

Re-snagging the lower Loddon River

SECTIONS OF THE LOWER LODDON RIVER, BETWEEN KERANG WEIR AND LITTLE MURRAY RIVER CONFLUENCE, WERE DE-SNAGGED IN THE 1970S FOR ATTEMPTED FLOOD MITIGATION. RECENT HABITAT MAPPING HAS SHOWN THE DENSITY OF TIMBER FOR FISH HABITAT IN THE RIVER CHANNEL IS LOW. HISTORICALLY THE RIVER SUPPORTED GOOD POPULATIONS OF MURRAY COD, GOLDEN AND SILVER PERCH AND FRESHWATER CATFISH, ALL SPECIES THAT HAVE A STRONG AFFINITY WITH WOODY HABITAT.

In 2017, 10 fish havens constructed by Cohuna Men's Shed and community volunteers, were installed in the river to increase fish habitat downstream of Kerang Weir. The fish havens, which are small, woody structures, were funded through a Small Recreational Fishing Grant. In 2018, a further 15 snag piles (a larger and more complex timber structure that mimics natural habitat) were installed in deep pools near Benjeroop with the aim of recovering populations of Threatened large-bodied fish species, made possible through Victorian Government Biodiversity On-Ground funding.

The lower Loddon re-snagging project complements woody habitat reinstatement in Box-Pyramid Creek (32 structures installed between 2014 and 2017) and the Little Murray River (more than 40 structures installed in 2018) to provide native fish with habitat and resting points on the 180km fish highway from the Murray River through the Little Murray River, Loddon River and Pyramid Creek to the high-quality fish habitat in Kow Swamp.



FISH HAVEN CONSTRUCTED BY THE COHUNA MEN'S SHED BEING INSTALLED IN THE LODDON RIVER BELOW KERANG WEIR.

WHY DO NATIVE FISH NEED SNAGS?

SNAGS, OR INSTREAM WOODY HABITAT, PROVIDES:

- ▶ SITES TO LAY ADHESIVE EGGS FOR SPECIES SUCH AS MURRAY COD AND RIVER BLACKFISH
- ▶ DIVERSITY OF HABITAT THROUGH FORMATION OF SCOUR POOLS AND BARS
- ▶ PLACES FOR MIGRATING FISH TO REST FROM HIGH FLOWS
- ▶ SHELTER FROM PREDATORS
- ▶ LANDMARKS TO DEFINE TERRITORIES AND AID NAVIGATION
- ▶ AMBUSH SITES FOR PREDATORY SPECIES SUCH AS MURRAY COD, TROUT COD AND GOLDEN PERCH
- ▶ HIGH PRODUCTIVITY SITES FOR FEEDING

IMAGE COURTESY OF MICHAEL BELL AND MDBA

THE NORTH CENTRAL CMA'S NATIVE FISH RECOVERY PLAN

AIMS TO RESTORE ECOSYSTEMS, FISHERIES AND TOURISM IN THE TORRUMBARRY AND SWAN HILL IRRIGATION AREAS.

Instream woody habitat reinstatement complements other work being undertaken as part of the plan. Building fishways to facilitate fish movement, replanting river-side vegetation, fencing stock out of stream banks, and providing fish-friendly flows (to promote spawning and improve habitat during winter for recruitment in the irrigation off season) are all part of the plan.

Some of the fish being targeted through the plan:



Silver perch

Bidyanus bidyanus

Distribution and habitat: Silver perch were once widespread and abundant throughout lowland rivers, streams and lakes throughout most of the Murray-Darling Basin. They have now declined to low numbers and disappeared from much of their previous natural range. They prefer flowing habitat and are often seen downstream of rapids and weirs.

