



Save the Murray

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Locks, Weirs & River Regulation



Locks and weirs are man-made structures that regulate the flow and water level of a river.

The weirs and locks along the River Murray serve three main purposes;

Facilitate navigation

Assist the diversion of water for irrigation

Improve regulation keeping river levels more constant

Weirs

The basic objective of weir operations during regulated flow conditions is to maintain upstream 'pool levels'. Removing or replacing stop logs, which are concrete bars slid into slots on the weir pillars, can change the pool level. During flood periods the whole lock and weir structure becomes completely submerged and as a result there is no control over water levels during floods. Weirs do not control discharge but operate in response to variations of incoming flow to each structure. Each weir raises the level of water behind it by an average of 3.1 metres, to create a continuous series of stepped pools between Blanchetown and Torrumbarry.

Locks

A lock is a rectangular concrete chamber within a weir. It has a controlled opening through which boats can pass. Each lock has two gates allowing boats to enter either from upstream or downstream.

When a boat passes into a lock, the water inside the chamber is at the same level as the top or bottom stream level, depending on the direction the boat is traveling. Water enters the lock chamber through tunnels to the weir pool and boats are raised to upstream level or lowered to the downstream level as required. When the water in the lock is equal to the level of water in the weir pool, the gates are opened and the boat can continue on its way. It takes only 7 minutes to empty or fill the lock chamber but it normally takes 15 to 20 minutes to pass a boat through the lock. Six to 8 medium houseboats can be accommodated in one lockage.

Why do we need to regulate river flows?

In its natural state, the River Murray was an unreliable supplier of water. During droughts, it could be reduced to a chain of saline ponds. A succession of drought years from 1895 to 1902 emphasized the need for drought protections in the form of locks and weirs to enable further development in the Murray Valley. A grand plan was devised and in 1917 NSW, Victoria and SA made available funding for the construction of weirs and navigational locks to regulate water flow and facilitate navigation and irrigation. A regulated river provides a reliable source of water for towns and industry. River regulation has allowed development of the Murray-Darling Basin and the subsequent economic benefits for Australia.



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Locks, Weirs & River Regulation Continued

Where are the locks on the River and when were they built?

Weirs and locks were originally constructed on the Murray in the 1920's and 1930's to provide year-round navigation for commercial cargo and passenger paddle steamers. Today, they are maintained and operated for the Murray-Darling Basin Commission by the NSW, Victorian and SA constructing authorities to serve an increasing number of houseboats, tourist cruise boats and other recreational craft.

Lock 1.	Blanchetown	1922
Lock 2.	Waikerie	1928
Lock 3.	Overland Corner	1925
Lock 4.	Bookpurnong	1929
Lock 5.	Renmark	1927
Lock 6.	Murtho	1930
Lock 7.	Rufus River	1934
Lock 8.	Wangumma	1935
Lock 9.	Kulnine	1926
Lock 10.	Wentworth	1929
Lock 11.	Mildura	1927
Lock 15.	Euston	1937
Lock 26.	Torrumbarry	1924

Locks 12 to 14 and 16 to 25 were abandoned from the original plans to regulate the river when roads and railways took over as the preferred transport link.

How have river flows changed since the construction of locks and weirs?

As a result of regulation, summer flows are higher and winter flows are reduced while weirs upstream of SA have reduced the incidence of floods. Weirs have also created permanent wetlands and a slower flowing river, compared to temporary wetlands and occasionally fast-flowing water before river regulation.