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Australian Government

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Wetland Mapping and Classification Methodology

Overall Framework

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

VERSION 1.2

Attachment 7a

Mapping Surrogate Tidal Salinity Influence

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1. The Purpose

The primary purpose for distinguishing between areas influenced by tidal salinity and those that are not influenced by tidal salinity is:

- To separate freshwater and estuarine systems; and
- To separate marine and freshwater systems in the situation where the freshwater runs directly into the ocean or over the beach, i.e. no estuarine component present.

2. The Principle

The primary mechanism for determining tidal salinity influence is through water sampling, i.e. salinity is a measure of the salt content of water. However, as this is a remote based mapping project that is designed to use existing data, it is necessary to use mapping surrogates to establish the cut-offs between fresh and saline waters.

There are two scenarios where the cut-off between those areas influenced by salinity and those without need to be determined. These different scenarios require different approaches to establishing the cut-off line.

The two scenarios include:

- where the cut-off is across a channel (**Longitudinal cut-off**); and
- where the cut-off is outside a channel (**Latitudinal cut-off**).

Due to the distinctive morphological difference associated with the channel, the surrogates for these two scenarios are different.

As tidal salinity gradually decreases upstream, a decision must be made on where the salt concentration is deemed to be low enough for the water to be considered fresh. For the longitudinal boundary this line has been determined to be mean high water springs (MHWS) and for the latitudinal boundary this line is represented by the highest astronomical tide (HAT). This means that an area of tidal influence represented by

the freshwater area that is moved back and forward by the tide but not saline is included in the freshwater or “riverine” part of the system.

3. The Surrogates

3.1 Longitudinal Boundary

The following are, in order of preference, the surrogates to be used for the longitudinal boundary:

- *The Primary surrogate* is represented by a salinity level of 0.5ppt (these data rarely exist).
- *The secondary surrogate* is represented, in many cases, by a barrier such as a barrage or weir. Note this may be a natural barrier such as sand on a beach or a cliff.
- *The third surrogate* is derived from the pre-clear coverage based on the line between estuarine and non-estuarine vegetation. The line between these vegetation types will need to be manually drawn and added to the RE coverage

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

3.2 Latitudinal Boundary

The following are, in order of preference, the surrogates to be used for the latitudinal boundary:

1. *The primary boundary* is represented by airborne laser altimetry (LIDAR) or similar.
2. *The secondary surrogate* is represented by the boundary between estuarine and other vegetation / water.

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