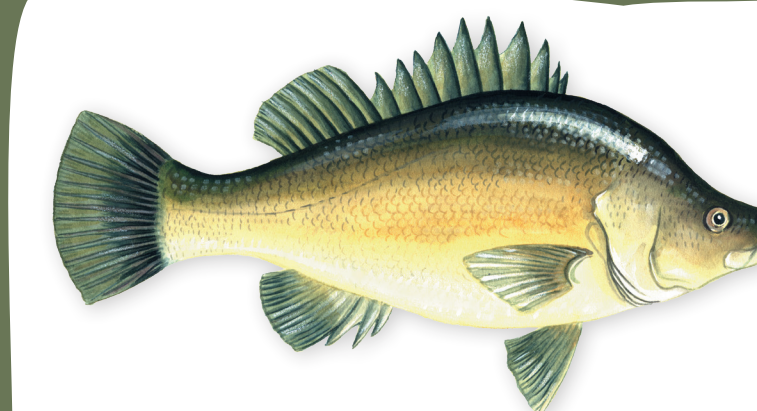
Status: Threatened under the *Flora and Fauna Guarantee Act 1988*; Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Size: Up to 610mm and 8kg, more commonly 300mm.

Diet: Omnivorous, feeds on algae, aquatic plants, snails, shrimp and insect larvae.

Biology: Individuals mature at 3-5 years, and spawning occurs in schools in spring and summer following a long upstream migration. Eggs and larvae drift in the current for up to 15 days. Immature fish then undertake an upstream migration between October and April.

Threats: River regulation, cold water pollution and alien species (carp and redfin perch).



Golden perch

Macquaria ambigua

Distribution and habitat: Golden perch are widely distributed in lowland, slow flowing rivers and streams throughout the Murray-Darling basin. They prefer deep, slow flowing pools or weed beds and have a strong association with woody habitat and other cover.

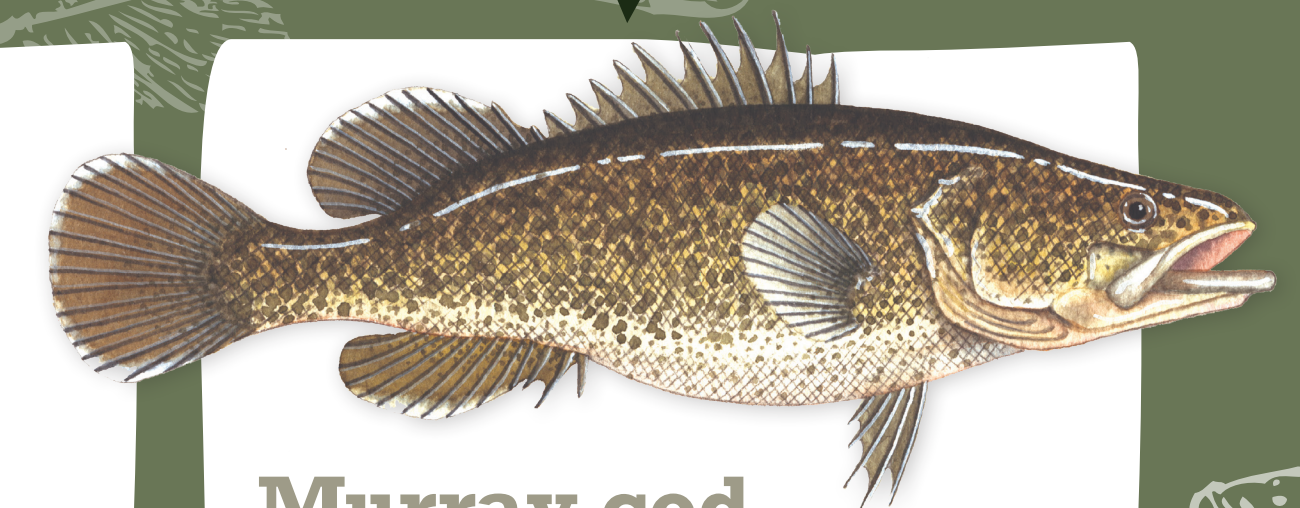
Status: Wild populations are listed as Vulnerable under the *Victorian Flora and Fauna Guarantee Act 1988*.

