What did the analysis show?
A scenario analysis was conducted to provide an indication of current supply and demand conditions for the southern Murray-Darling Basin as a whole, as well as focusing on the Lower Murray region (bold areas in Figure 1). Horticultural demand is concentrated in the Lower Murray Region and physical system constraints can limit the availability of water that can be traded or delivered to the region.

What is the study?
An analysis was commissioned by the Victorian Government to provide updated estimates of total water supply and demand patterns in the southern-connected Murray-Darling Basin under different scenarios.

This report provides information about the availability of water in the southern-connected Murray-Darling Basin to inform ongoing policy development and give current water users and potential investors in new irrigation development the information they need to plan for the future and make informed decisions.

The analysis by Aither focused on the level of consumptive water demand in the southern Murray-Darling Basin for irrigated horticulture. The level of demand of horticulture is important as these crops are non-interruptible without impacting crop yield, and producers often have a high willingness to pay for water.

This study did not consider the delivery of water to meet demands in the Lower Murray Region. A recent Victorian Government fact sheet explains delivery issues in the Lower Murray.

Understanding delivery shortfall risks in the Lower Murray.

Figure 1: Map of lower Murray region water trading zones
The key assumptions for the lower Murray region scenario are outlined below:

- **Lower Murray region scenario**: Assumes that there are binding constraints on the amount of water that can be traded to the region, so users are reliant on allocations against entitlements in that region (Victorian Sunraysia, New South Wales Murray, South Australian Riverland).

In reality, the water market is not this predictable. Water users with more flexible production systems do not always trade their allocations even when prices are high. Trade limits and physical constraints also impact on how water can be traded throughout the southern-connected Murray region under certain conditions.

This fact sheet describes the supply and demand analysis for the lower Murray region scenario. Outcomes for the southern Murray-Darling Basin are outlined in a companion fact sheet: Water Supply and Demand in the southern Murray-Darling Basin.
What are the key findings?

**Lower Murray Region**

The Lower Murray Region (below the Barmah Choke) has a high concentration of approximately 95% of horticulture in the southern Murray-Darling Basin. There are more specific concerns about future water availability in the region as water supply to the region can be restricted by trade constraints that limit access to water from above the Barmah Choke and out of the Goulburn and Murrumbidgee systems. The highly saline groundwater in the lower Murray region means that crop water demands are predominantly supplied by surface water.

The scenario analysis conducted assumes that no water allocations are available to be traded into the lower Murray from those connected zones.

Figure 2 shows that horticultural demand currently accounts for almost all allocation against entitlements held in the lower Murray region in average years.

In most years, trade into the Lower Murray region can be expected to meet some horticulture demands, and carryover can help people manage their water between years, but these require trade opportunities and water availability for carryover.

Therefore, Figure 2 presents a worst-case scenario based on within-region water supply only and no carryover available from previous years. This may occur in a succession of dry to extreme dry years.

What does this mean for water users, potential investors and policy makers?

- **Existing irrigated agricultural enterprises** – it will likely become more difficult for horticulture businesses and all other irrigated agriculture water industries to meet their demands in dry to average years if they are reliant on the allocation market. This could potentially lead to increased water prices in the future, particularly in dry years as well as loss of production of horticultural plantings. Irrigators need to manage the risks of water availability by using tools like carryover and trade, as well as considering the likely cost of water as an input to their business.

- **Proponents of new irrigated horticulture developments** – potential investors should be mindful of the water supply demand balance and the need to consider the options to secure water under different seasonal conditions. Delivery issues should also be considered, particularly in the lower Murray region.

- **Policy makers** – The findings of this report should be considered when making decisions about any further environmental water recovery in the southern Murray-Darling Basin, as well as in any future water market reform.

How will the government respond?

The Victorian government is monitoring the large and rapid shifts in water demands in the southern Basin and is providing more information than ever before that water users and potential investors in new irrigation developments can use to make decisions. Key publications include:

- Mallee Crop Report 2018

Understanding future water availability in the Lower Murray

Water users and stakeholders are increasingly concerned about the growing demands of horticulture in the lower Murray region and the impact on risks of delivery shortfalls. The Victorian Government has published a fact sheet on this issue:

Understanding delivery shortfall risks in the Lower Murray

In December 2018, Ministerial Council requested urgent work be done by the Murray-Darling Basin Authority in conjunction with the states to address River Murray deliverability challenges for both consumptive and environmental water.

The Victorian Government is providing input to this work to support improved understanding of supply and demand patterns across the southern Murray-Darling Basin.

With increasing concern about delivery issues in the Murray River, the Victorian Government is investigating whether delivery risks are increasing and how to manage growing demands in the lower Murray region.

Figure 2: Water availability scenarios and projected permanent horticulture water demand (at full maturity) - lower Murray region