
TINLEY MANOR SOUTH BANKS COASTAL DEVELOPMENT

ESTUARINE IMPACT ASSESSMENT

Peer Review of Specialist Assessment

March 2015



Details of Reviewer

- Name: Cameron Mclean
- Organisation: Source to Sea
- Qualifications: MSc (Estuarine Ecology)
- Experience: Estuarine Ecologist (eThekweni Municipality 2009-present)
Estuarine Scientist (Marine and Estuarine Research -
contractual basis 2007-2013)

Recent Publications:

- McLean, C.T. 2013. The Fish Fauna of the uMzimvubu Estuary. In: Marine and Estuarine Research. Determination of the Ecological Reserve for the uMzimvubu Estuary. Department of Water Affairs Report.
- McLean, C.T. 2013. The Fish Fauna of the Limpopo Estuary. In: Forbes, N.T., Forbes, A.T., Stretch, D., Styles, D & Mclean, C.T. Status and Functioning of the Limpopo Estuary (Mozambique). Report for South African, Zimbabwean and Mozambique Government.
- McLean, C.T., Boon R. & Davids, R. 2012. uMdloti Estuary Management Plan: Situation Assessment Report. Pp. 80
- McLean C.T. 2012. Influence of Climate Change on Mangrove Communities. In: Pammenter, N., Berjak, P., Campbell, G., & Hockett, B. (eds). In the Mangroves of Southern Africa. Wildlife and Environmental Society of Southern Africa.
- McLean C.T. 2012. Durban's Estuaries: Current Status, Threats and Future. 2012 Symposium of Contemporary Conservation Practice, KZN.
- McLean C.T. 2012. Durban's Estuaries: Current Status, Threats and Future. 2012 South African Society for Aquatic Sciences Conference, Cape St Francis.
- McLean, C.T. 2012. Fish Fauna of the uMzimkulu Estuary. In: Marine and Estuarine Research. Rapid determination of the Environmental Water Requirements for the uMzimkulu Estuary. Department of Water Affairs Report.

1. Introduction and Purpose

NEMA: EIA Regulations (Section 13(1)(2), December 2014) requires specialist reports to be peer reviewed should they be undertaken in-house by the same company undertaking the environmental impact assessment. Peer reviews are required to validate the independence of the assessments undertaken as well as to evaluate the approach and methodology applied and the conclusions reached.

Source to Sea were appointed by Tongaat Hullet Developments to undertake a peer review of the Tinley Manor South Banks Coastal Development: Estuarine Impact Assessment prepared by Royal Haskoning DHV.

2. Scope of Assessment

This peer review assessed the Estuarine Impact Report in terms of the minimum requirements for such studies, as detailed in Annexure 6 of the Environmental Impact Assessment Regulations (Dec 2014). The review outlines the minor and major additions and amendments which are required to ensure that the Report is wholly compliant with the regulations above.

In addition, a comprehensive review of the identified impacts and mitigation contained in the report was conducted. Potential shortcomings and areas of concern have been highlighted where the Reviewer is not necessarily in agreement with the conclusions reached in the report.

The issues raised are by no means definitive and have been highlighted as areas where further detail and/or justification is required within the Report

3. Report Review

a. Description of Affected Environment

Independence

This section is scientifically robust, defensible and without bias.

Approach and Methodology

Best practise methodology is used throughout the report, including the 5m contour which is used to delineate the Estuarine Functional Zone.

Reviewer Notes: 1) *The use of the 5-m contour has become best practise in the delineation of estuaries, and more specifically Temporary Open/Closed Estuaries. The area includes the dynamic processes that typify estuarine systems viz, changes in channel morphology, sediment stored or eroded during floods, and changes as a consequence of coastal storms (Turpie 2004). The 5m contour also includes floodplain and estuarine vegetation, habitats that play a critical role in the ecology of the system. Sandbars reach a maximum height along the KZN coastline of approximately 4.5 metres. During mouth closure water levels rise to the height of the sandbar, the 5m contour incorporates this process as well as a buffer that takes*

into account changes as a result of climate change-induced sea level rise. This could be included to provide clarity to stakeholders outside of the estuarine community.

The study provides a detailed review of the abiotic and biotic components of the uMhlali Estuary. All relevant research has been included and correctly interpreted.

The document highlighted the relative significance of the system from a regional and national perspective. The importance of the system for achieving national estuarine biodiversity targets and the Recommended Ecological Category were also discussed.

b. Potential Impacts of Proposed Development

Independence

This section is scientifically robust, defensible and without bias.

Approach and Methodology

Current threats impacting the system have been detailed in this section, including: the weir that is significantly reducing available estuarine area, accelerated sedimentation as a consequence of insensitive land uses, raised nutrient concentrations and alien invasive species.

Reviewer Notes:

The report has comprehensively addressed most direct and indirect impacts associated with the proposed development, however, the potential impacts of the increased discharge from the Tinley Manor Waste Water Treatment Works (WWTW) requires further attention. The engineering service report (SMEC, December 2014) suggest that the proposed development will add 6.75 MI/day of treated effluent into the system via the WWTW, and has the capacity to discharge 18 MI/day when the works is operating at full capacity. The report states that environmental authorization has been received for this WWTW. The relevant EIA reference numbers for the WWTW and approval for discharge into the uMhlali Estuary should be included in the report. The approval of the discharge into the system, water quality conditions and associated specialist reports represent the most significant gap in the report.

The uMhlali estuary has been selected at a national level as part of a core set of estuaries, critical to achieving biodiversity targets. It is recommended that the Extent of the Impact therefore be upgraded to "National". Duration of the water quality impact is also likely to be "long term".

The report correctly cites the reserve determination study (DWA 2014) for the uMhlali Estuary. The study was, however, conducted at a "Low" confidence level, which should be reflected. The author and reserve determination study (DWA 2014) state the overall impact of the WWTW will be highly negative. The final conclusion does not include this key outcome.

The proposed layout was reviewed in terms of the expected impacts to the Estuary and the current best practice around suitable setbacks to the Estuarine Functional Zone being applied.

Reviewer Notes: *The prescription of no development within 1:100 year floodline or 10 m contour is, when compared to similar assessments in or near estuaries, below average (and may compromise the mitigation of impacts) (Demetriades & Forbes, 2009). Further justification may be required for the use of these parameters as the prescribed buffer. Of particular concern are those areas where the steepness of the site results in the 1:100 year flood line and the 10m contour being very close to the Estuarine Functional Zone (5m contour). In these instances the risks associated with increased runoff velocities, sedimentation and pollution from development will occur very close to the sensitive receiving environment with limited opportunity for protection.*

The removal of the weir has also been considered as a potentially significant mitigation measure as this will result in the restoration of a large portion of core estuarine area and consequently improve the resilience of the estuary.

4. Conclusion and recommendations

The conclusions reached are supported by literature and previous relevant studies. The recommendations made are adequate to ensure mitigation of potential impacts. The report compilation and content is of good quality and has identified and addressed most of the potential impacts sufficiently. Suggested additions and amendments should be considered and incorporated to add further scope to the aspects covered. Specific areas requiring further detail include the assessment and conclusions around potential impacts associated with the 6.75 ML/day outflow from the Tinley Manor WWTW, which is likely to significantly modify the hydrological and nutrient dynamics of the estuarine system.

The Tinley Manor South Banks Coastal Development layout proposal will place additional pressure on adjacent environmental systems, including the wetlands, drainage lines and receiving estuary. It is critical that the mitigation measures prescribed in the estuarine assessment and this report are implemented at an early stage to ensure that ecosystem functioning is at an optimal level to buffer any negative impacts.



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