

Native Fish in Coastal Victoria

HEALTHY COASTAL CATCHMENTS – HEALTHY COASTAL FISH

Fish habitat: **Structural Woody Habitat**



Black Bream – Image courtesy of Melbourne Museum

What is structural woody habitat?

Structural Woody Habitat (SWH) consists of trunks, roots and branches of trees and shrubs that fall into streams, estuaries and wetlands from the side of the waterbody or are flushed downstream during high flows.

It can also refer to submerged tree roots from the vegetation in the riparian zone. In natural systems, these structures and other organic matter such as fallen leaves, twigs and aquatic plants are scattered throughout the river system from the start of a river, right through to the estuary.



Photo courtesy of Daniel Stoessel

Why is structural woody habitat important in the aquatic environment?

Wood and roots in a river channel, wetland or estuary helps create localised microhabitats such as eddies, which are small isolated areas of turbulence or still water and shade which can provide a multitude of suitable habitats for native fish and many other aquatic organisms.

Structural woody habitat can provide sites for spawning and rearing of juveniles. The River Blackfish (*Gadopsis marmoratus*), Cox's Gudgeon (*Gobiomorphus coxii*) and Striped Gudgeon (*G. australis*) all lay their eggs on or within solid structures such as SWH.

River Blackfish attach a single layer of adhesive eggs on the inside of hollow logs. The males guard the eggs from predators and fan water across their surface to increase oxygen flow and wash away sediment. Both of the gudgeon species lay their eggs on a hard surface such as a log or rock, with males guarding the eggs until they hatch. Loss of suitable spawning sites can result in poor juvenile recruitment for all of these species.

River Blackfish –

photo courtesy of Tarmo Raadik



Structural woody habitat can also facilitate the development of instream habitat. Deep holes can be scoured underneath snags, providing habitat for a variety of species. Deep holes are particularly valuable as refuge habitats during drought. Algae and bacteria grow on the wood surface of SWH, providing the basis for food webs. Invertebrates, which graze on the algae and bacteria are a food source for birds, fish and other aquatic organisms. SWH can also provide:

- Protection from strong currents and sunlight
- Orientation points to identify habitat and territory
- Shelter from predators
- Vantage points to help capture prey, and
- Aquatic habitat diversity.

Habitat diversity is needed to meet the needs of different species. Instream habitat provides variation in water flow, speed and depth.

STRUCTURAL WOODY HABITAT





Photo courtesy of Paul Tinkler

Where has the SWH gone?

Desnagging — the removal of snags or woody debris — was an old river management practice that occurred throughout Victoria. It was thought that desnagging would improve stream flow, reduce the severity of flooding, improve passage for boats and assist with substrate removal (sand, gravel and gold extraction). There is no evidence to suggest that this practice significantly reduces flooding but we do know it can have a severe effect on the health of freshwater ecosystems and on their flora and fauna.

Loss of riparian vegetation has occurred through clearing, intensive grazing and salinisation of soils. The removal of riparian (streamside) vegetation such as trees and shrubs has not only removed riverbank roots which formed part of SWH but also removed the source of new SWH.

How do we replace SWH?

Replacement of SWH in many streams is a slow process. The loss of riparian vegetation in many rivers means there are no natural sources of wood remaining to replace that which has been removed. Rehabilitation of streamside vegetation is assisting this process and in some regions Catchment Management Authorities and councils are artificially replacing SWH. This is a costly and slow process, but it is necessary for the health of Victoria's aquatic ecosystems.

How can you help?

If you have a waterway or wetland on your property, consider reducing stock access to reduce the impact of grazing on native vegetation within and surrounding the waterbody. Replanting the riparian vegetation with indigenous vegetation is also beneficial. If SWH exists within the waterbody, it is best left in place to enable it to play its important role.



Tupong – photo courtesy of Rudie Kuiter



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