

Resnagging the River Murray

The Living Murray program was established in 2002 in response to evidence that the health of the River Murray system is in decline. The Living Murray's first step focuses on improving the environment at six 'icon sites' along the River.

As part of The Living Murray's environmental works and measures program, a resnagging and riparian restoration project is being conducted on the River Murray, between Hume Dam and Yarrowonga. This is the largest program of its kind in Australia.

The past removal of snags from the River Murray has had a negative impact on the ecology of the River. Snags are a vital part of a healthy River Murray, and are especially important for the survival of native fish.

Native fish use woody habitat to shelter from currents, for refuge from predators, to feed and spawn, and as a nursery for juvenile fish. Snags are particularly important in the lifecycle of the Murray Cod and the endangered Trout Cod.

This information sheet provides a brief overview of the method and estimated cost of the 'cable dragging' technique being used in the resnagging project.

Resnagging method

The cable dragging technique was developed by Nicol *et al.* (2002)* as a cost-effective and quick way of reinstating woody habitat into a river. Adapting a method used in forest harvesting activities, logs are dragged into place in the river channel with heavy-duty steel cables.

Logs are first placed at the top of the river bank, typically using a front end loader equipped with forks (photo 1).

A notch is cut into the log for the metal plate that forms the quick-release system (photo 2). A cable is then attached and drawn through a pulley on the opposite river bank, and then back to where the log is situated. The cable is then pulled by a winch, tractor or excavator, dragging the log into the required position at the correct orientation (photo 3).

The cable is retrieved by pulling it in the opposite direction, which releases the metal plate and cable from the log. No foreign material remains in the log or the river.

The placement of the snags involves careful consideration of the impact on upstream water levels and flooding, development of anabranches, bank erosion, recreational water users and navigation.

Each log has been embedded with an electronic microchip to allow identification of the snag's original position if any significant movement occurs during a flood.



Photo 1: Logs are placed into position on the river bank. Photo: Michael Bell



Photo 2: A cut is made in the log for the metal plate, to which the cable is attached. Photo: Jenny Fredrickson



Photo 3: Logs are dragged to the desired position in the River with the 'cable dragging technique'. Photo: Michael Bell

* Nicol, S, Lieschke, J, Lyon, J and Hughes, V 2002, *Resnagging revolution: River habitat rehabilitation through resnagging*, Department of Natural Resources and Environment, Melbourne.

Source of timber for resnagging

Dead timber in the riparian and floodplain zones plays important ecological and geomorphological roles. It provides habitat for terrestrial mammals and reptiles and its removal has significant impact on such species. Consequently, it is not considered a desirable source of timber for resnagging.

Instead, timber has been sourced from locations such as development sites, road and bridge construction sites and approved farmland clearing. Only felled native hardwood trees that would otherwise have been used for firewood or woodchips have been used.

Development corporations, local government and other authorities are contacted to ensure that trees felled as a result of such developments are stockpiled for later use as snags.

Costs

The costs of resnagging are driven by local requirements and site-specific factors. The cost of the timber depends on the timber source. Timber from highway works may be free of charge if it is sourced as a condition of consent for the work. Timber from other sources, such as forestry operations, may incur a charge per tonne (generally between \$14 and \$50/tonne).

Trucks are used to transport timber for resnagging from up to 200 kilometres away. Large logs cost up to \$300 to relocate. Smaller logs are relocated for around \$80 each. Costs can be reduced by sourcing timber locally and moving the logs in one load.

The cable dragging technique requires the hire of labour and heavy machinery, and equipment (such as cables and chains). The ease of installation of each snag varies depending on its size and manoeuvrability, and therefore the cost of installation varies. Generally, the hire costs involved are between \$200 and \$300 per snag.

Additional costs may include:

- site surveys for the presence of cultural heritage sites and threatened species
- maintenance of farm tracks and fencing
- site rehabilitation after works have taken place
- public notices in local media advising waterway traffic interruptions
- public safety signage and notices warning of submerged obstacles.



Resnagging on the River Murray. Photo: Michael Bell

Ultimately, resnagging in the Hume to Yarrawonga reach of the River Murray will create substantially more habitat, which should in turn increase the size of native fish populations.

To assess whether this outcome is being achieved, a comprehensive monitoring program is being conducted using advanced techniques such as electrofishing surveys, PIT tagging and radio-tracking of native fish.

For further information, contact :

NSW Department of Primary Industries (Fisheries)
Phone: (02) 6042 4208
Email: Jenny.Fredrickson@dpi.nsw.gov.au

Other native fish publications :

Building Fish Freeways – outlines results and achievements of the Native Fish Strategy's fishway program.

Fish n' Chips' – information on tagging of native fish to monitor their numbers and movement – why, how and results.

Native Fish Strategy summary document – overview of MDBC strategy to rehabilitate native fish populations.

Native Fish of the Murray-Darling Basin – profiles and includes pictures of a range of native fish found in the Murray-Darling Basin.

Aliens in the Basin – an introduction to alien fish in the Murray-Darling Basin.

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Murray-Darling Basin Commission

GPO Box 409 Canberra ACT 2601
tel. 02 6279 0100 fax. 02 6248 8053
email. thelivingmurray@mdbc.gov.au
www.thelivingmurray.mdbc.gov.au

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