

Fish response to new instream habitat in the Merri Estuary

Fish surveys *before* and *after* instream habitat improvements

Background

The Merri Estuary is a popular fishing location in the heart of Warrnambool, Victoria. In the late 1800s, a land cutting was created to form the eastern mouth of the Merri Estuary. It's virtually a blank canvas in terms of fish habitat: there is no instream timber or rocks and minimal streamside vegetation.

The Glenelg Hopkins Catchment Management Authority has undertaken a range of on-ground works to improve habitat for fish and fishing access for local residents and visitors. The Merri Estuary between Stanley Street upstream to the pedestrian bridge near Denman Drive (~550 m) was the focal area for on-ground works in 2015 and 2016. These actions included the installation of nine fish havens and six rock piles into the river, as well as weed control, rubbish removal, mulching and native tree plantings along the riverbanks, and the construction of two new floating jetties.

Complementary fish surveys were undertaken to determine whether there were any short-term benefits to fish populations in the Merri Estuary following the habitat improvements.



Figure 1. Craning in a new fish haven

Credit: Stephen Ryan, Glenelg Hopkins Catchment Management Authority

Fish surveys

Fish were surveyed in the Merri Estuary in the reach where on-ground works were carried out in October 2014, *before* works commenced, and again in December 2016, *after* works were completed. Fish were surveyed using a boat-mounted Grassl electrofisher which is designed for use in estuarine water.

Key findings

- Nine fish species were collected during the surveys, including popular recreational fish species, such as Black Bream, Estuary Perch and Mullet. Species diversity was similar for each survey.

Table 1. Abundance and size range (mm) of fish species collected and number of fish observed in surveys carried out *before* works in 2014 and *after* works in 2016

Species (Common name)	Abundance (Size range, mm)	
	2014	2016
Fish collected		
Black Bream	9 (158 – 340)	82 (96 – 335)
Estuary Perch	14 (335 – 470)	7 (328 – 470)
Yellow-eye Mullet	83 (38 – 332)	141 (34 – 363)
Australian Salmon	75 (58 – 225)	57 (70 – 180)
Short-finned Eel	4 (300 – 700)	5 (230 – 770)
Australian Smelt	54 (29 – 92)	0
Common Galaxias	30 (38 – 115)	2 (70 – 80)
Goby sp.	19 (35 – 65)	7 (40 – 60)
Flat-headed Gudgeon	20 (32 – 87)	21 (61 – 98)
Total fish collected	308	322
Total fish observed	339	543

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- More fish were collected in 2016, particularly Black Bream and Yellow-eye Mullet. Further research is needed to validate this is due to the new instream habitat rather than natural variability.
- The new instream habitat is being used by fish for shelter. During the 2014 survey, nine Estuary Perch were collected from one piece of existing habitat. In the 2016 survey, Estuary Perch were collected directly from the new fish havens and near a new jetty. Other fish were also collected from the new habitat structures.
- The size ranges of fish collected suggest the Merri Estuary provides habitat for juvenile and adult fish, including Black Bream, Yellow-eye Mullet and Australian Salmon.

These short-term results point to the value of instream habitat rehabilitation to improve fish populations and create angler opportunities. Local recreational fishers also report catching fish from the instream structures.

Recommendations

- Continue partnerships between recreational fishers, local community groups, government and other organisations to manage the Merri River.
- Expand on-ground works upstream in the Merri River to support the local fish community and other key aquatic species.
- Combine any future on-ground works into a broader vision and plan to develop the Merri River as a key recreational area in Warrnambool, whilst supporting biodiversity values.
- Continue to monitor fish populations in conjunction with future on-ground works to measure the benefits of habitat improvements to fish populations.
- Investigate the population genetics of Estuary Perch in the Merri Estuary to inform options for fish stocking.



Figure 2. Black Bream (top) and Estuary Perch (bottom) collected in the Merri Estuary

Credit: Renae Ayres, Arthur Rylah Institute

A partnership

This research was undertaken by the Department of Environment, Land, Water and Planning's (DELWP) Arthur Rylah Institute as part of the Merri Estuary Fish Habitat Hotspot project funded by the Australian and the Victorian Government, using Recreational Fishing Licence Fees. It forms part of a larger collaborative project that aims to improve fish habitat, enhance fish populations and grow recreational fishing in Victoria. This project is a partnership between ARI, DELWP, the Victorian Fisheries Authority, coastal Catchment Management Authorities, Melbourne Water, VRFish, Native Fish Australia, the Australian Trout Foundation, recreational fishers and local communities.

For more information

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