

Major sources and fate of sediments in streams, wetlands, estuaries and bays to inform management opportunities.

Project B2:
Sediment Budget

This project will improve conceptual models of urban and rural sediment budgets, quantify the role of urban construction phases in sediment supply and validate sediment management tools.

This research program aims to build on recent work on sediment budgets in urban headwater settings, refining the urban sediment budget (see Figure 1), and investigating observations of runoff and sediments in rural and peri-urban areas.

The project will characterise the fine and coarse-grained sediments loads for urban and rural catchments, in addition to identifying the potential impacts of altered sediment regimes. It will build on the development of the dSednet model of Westernport Bay catchment, validating the contributions of different land uses and quantification of sinks in the model.

Methods

A desktop analysis will be used to conceptualise (and quantify, where possible) a catchment-scale sediment budget for urban and rural catchments of the Melbourne region, with case studies in the Westernport Bay catchment and in the rapidly developing western region.

Working across these two very different catchment settings will allow the project to understand the role catchment context plays in controlling the sediment budget. Existing work to quantify the sediment budget in Westernport using dSednet will provide a starting point to validate and build upon.

The latest evidence of sediment liberation and transport in urban settings means the assumptions in current models are outdated, and opportunities exist to draw upon research conducted within

the Melbourne Water region.

The sediment budget will draw upon, and develop, spatial layers including runoff, lithology, land cover, land use and slope. Field-based research will be used to measure sediment sources, transport and sinks, and verify inputs and outgoings.

Outcomes

- 1) improved conceptual models of the urban and rural sediment budget,
- 2) quantification of the role of urban construction phases in sediment supply,
- 3) dSednet model validation and guidance for future modelling; and
- 4) recommendations and tools for prioritising appropriate management interventions.

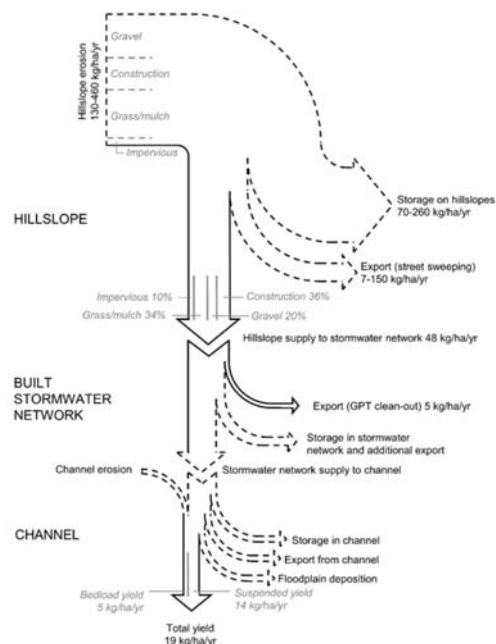


Figure 1. Conceptual coarse-grained sediment budget for an urban catchment to be extended to

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