closed Lakes/Lagoons (ICOLLs) in Australia. To manage these systems effectively it is necessary to be able to predict the probability of breaching of an ICOLL entrance barrier for management of local flooding, planning and design of works. A key indicator for management is the probability of a critical estuary water level being reached, where data show that a natural breach may be expected, or at a level at which protection of assets or amenity requires an assisted breach. This requires a fundamental preliminary step to adequately characterize the parameters that are related to the approach of the water level to these pre-determined management levels. Modelling of these small systems is difficult because catchment flows are rarely available and rainfall and estuary water level records are usually limited in duration and location. This paper provides an indication of how this information may be obtained and presents a method for obtaining the open water evaporation, a key quantity in the water balance. The methodology provides quantitative relationships that may be used in other estuaries in this region.

# REFERENCES

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