

This technical report has been previously published by the Queensland Government. The technical information in this publication is still current, however it may contain references to former departmental names. Please refer to www.qld.gov.au/dsitia for up-to-date contact details for the Department of Science, Information Technology, Innovation and the Arts.



Australian Government

Queensland
Wetlands Program



Wetland Mapping and Classification Methodology

Overall Framework

A Method to Provide Baseline Mapping and Classification for Wetlands in Queensland

VERSION 1.2

Attachment 7d

**Mapping Surrogates
Salinity is greater or equal to 34ppt
(Within an Embayment)**

Contents

1. Purpose	2
2. Background and Principle	2
3. Surrogates.....	2

1. Purpose

The primary purpose of this section is to provide guidance on the delineation of estuarine and marine systems within an embayment.

2. Background and Principle

Salinity is the indicator used to delineate between estuarine and marine systems. However, the most outer boundary (marine side) of estuaries is physically characterised by strong mixing with adjacent coastal waters and has water characteristics similar to this latter zone. The definition of the outer boundary of the estuarine zone is that area which is impacted by a single tidal excursion on an average tide.

The boundary between the estuarine and marine systems is difficult to establish, as by its very nature the boundary will vary over time and space. Consequently, the surrogates will only establish a broad delineation between the two systems.

3. Surrogates

The following surrogates are in order of preference.

- *A line based on salinity of 34ppt represents the primary surrogate.*
- *The secondary surrogate is represented by residence time, which refers to the time that a water source spends in storage before moving to a different part of the hydrological cycle, i.e. it could be argued that it is a rate of replenishment. Examples are given in Table 1.*

Table 1. Residence times for different systems.

Water Type	Volume (x10⁶ km³)	Residence time
Oceans and Seas	1370	~ 4000 years
Lakes and Reservoirs	0.13	~ 10 years
Swamps	<0.01	1-10 years
River Channels	<0.01	~ 2 weeks
Soil Moisture	0.07	2 weeks - 1 year
Groundwater	60	2 weeks - 10 000 years
Icecaps and Glaciers	30	10-1000 years
Atmospheric Water	0.01	~ 10 days
Biospheric Water	<0.01	~ 1 week

In South-East Queensland a model developed for Moreton Bay has shown estuarine waters that have a residence time of less than 30 days. This will vary depending on the type of estuary (see estuary types below).

- *The third surrogate* is depth. The Moreton Bay study shows a close link between the residence time and the depth contour of 6m below lowest astronomical tide (LAT). Due to the extended time and cost associated with the collection of residence time information, and because this is a remote mapping project, it has been determined that in many areas where residence time information is not available then depth is to be used. The depth, as previously stated, is 6m below LAT or in some cases the closest estimate (5m preferred; if not available 10m).

For further technical information please refer to the Technical Specifications and Data Recording Standards (Decision Rule 11 in the main text of the Method).