

Sediment in the kanamaluka / Tamar estuary

Management option – sediment raking

Arising from community concerns about sediment in the kanamaluka / Tamar estuary, the TEER Program undertook a comprehensive evaluation of options for sediment management in June 2021. The report was prepared and reviewed by a number of authors and peer reviewers with a wide range of expertise in flooding, engineering, dredging, contaminated waste, legislation, environmental science, estuarine ecology, economics and environmental modelling. It includes a review of the natural processes influencing sedimentation, the ecosystem function of mudflats, and the history of sediment management. This is one of 13 fact sheets created to summarise the report findings.

Key points ^a

- Sediment raking has been tried before and was not effective.

Expected outcomes from this management option:

- Raking reduced visible mudflats at low tide but substantially reduced depth in navigation channels.
- Sediment raking releases nutrients and heavy metals, impacting water quality the entire length of the estuary.

What is sediment raking? ^b

Sediment raking is the process of disturbing sediments to release them into the water column so they can be carried out on either outgoing tides or river flows. There are several sediment raking methods, including agitating sediment with a raking implement, or 'prop washing' whereby propellers are used to create a strong current.

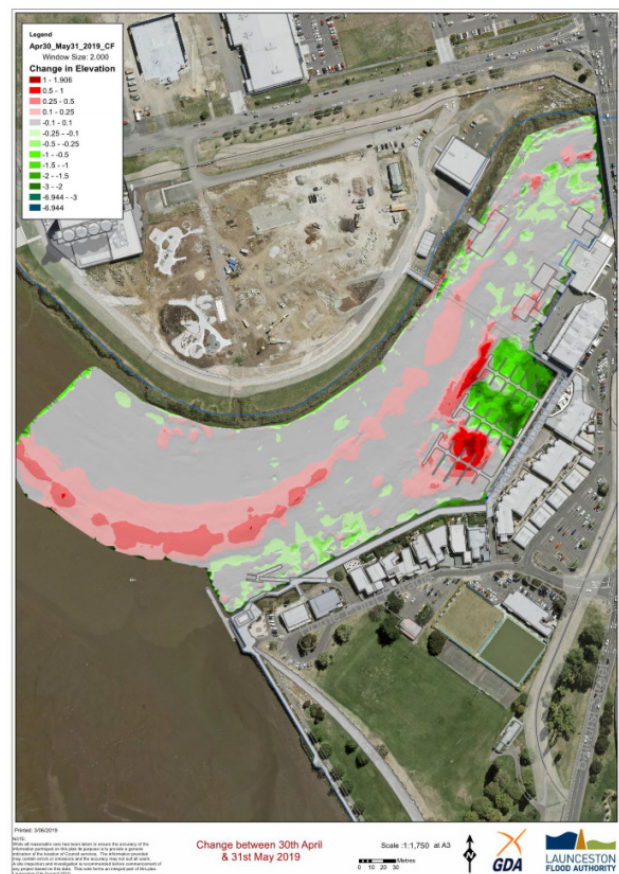
What would sediment raking do? ^c

Data collected during previous raking in the kanamaluka / Tamar estuary shows that:

- sediment levels in the upper estuary were not reduced long-term. Any reduction in sediment lasted only a few months ^d.
- nutrients and heavy metals attached to sediment were released into the water, resulting in degraded water quality for several weeks after raking ceased along the entire length of the estuary ^e.

Logistical challenges ^b

Sediment raking would require a permit issued by the Tasmania Parks and Wildlife Service with conditions informed by the EPA. It is likely that previous impacts on water quality and a lack of evidence for the effectiveness of sediment raking activities would make obtaining a permit challenging.



Above right: Effects of sediment raking (prop washing technique) in the Seaport Marina on depth in the lower North Esk, between the 30 April and 21 May 2019. Red areas show a loss of depth, with green indicating an increased depth. Map produced by City of Launceston.

Flood risk ^e

Sediment raking is expected to have no impact on flood risk.

Environmental impacts ^e

Sediment raking activities have been shown to have significant negative impacts on water quality.

Following sediment raking activities, increased levels of heavy metals and nutrients persisted for up to three weeks after each raking event, with impacts reaching at least as far as Clarence Point, 60 km down the estuary.

Degraded water quality can be expected to negatively impact aquatic ecology including threatened species, as well as migratory fish and birds that rely on the kanamaluka / Tamar estuary.

Social impacts ^f

Impacts on the recreational use of the kanamaluka / Tamar estuary depends on the type of sediment raking being undertaken.

Overall, impacts on recreational users are mixed with some areas potentially experiencing increased navigability and access, and others experiencing a decrease. Any alteration to access and navigability would be temporary.

Other recreational activities, such as fishing, can be expected to be negatively impacted due to the degraded water quality.

Cost ^e

Costs for sediment raking vary, depending on the frequency of raking.

More information

For more information, please visit www.teer.org.au to access the other fact sheets in this series.

This fact sheet has been developed from findings in *Environment, flooding and aesthetics; sediment in the kanamaluka / Tamar estuary*, which is a comprehensive evidence-based review of sediment management options.

For more information, refer to the full report, available from tamarestuary.com.au

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Evaluation Summary - what would this management option achieve?

Channel depth	Mudflat extent	Flood risk	Social impact	Environmental impact	Estimated cost
Moderate loss	Small reduction	None	Slightly negative impact	Extreme negative impacts	\$5,000+ per day of raking



Sediment raking reduced visible mudflats at low tide, but substantially reduced depth in navigation channels. Photo: Kathryn Pugh, City of Launceston.