

Produced By:



Lakes and Coorong Commercial Fishery

FACT SHEET 8

The Barrages

The Coorong barrages

The original Murray estuary was made up of Lake Alexandrina, Lake Albert and the Coorong, covering approximately 660 km². With the increase of upstream irrigation a series of tidal barrages were constructed across the five channels leading from Lake Alexandrina to the Murray Mouth to:

- Reduce salinity levels in the lower Murray River and lakes;
- Stabilise the river level to provide for irrigation and human consumption; and
- Concentrate releases to the ocean to a small area and so scour a channel for navigation, during periods of low water flow (MDBC, 2005).

Two locks allow access from the Lakes to the sea and the Coorong. The larger lock, at Goolwa, is a manned lock capable of passing small ships. The long Tauwitchere Barrage contains a small, self-operated manual lock.

The natural ecosystems supporting fisheries resources throughout the River Murray and lower lakes and Coorong region have been dramatically modified by the construction of this extensive barrage network.

Completion of the Coorong Barrage network in 1940 converted 89% of the original estuarine habitat of Australia's most important river into permanently impounded freshwater. The result being more fish is produced from the estuary (nine-fold higher) compared with the freshwater system.

Production from the estuarine component remains dominated by Mulloway, Bream, Yellow-eye mullet and occasional marine species as well as cockles. Mulloway harvest data demonstrates the over-riding impact of habitat loss on this valued native fish.

Production from the freshwater region is dominated in unit-value by native Callop (Golden Perch), abundant European Carp and Bony Bream.

European carp have become a dominant in this man-modified system after their illegal release into the Murray catchment around 1970. For a considerable period post-impoundment, yabby production continued at high levels meeting both local and international market demands. However, this fishery has subsequently virtually disappeared leaving little evidence as to the cause of its demise.

The Lock at Tauwitchere Barrage

*The freshwater lake is to the right
and the marine and estuarine
environment to the left.*



Fishways

Native fish in the Murray-Darling Basin have suffered a decline in both numbers and distribution. A variety of factors have contributed to native fish decline including exotic fish, water pollution and habitat deterioration. Locks, weirs and barrages have also impeded the movement of fish species along the River. Fish move along rivers for breeding, safety and the establishment of new territories.

Three trial fishways have been installed at the barrages to restore fish passage and improve the overall health of the river. In conjunction with the fish passage plan, a research and monitoring program is in place to assess;

- the numbers and species of migratory fish,
- efficiency of the fishway types,
- optimisation of the final design, placement and operation, and
- gauge the success of the fish passage through the Murray barrages.

The findings of the project will have significant implication for fish passage enhancement through tidal barrages.

Remote operation of barrage gates

The objective of this is to improve the health of the Coorong, Lower Lakes and Murray Mouth. It will do so by reducing salinity variations and water level fluctuations, and improve connectivity between the sea and the Coorong through installation of remotely operated gates. The gates will be installed on selected barrages to provide improved operational flexibility.

Changed gate function at Tauwichee includes hydraulic radial gates (including those in the fishway bays) to be remotely operated from the Goolwa office by computer. Gates automatically close to prevent saline inflows when sensors indicate that sea levels may rise above that of the lake.

Restoration and enhancement dredging of the Murray Mouth

The amount of water flowing through the Murray Mouth has decreased dramatically as a result of river regulation and the construction of barrages in the 1930's. Only 27% of the natural median flow now discharges through the river Mouth, causing a build up of marine sand inside the mouth and the threat of permanent closure. Two dredges are permanently employed to keep the Mouth open. The reduction in fresh and tidal flow means less productivity and a reduced habitat, both within the estuary and the near shore marine environments.

In October 2002 a sand-pumping project began at the Murray Mouth to protect the Mouth from closing and to maintain fish passage and tidal variation within the Coorong. The Murray Mouth should be kept open in order to maintain navigation and the passage of fish in the area, and to enhance the health of the River Murray system and estuarine conditions in the Coorong.



The Murray Mouth

The sand constricting the mouth will eventually close and isolate the Coorong from the sea.

Only constant dredging or an increased volume of water released will keep the mouth from closing.
