

Water Trading Tool Kit - Fact Sheet 2

Water Overview – the different entitlements in the southern connected Murray-Darling Basin (MDB).

Introduction

The first step when developing a plan to access water is to have a broad understanding of:

- the sources of water
- how the system is managed
- the different water entitlements
- how water is allocated against those entitlements each season

Depending on the farm and location, farmers will be able to meet their needs from various water sources. These include rain, groundwater (shallow spear point systems or deep lead aquifers), surface water delivered either through gravity irrigation channels or via rivers (direct diverters), and access to regional drainage.

It is rare for a single farm to have access to all these different water sources; generally farms will have access to one or two. The most important source for most farms in the Murray Dairy region is regulated surface water.

A regulated system is a system of streams, creeks, and rivers that is controlled or 'regulated' by water storages which allow the water to be released when required. There are also regulated ground water sources in both NSW and Victoria with these generally classified as shallow and deep.

How it works – water sharing

The Murray-Darling Basin Agreement determines how water is shared in the southern MDB between South Australia (SA), New South Wales (NSW) and Victoria. This complex agreement sets out the provisions for sharing water resources between the States, managing trade and maintaining river quality. The Murray Darling Basin Authority (MDBA) is charged with managing water resources in accordance with the Agreement.

In simple terms, all inflows to the River Murray upstream of Albury are shared equally between NSW and Victoria and both States have access to 50% of the storage for those inflows. The inflows provide water to operate the river systems. In addition, the Agreement requires an annual entitlement of 1,850 GL to be available to SA. NSW and Victoria are jointly responsible for providing this entitlement to SA.

All tributary flows downstream of Albury are available to the respective States in which the tributary is located. Water sharing plans in each State govern harvesting and use of tributary flows.

In very low inflow seasons, the sharing rules can be modified to meet critical human and other needs.

Entitlement Types

A range of different entitlements exist across the southern MDB, and the value of those entitlements vary according to their reliability (the annual average allocation against that entitlement over time). The four major entitlement types on the regulated surface water system in the southern MDB include:

- High Reliability Water Share – HRWS (which exists in NSW, Victoria and SA). As the name suggests, this is highly reliable with average annual yield in the order of 95%¹ of the entitlement volume.
- General Security water – only in NSW, medium reliability with an average annual yield of 81%¹.
- Low Reliability Water Share – LRWS (only in Victoria) with an average yield around 40%¹. It is noted that since 2007, no allocations have been made against LRWS in the Murray and Goulburn systems.
- Supplementary water licence (NSW) – opportunistic water only available in wetter seasons.

Yield verses Reliability of Entitlements

Entitlement reliability is a function of annual inflows into the relevant storage and the allocation policy for that particular entitlement. Allocation policies vary in each State but as a general rule, NSW focuses on yield at the expense of reliability whereas Victoria focuses on reliability at the expense of yield.

To explain this point, for General Security entitlements in NSW (the most common entitlement), seasonal allocations will be generally based on inflows into storages in that year, with limited reserves having been kept in store from the end of the previous season. In simple terms, what comes in is allocated out, with nothing much left in reserve for the next season. This means allocations largely depend on one year's worth of inflows and subsequently are more variable.

Victoria on the other hand has a more conservative allocation policy. For HRWS (the most common entitlement), water will be allocated in year 1 until 100% HRWS allocation is reached. At that point, no more water is allocated and additional inflows are stored until a 100% allocation for HRWS is assured for year 2. The assurance of reaching 100% HRWS in year 2 is based on the water in store plus a conservative future inflow assumption that has a 99% chance of exceedance (in other words, the future inflow assumptions are based on the worst 1% inflows on record). Once this trigger has been met, allocations against LRWS will be made in year 1.

In Victoria there is also a reserve policy in place to further ensure allocations can be made in the following year. What happens is that early inflows are split in two, for every 2 ML of inflow, 1 ML is used to contribute to allocation in year 1 and 1 ML is reserved for allocation and delivery in year 2. The early reserve policy is activated when allocations reach 30% and continues until the allocation in year 1 reaches 50%. After the 50% trigger has been reached, the reserve is in place and any future inflows are fully assigned to the allocation in year 1. The reserve policy is in place to reduce the number of seasons that there is not sufficient water in reserve to be able to start up the irrigation system in the following year

The result is that Victoria keeps more water in reserve for the following year as a form of insurance against low inflows, making Victorian HRWS more reliable than NSW GS. But it also means that Victoria's share of the system's shared storages such as the Hume are generally fuller than NSW's share and therefore at an increased risk of spilling. The more spills, the less yield over the long term, hence the trade-off between yield and reliability in the two different entitlements types.

¹ Reliability of the entitlements on the different river systems vary. Average yield is adapted from long term average annual yield information on the Commonwealth Environmental Water Office website. <http://www.environment.gov.au/water/cewo/about/water-holdings>