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RECOMMENDATION

REMOVAL OF LARGE WOODY DEBRIS

The Fisheries Scientific Committee, established under Part 7A of the *Fisheries Management Act 1994* (the Act), has made a recommendation to list the removal of large woody debris from New South Wales rivers and streams as a **KEY THREATENING PROCESS** in Schedule 6 of the Act.

Listing of a Key Threatening Process is provided for by Part 7A, Division 2 of the Act.

The Fisheries Scientific Committee has found that:

1. Large woody debris consists of large masses of trees or shrubs that have fallen or that have been washed into rivers and streams. Such objects may be in the range of 1-30 metres in size and may be full trees, trunks, branches, tree heads or root masses. Large woody debris, once in the stream, becomes waterlogged and comes to rest in the streambed during low flow periods, but may become mobile during high flow periods. Often masses of large woody debris accumulate in small areas owing to capture by previously embedded debris. Large woody debris that accumulates in the riparian zone above the low and normal flow levels of rivers may become part of the riverine habitat during flood periods. Recently, large woody debris in the lower Murray River in New South Wales has been found to occur at densities reaching 14 objects per 100 metres of bank, but in degraded regions of the river can fall below 3 objects per 100 metres.
2. Large woody debris has been considered a hazard to river navigation, giving rise to the name "snags". Large woody debris also has been thought to hinder water flow and to cause flooding. The removal of large woody debris from New South Wales rivers and streams began during the mid 1800's and continues to the present time. Removal of large wood debris results in only minimal improvement in channel capacity and reduction of flooding in lowland rivers because most material accumulates adjacent to the edge. Large woody debris in the riparian zone is often removed for fire wood collection, agricultural purposes and other activities
3. Removal of large woody debris impairs important ecosystem services for many species of fish and invertebrates including:
 - Habitat for benthic plants;
 - Organic enrichment by capturing detritus and contributing to secondary production by degradation of the debris itself;

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- Refuges from predators and interactions between competitors;
 - Velocity refuges that minimise energy costs of swimming;
 - Spawning sites essential for successful reproduction;
 - Home range markers for territorial and migratory species, such as the Murray Cod (*Maccullochella peelii peelii*) and the Golden Perch (*Macquaria ambigua*).
 - Refuge and spawning habitats in the riparian zone during overbank flooding;
 - Erosion prevention by sedimentary stabilisation of stream banks and riparian zones;
 - Temperature and drought refuges formed by scouring of deep holes adjacent to large woody debris.
4. The removal of large woody debris from New South Wales rivers and streams has been included as a possible threatening process in the recommended listing of the Aquatic Ecological Community in the Natural Drainage Systems of the Lower Murray River Catchment as an Endangered Ecological Community in N.S.W.
 5. The removal of large wood debris negatively impacts the following Endangered Species: Eastern freshwater cod (*Maccullochella ikei*), Trout cod (*Maccullochella macquariensis*); and Vulnerable Species: Macquarie perch (*Macquaria australasica*), and Silver perch (*Bidyanus bidyanus*). Many species of invertebrates and other fishes may be threatened by further removal of large woody debris. Many species only live around or on large woody debris.
 6. The removal of large woody debris from Victorian streams has been listed as a Potentially Threatening Process under the *Victorian Flora and Fauna Guarantee Act, 1998*.
 7. In light of the above, the Fisheries Scientific Committee is of the opinion that the removal of large woody debris from New South Wales rivers and streams adversely affects more than two threatened species and could cause species that are not threatened to become threatened. Therefore, this process qualifies for inclusion in Schedule 6 of the *Fisheries Management Act 1994* as a KEY THREATENING PROCESS.

Dr Andrew Sanger
 Chairperson
 Fisheries Scientific Committee