Size: Up to 760mm and 23kg, more commonly 400 – 800mm.

Diet: Carnivorous, eating mainly yabbies, shrimp, small fish, insect larvae and snails.

Biology: Tolerant species surviving in temperatures between 4 and 37°C and salinities almost that of sea-water. Adult fish move large distances (up to 1000 km) to spawn in spring and summer, associated with rises in water level and increased day-length.

Threats: River regulation, barriers to migration such as dams and weirs, cold-water pollution and removal of snags.



Murray cod

Maccullochella peelii peelii

Distribution and habitat: Distribution and habitat: Formerly widespread throughout mid and lowland streams of the Murray Darling Basin; now less abundant. Prefers large deep holes in rivers and cover such as rocks, snags, stumps and undercut banks.

Size: Up to 1800mm and 113kg, more commonly 500 – 700mm.

Diet: Apex predator with a diet of fish, crayfish, frogs, and occasional water birds.

Biology: Spawning occurs in the spring and summer in temperatures between 16 and 21°C. Females lay up to 40,000 eggs which are deposited on hard surfaces, such as rocks, clay banks and in hollow logs. The eggs hatch 5-13 days later. Males guard the nest before larvae disperse and drift downstream in the current, usually at night, for 5-7 days.

Status: Threatened under the *Victorian Flora and Fauna Guarantee Act 1988* and vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

Threats: Overfishing, habitat loss through sedimentation and removal of snags; altered flows and cold-water pollution.

THE ICONIC MURRAY COD RELIES ON INSTREAM WOODY HABITAT FOR RESTING, FEEDING AND BREEDING

ILLUSTRATIONS COURTESY OF DEDJTR

NORTH CENTRAL CMA ACKNOWLEDGES THE TRADITIONAL OWNERS OF THIS COUNTRY.



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Re-snagging the Little Murray River

THE LITTLE MURRAY RIVER IS A 46 KILOMETRE ANABRANCH OF THE MURRAY RIVER. IT LEAVES THE MURRAY NEAR FISH POINT, WHERE IT IS JOINED BY THE LODDON RIVER, AND REJOINS THE MURRAY AT SWAN HILL. HISTORICALLY, THE RIVER WAS USED AS A WATER CARRIER FOR THE SWAN HILL IRRIGATION REGION. HABITAT MAPPING HAS SHOWN THE RIVER HAS FEW SNAGS AVAILABLE FOR FISH HABITAT, ESPECIALLY DOWNSTREAM OF THE LITTLE MURRAY WEIR.

The Swan Hill Modernisation Project (SWMP), a Goulburn Murray Water Connections Project, aims to deliver water savings, environmental outcomes, and improved irrigation operations. It is expected to greatly improve fish populations through:

- ▶ Increasing flowing water habitat in the Little Murray River.
- ▶ Constructing fishways on Little Murray Weir and Fish Point Weir to allow fish passage to and from the Murray River into the Little Murray and Loddon Rivers.
- ▶ Installing over 20 instream woody habitat structures between the two weirs.
- ▶ Delivering fish-friendly flows for movement, spawning and recruitment of Murray cod, freshwater catfish and golden and silver perch.

TO COMPLEMENT THE SWMP, NORTH CENTRAL CMA HAS RE-SNAGGED THE 20KM REACH BETWEEN LITTLE MURRAY WEIR AND SWAN HILL. 10 SNAG PILES AND 10 FISH HAVENS WERE INSTALLED TO PROVIDE NATIVE FISH WITH HABITAT AND RESTING POINTS ON THE 180KM FISH HIGHWAY FROM THE MURRAY RIVER THROUGH THE LITTLE MURRAY RIVER, LODDON RIVER AND PYRAMID CREEK TO THE HIGH-QUALITY FISH HABITAT IN KOW SWAMP.

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COME ON THE JOURNEY OF RECOVERY



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