Manning River (Djarii Bila) Entrance Project: Preliminary Environmental Investigations for a Permanently Open Entrance

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Summary
The Manning River has two entrances, both of which are subject to shoaling. This compromises navigational access for vessels travelling through the entrance. Some members of the community and businesses consider that the shoaling of the entrance channels is limiting the economic and social development of the region. In response to their concerns, Transport for NSW undertook to prepare a Strategic Business Case to evaluate the feasibility of a permanent entrance to the river. The Preliminary Environmental Investigation supported the Business Case with respect to the potential environmental impacts of the proposal, planning approvals pathway, and biodiversity offsetting requirements.

Keywords: environment, climate change, entrance training

Background
In March 2020 the NSW Government convened the Manning River Taskforce to review options for a permanent entrance to the Manning River. A permanent entrance would provide a more reliable, safer environment for vessels navigating the channel. This in turn would result in reduced risk to life and damage to vessels. Very few vessels attempt the bar crossing and the Manning River is not accessible to larger vessels, such as ocean-going yachts. It is considered by the community and business stakeholders that the lack of safe navigational access has materially constrained the socio-economic development of the Manning River valley.

The Taskforce recommended that a Strategic Business Case (SBC) be prepared to investigate the feasibility of a range of options to manage the entrance, considering the potential impacts and opportunities of a permanent entrance to the Manning River.

Rhelm was engaged by TfNSW to prepare the SBC. The Preliminary Environmental Investigation (PEI) is a key supporting document for the SBC.

The Manning River Estuary
The Manning River is located on the Mid North Coast of NSW and is known as Djarii Bila to the Biripi people, the traditional custodians of the land and waters (refer Figure 1). It is the only dual delta estuarine system in the southern hemisphere, with a northern entrance at Harrington/Manning Point and a southern entrance at Farquhar. It flows eastward from the Barrington Tops and has a tidal limit at Abbot Falls, just upstream of Wingham (around 55km from the entrance at Harrington).

Figure 2 shows the Manning River entrance at Harrington, including the northern breakwater and training wall and shoaled entrance channel.

Navigation of the entrance has been an issue since European settlement of the region in the 1820's (Coltheart, 1997). Between 1895 and 1904 river training and breakwater structures were built along the northern shoreline of the inlet to control the Manning River entrance at Harrington, and the southern and northern spur walls completed in 1927. However, the high cost and development of alternative road and rail transport meant the second, southern breakwater was never constructed. As a result, the navigational issues were never resolved and lack of a reliable and safe navigational channel has been an issue ever since.

The tourism and fishery industries are directly affected by the navigational challenges associated with travelling between the river and coastal waters, constraining potential viable operations. Similarly, vessels in coastal waters (e.g. yachts and larger vessels) are physically unable or may choose not to enter the Manning River due to the risks associated with the entrance crossing. More broadly speaking, the navigational issues have influenced patterns of foreshore development along the lower Manning River and levels of boating activity.

Figure 2 View looking southwest towards Harrington from the ocean, showing the northern breakwater and training wall, and shoaled entrance (27 August 2021)

It is considered that this has hampered the development of the regional economy, noting that the Manning River valley has a high proportion of relatively low socio-economic welfare communities.

Approach to the PEI

The purpose of the PEI was to provide information and recommendations to inform the options investigations and strategic designs for the proposal in order to:

- Avoid or minimise environmental impacts where possible;
- Identify opportunities to realise benefits; and
- Advise on the likely approvals pathway and assessment requirements, should the proposal proceed.

Following an options development, analysis and evaluation (value management) process by the multi-disciplinary project team, three strategic options were shortlisted for the proposal:

- A fully trained northern entrance;
- A fully trained southern entrance; and
- A sand transfer system.

Due to complexity of the proposal and uncertainty regarding potential impacts, the traditional approach to a PEI (i.e. a desktop review of available information) was augmented with limited field investigations, Aboriginal stakeholder engagement, and numerical modelling.

Key Potential Environmental and Social Impacts

Based on the findings of the PEI, the key environmental impacts of a permanent entrance to the Manning River may include:

- Beneficial outcomes such as:
    - an increase in the number and range of vessels using the Manning River, with resultant stimulation of river and coastal dependent economies, and
    - Potential reductions in flood hazard for the lower floodplain; and
- Potential negative impacts including:
    - Increased impact of boating and associated recreational activities on the ecological health of the estuary, and potential increased levels of conflict and demand for infrastructure by users;
    - Potential impacts to productive agricultural land (i.e. due to changed inundation patterns),
    - Adverse direct impacts to biodiversity (i.e. vegetation clearing and loss of seagrasses and important intertidal habitat),
    - Construction traffic and construction noise (including underwater noise);
    - Direct and indirect impacts to heritage values and sites, cultural and spiritual values, and access to Country for the Biripi, and
    - Potential impacts to maritime heritage.

There is at this early stage a high degree of uncertainty about the following impacts:

- Potential for changes in important estuarine and coastal processes including:
    - Tidal planes and the range of estuarine water levels,
    - Tidal prism and rates of tidal flushing and water quality,
    - Currents and patterns of bed and bank erosion and deposition,
    - Patterns of sediment transport in the coastal compartment and into/out of the entrances, and
    - Entrance behaviour, whereby works at one entrance will alter the behaviour of the other entrance;
- Changes in variability of groundwater levels and quality, including in relation to acid sulfate soils and acid drainage;
- Potential indirect impacts to estuarine biodiversity and ecological processes arising from changes in estuarine processes mentioned earlier. This has implications for a number of conservation significant species such as migratory and resident shorebirds; and
- Potential for improved water quality for oyster aquaculture.

Discussion and Conclusions

There is generally a high level of uncertainty in the potential magnitude and scale of impacts associated with establishing a permanent entrance to the Manning River. In addition, the impacts would likely be realised over a very long timeframe (potentially decades) and be difficult to differentiate from other sources of variation in the environment (e.g. climate change).

Should the proposal proceed, the next stage of the project would require careful scoping of investigations to be undertaken for an environmental impact assessment, field activities to establish baseline conditions and a commitment to environmental monitoring to provide confidence to internal stakeholders, regulatory agencies and the community that the impacts of the proposal are appropriately identified, avoided, and mitigated.

References

Coltheart, L. (1997), *Between wind and water: a history of ports and coastal waterways of New South Wales*, Southwood Press Pty Limited, Marrickville, NSW.