

# An assessment of instream woody habitat in Victorian streams

## Victorian Investment Framework: Instream habitat project

### What is instream woody habitat and why is it important?

Instream woody habitat (IWH), commonly referred to as 'snags', consists of trees, branches and logs that fall or are washed into rivers and streams. IWH plays a vital role in a range of ecological, structural and chemical functions including:

- Helping protect the stream bed and stream bank from erosion and incision
- Providing habitat for organisms such as fish, birds, amphibians, invertebrates and microbes
- Providing refuge areas to avoid predators and fast water flow
- Providing feeding sites and food sources
- Providing spawning sites for reproduction
- Marking home ranges for territorial or migrating species
- Increasing diversity of stream channels
- Helping develop scour pools which create refuge areas during periods of drought
- Contributing organic enrichment through their decay and by trapping other organic matter

These functions maintain the health of a stream, which in turn supports recreational fisheries and other social and cultural values.



Instream woody habitat in the Goulburn River, a perfect home for Murray Cod!  
Photo: Adrian Kitchingman

### Historical removal of instream woody habitat and its impact

IWH has been removed from many Victorian streams for river navigation, infrastructure protection and to facilitate hydraulic capacity. For example, from 1890 to mid-1940, 129 km of the La Trobe River in Gippsland was desnagged. Similarly, over 25,000 snags were removed from the Murray River between Lake Hume to Lake Mulwala in the 1970s and 1980s.

Research has since shown that the removal of IWH has minimal impact on flood mitigation, and that such works impair river stability and detrimentally impact the health of our streams.

The removal of IWH from streams has been identified as a major contributing factor in the decline of many riverine fish populations, including Murray Cod, Trout Cod, Macquarie Perch, Freshwater Catfish and Australian Bass.

Stream restoration programs involving the re-introduction of IWH into streams, and revegetating riparian zones to encourage long-term natural IWH input, may help improve instream habitat diversity and the health of riverine fish populations. To identify and prioritise areas where IWH needs protection and augmentation, baseline information on the amount of IWH in streams is required.



A Trout Cod captured by Joanne Keams at a resnagged site in the Murray River. Photo: Jarod Lyon

## What will happen?

The Victorian Investment Framework has funded a project to help the Government prioritise the protection and rehabilitation of IWH in Victorian streams.

The two year project will:

- Engage stakeholders to promote the benefits of IWH protection and rehabilitation.
- Map densities of IWH across Victorian streams to characterise past and current conditions of IWH.
- Identify factors that influence IWH densities and investigate how they relate to restoration actions, such as bank stabilisation and riparian revegetation.
- Investigate the relationship between IWH and fish populations across a variety of river types. This will enable predictions of how fish populations will respond to varying levels of IWH rehabilitation at a given site.
- Develop a decision support tool to help managers make informed and effective decisions on IWH protection and rehabilitation.

Understanding historical and existing conditions of IWH is an important step of IWH protection and rehabilitation initiatives. By creating healthier instream habitats, we can encourage healthier aquatic populations and communities and help reverse the decline of native fish in Victorian streams.

## Who is involved?

This project is being carried out by the Department of Sustainability and Environment's (DSE) Arthur Rylah Institute (ARI). The Project Team receives guidance from a Steering Committee comprising the Project Team plus representatives from DSE's Biodiversity and Ecosystem Services, Natural Resources, and Water Divisions; Fisheries Victoria (Department of Primary Industries); the Goulburn Broken, North East and North Central Catchment Management Authorities; Melbourne Water and the University of Melbourne.

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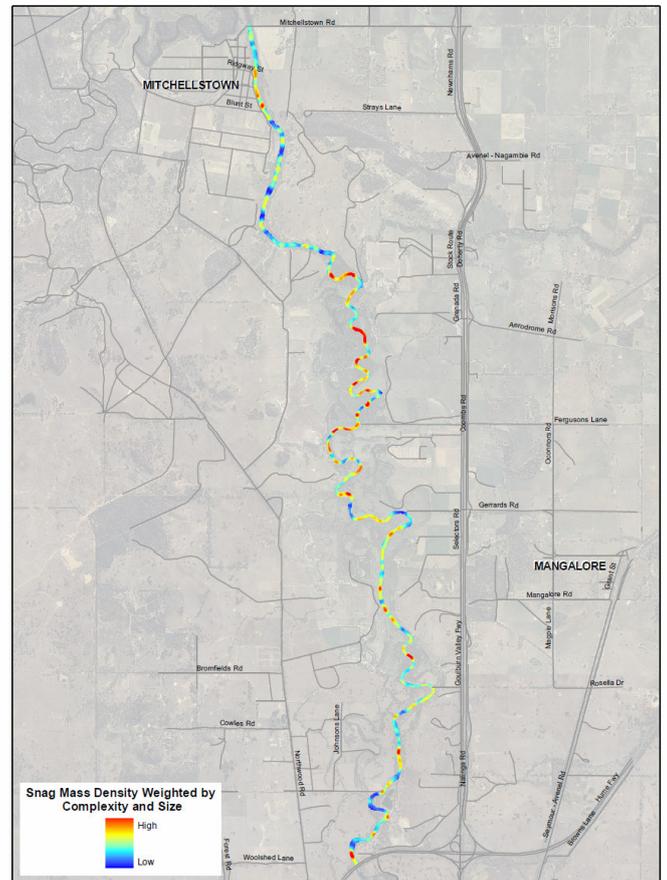
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## Snag Mass Density for the Goulburn River between Seymour and Mitchellstown



Weighted Kernel Density Estimate with 100m radius  
Department of Sustainability and Environment | Arthur Rylah Institute | 15 March 2011  
Mapping densities of instream woody habitat. Image: Adrian Kitchingman



Reintroducing large woody debris to improve stream function.

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