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Sediment in the kanamaluka / Tamar estuary
Management option – dredging

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]

Expected outcomes from this management option:

- Dredging is associated with significant negative environmental impacts.
- Obtaining required permits and high ongoing costs pose significant challenges.
- Reduction in mudflats is likely to be minimal and temporary, and ongoing intervention would be required.

Dredging options [b]

Various options for dredging the kanamaluka/Tamar estuary have been proposed - two options were considered in the sediment management evaluation:

1. a reduced campaign to maintain small vessel, low tide navigability in and around Home Reach and the Yacht Basin, requiring dredging 14 weeks out of the year; and

2. a full campaign extending the navigation channel into the lower North Esk, with a wider channel and flatter banks, requiring dredging 37 weeks out of the year.

What would dredging do? [c]

Based on modelling and previous dredge campaigns, it is expected that both small- and large-scale dredge campaigns would see temporary widening and deepening of the estuary channel, with minimal impact on mudflats.

Data collected following previous dredge campaigns found that sediment returned rapidly once dredging stops. Therefore, frequent, on-going campaigns would be necessary to sustain any reductions in sediment.

Logistical challenges [d]

There are substantial permitting and legislative challenges associated with dredging. Historic dredge campaigns were not subject to modern environmental standards, which generally restrict dredging to restoring navigability and environmental restoration [e]. It is therefore unlikely that permits would be available to dredge mudflats in the upper estuary.

There are also challenges associated with the treatment of dredge spoil [f], which poses a risk to water quality with the potential for acid, heavy metals, and excess nutrients to leach into the environment.

Flood risk [g]

It is unlikely that dredging will have any significant impact on peak flood levels.

A mix of sediment and water (dredge spoil) from dredging operations in the upper estuary being pumped into the West Tamar silt ponds. Photo: City of Launceston.

Environmental impacts [g]

Dredging is associated with significant negative environmental impacts, including:

- increased turbidity and decreased light penetration, which impacts aquatic plants and animals;
- resuspended sediment is likely to release contaminants including heavy metals and excess nutrients;
- Likely decreased dissolved oxygen driven by increased nutrients;
- risk to water quality through the potential leaching of pollutants from dredge spoil; and risk to threatened plants and animals, migratory birds, as well as the Key Biodiversity Area and Important Bird Area of the upper estuary.

Social impacts [h]

Any potential improvement in navigability is expected to be temporary and restricted to the channel. Dredging equipment can present a barrier to recreation and be unsightly. As found in previous dredging campaigns, mudflats are not expected to be reduced long-term.

It should be noted that current channel depths are navigable, so actual benefits to users of increased depth and channel width may be small.

Cost [c]

The costs of dredging campaigns are likely to be at least $15 million per year for a smaller program and over $40 million per year for a larger program. Given the natural processes that push estuaries to return to a 'default' state (based on tidal prism which is the volume of water moving with the tide), any dredging campaign can be expected to be on-going rather than a one-off activity.

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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e: page 114 | f: page 115 | g: page 121 | h: page 126

Evaluation Summary - what would this management option achieve?

Channel depth	Mudflat extent	Flood risk	Social impact	Environmental impact	Estimated cost
Moderate to large *temporary* increase	No change	None	No change	Moderate to significant negative impacts	$15-$40 million per year

Water in silt ponds with high levels of acid and iron.

Dredging offers minimal, temporary benefits to recreational users.