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Healthy waterways together

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Sediment in the kanamaluka / Tamar estuary

Management option – increased flows down the South Esk

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]

- Construction of Trevallyn Dam didn't cause sedimentation to increase.
- Increased flows through Trevallyn Dam are expected to remove less than 2 mm of sediment in the upper estuary.
- Any sediment that is removed is likely to return within three months under normal conditions.

What is the option to increase flows? [b]

It has been proposed that increasing flows down the South Esk River into Cataract Gorge could remove sediment from the upper estuary. Not all options proposed by the community for increasing flow are technically feasible due to the small size of Lake Trevallyn, which limits water availability. Impacts here are based on modelling of a feasible flow release of between 20 – 50 cubic metres per second (cumecs) from Lake Trevallyn over several days.

What would increased flows do? [b]

Historic data indicates that construction of Trevallyn Dam had little if any impact on sedimentation in the upper estuary. Measurements of channel depth and width, as well as data on mudflat and wetland extent date back to the early 1800's - before the estuary was heavily modified from dredging and infilling.

Trevallyn Dam supplies 25% of Launceston's annual water supply, and 4% of the state's power.

Comparisons to this early data indicate that the channel is in fact now deeper, with narrower mudflats, than would naturally have been the case.

Trevallyn Dam was constructed in 1955, a time when large scale annual dredging was undertaken in the upper estuary. Dredging stopped in 1965 and data shows sediment returning to pre-dredging levels once programs stopped. It is likely that the timing of dam construction coinciding with the end of large-scale dredging has resulted in community perceptions about the role the dam played in sedimentation of the upper estuary.

Modelling based on releases of 20-50 cumecs indicates that reductions in sediment accumulation in the upper estuary would be minimal (<2 mm), and any mobilised sediment would return within three months.

Logistical challenges [b]

The scale of flow release would require enough inflows to Trevallyn Dam. A release of 20 cumecs can only be sustained for 5 days, before effectively emptying Trevallyn Dam. Flow releases require sufficient water availability which may not be available in dry years.

Flood risk [a]

Increased releases from Trevallyn Dam are not expected to impact flood risk.

Environmental impacts [a]

With little to no impact on sediment in the upper estuary, increased flows from the South Esk are expected to have minimal environmental impacts.

Modelling shows the suggested flow releases may lead to small increases in total suspended solids for the duration of the release, but will have minimal, if any, environmental impact.

Social impacts [a]

With no significant impact on sediment in either the channel or mudflats, increased flow is not expected to have any impacts on recreation or navigation.

Cost [b]

In terms of lost revenue from electricity that would otherwise have been generated, a release of 100 cumec days was estimated to cost approximately $110,000, although this could vary substantially depending on power prices.

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
a: page 152 | b: page 151

Cataract Gorge downstream of Trevallyn Dam on the South Esk River.

Evaluation Summary - what would this management option achieve?

Channel depth	Mudflat extent	Flood risk	Social impact	Environmental impact	Estimated cost
No change	No change	None	None	None	$110,000 in lost revenue per 2-5 day release