

What are snags?



Image courtesy of Arthur Mostead.

Background

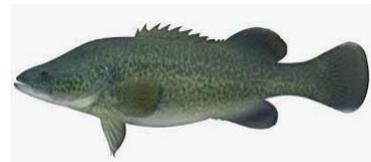
As part of the Peel Valley Emergency drought works, WaterNSW committed to a Biodiversity Offset Plan. The installation of snags in the Peel river between Chaffey Dam and Tamworth, as part of the Biodiversity Offset Plan, are planned to begin in early 2023 and be completed in mid 2023. Project information is at <https://www.watensw.com.au/projects/chaffey-dam-pipeline-biodiversity-offsets-program>

Snags are trees, branches and root masses that are found in our rivers. Also known as large woody debris, snags result from trees on the river bank either falling in or dropping their branches. This can occur because of flooding, bank erosion, wind or limb shedding and is a natural process.

Why are snags important? Snags provide extremely important habitat for aquatic life, particularly native fish. The peel river is home to many native fish and threatened populations including the Murray cod, the elusive eel-tailed catfish and the silver perch. Many of the species found in the Peel River, rely on snags for a number of reasons.

Snags provide fish with:

- sites to attach adhesive eggs during breeding;
- sites to rest from fast river flows;
- shelter from predators;
- landmarks to define territories and aid navigation;
- ambush sites.



Murray Cod image courtesy of DPI NSW

Roles that snags play in shaping our rivers

Some native fish even have preferences for certain types of snags and their location within the river. Trout cod for example have been shown to use snags closer to the middle of a river, whereas the Peel river native Murray cod use snags closer to the river bank.

Macroinvertebrates, an important food source for many native fish, use snags not only for shelter, but also as food, grazing on the wood itself and the microbes and algae that grow on it.

Snags are also important habitat for other terrestrial and aquatic animals, such as birds and amphibians.

Snags play an important role in shaping our rivers, creating variability in depth and flow that in turn leads to a greater range of habitat for fish and other aquatic life. As a significant source of carbon, snags also contribute to the chemical composition of the water.

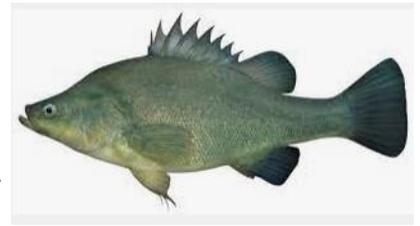
Snags can also be included in the shaping of the river to control erosion when installed correctly.

Where have all the snags gone?

Some rivers still have good numbers of snags, an asset that should be managed to ensure their protection. However, millions of snags have been deliberately removed in the past in large-scale desnagging operations. These largely came about because of several misconceptions. Among these was the belief that snags cause erosion of riverbanks. While in certain instances they may contribute to small-scale and short-term erosion, in many cases the presence of natural loads of snags may reduce erosion by protecting the riverbanks.

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Many also thought that snags increased the incidence of flooding by reducing the capacity of water that the river channel could hold, a view we now know to be largely incorrect.



Golden perch, image courtesy of DPI NSW

Snags and resnagging

The effects of snag removal are long-lasting. In fact, the removal of snags, or desnagging, is acknowledged as one of the primary threats to native fish in rivers in NSW.

Furthermore, snags are now protected in NSW by legislation, with heavy fines for illegal removal.

Resnagging – Bringing back the wood !

Increased scientific understanding of the importance of snags to native fish and river health has led to significant efforts to reverse the loss of this vital habitat. The most obvious way to achieve this is to put the snags back in. Whilst simple in principle, there is a lot of science and engineering that goes into the replacement of snags, or resnagging. Consideration must be given to the type, size, shape and quantity of snags needed, as well as the position and orientation of each individual snag in the river. This level of detail is necessary to ensure that the structures are placed to maximise the ecological benefits.

Once it has been decided where they are to go, the next job is to get the snags in there. These snags are heavy and require considerable work to get them into the river in the right position. This is usually done with cables and excavation machinery.

As part of the implementation of the snagging in the Peel River, a comprehensive monitoring of the development of fish and other populations around the installed snags will be conducted.

Sound management intervention

Resnagging is a sound management intervention we can use to restore snags to our rivers, and early indications suggest that native fish respond strongly as a result. The key is to better manage riparian vegetation, trees in particular, so that there will be a constant supply of snags in the future.

It is also important to raise awareness of the benefits of snags in order to minimise their removal by those that don't understand the role they play in maintaining functional, healthy rivers with self-sustaining fish populations and communities.

The NSW Department of Primary Industries refers to successful case studies of the implementation of snagging.

<https://www.dpi.nsw.gov.au/fishing/habitat/rehabilitating/habitats>

WaterNSW acknowledges the Murray Darling Basin Authority for their approval to share this information about snags and resnagging.

Keep in touch

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