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Southwest Limestone GMA – Water Trading Barriers

Southern Rural Water

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ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Gunditjmara and Eastern Maar people as the Traditional Owners of the Country on which this project is based. We recognise their continuing connection to land, waters and culture and pay our respects to their Elders past and present, and we acknowledge emerging leaders. Moreover, we express gratitude for the knowledge and insight that Traditional Owners and other Aboriginal and Torres Strait Islander people contribute to our shared work in Australia.

We pay respects to all Aboriginal and Torres Strait Islander communities. We recognise that Australia was founded on the genocide and dispossession of First Nations people and acknowledge that sovereignty was not ceded in this country. We embrace the spirit of reconciliation, working towards self-determination, equity of outcomes, and an equal voice for Australia's First People.

Executive Summary

Well-functioning water markets and trade can facilitate more efficient use of water across a district. For both sellers and buyers, water trade can increase productivity, allow choice and flexibility in business decision-making, and reduce risks associated with variable climatic conditions.

Historically there has not been a strong groundwater trading market in the Southwest Limestone Aquifer (SWLA) Groundwater Management Area. The average number of trades are well below the average in comparison to other irrigation districts that are drier and where trade markets are more established. However, trade intensity in the SWLA is higher than other groundwater management areas in southern Victoria. While there is trade occurring, there is seen to be further potential and opportunity to use trade to facilitate regional development.

This report provides a review of the groundwater trade barriers within the SWLA. It assesses current barriers through an analysis of water use and trade patterns within the district and includes a review of the perceived and real social, economic and geographical barriers. The assessment is informed by the findings of a desktop review of relevant past reports and data, and the outcomes of consultation with Groundwater Licence Holders and SRW. Research into opportunities to support enhanced trade in the SWLA was also completed.

KEY FINDINGS

There are many barriers to trade in the SWLA. Overall, the study found that a major increase in temporary or permanent trade is unlikely given significant geographical and practical limitations, including:

- similar profile of demand characteristics across most users,
- low irrigation requirement in wetter years, and
- the need to invest in pumping infrastructure on-farm (GW users are unique as the private user is the main investor in the infrastructure) and farmers being reluctant to invest in such infrastructure if they are heavily exposed to temporary trade.

However, the study also identified several simple actions that could be taken to improve the opportunity for trade.

There are differences between the barriers experienced by irrigators for permanent and temporary trade, and the barriers to temporary trade can be removed with less investment and research.

TRADE BARRIERS

The study explored barriers to trade through a review of previous reports and data, an online survey distributed among groundwater licence holders in the SWLA and follow up interviews (phone and face-to-face) with a sample of survey respondents.

The following key themes emerged as barriers to trade:

1. Characteristics of the SWLA and groundwater trading
2. Change in SRW customer service over time.
3. Attitudes towards trading
4. Lack of readily available information on trading
5. Complexity of trade processes, especially permanent trade.

RECOMMENDATIONS

Based on the findings of the study, the overarching recommendation for SRW is to keep any responses simple, personal, and cost-effective. There is a need to accept that some barriers are unlikely to be removed by any short-term efforts by SRW, particularly barriers associated with the characteristics of SWLA and groundwater trading.

The key recommendations are:

1. SRW to increase level of customer service as a priority.
2. Build awareness of entitlement use, monitoring, how to trade and the groundwater cycle
3. Dispel any common misconceptions regarding trade in the SWLA
4. Increase the level of transparency in trades where possible. Ensure information is readily available and easily sourced by the target audience. This will decrease the cost to market participants and help to develop a well-functioning water market
5. Where possible reduce the complexity of the trade process to decrease the cost and burden of processing trades on market participants. This is particularly relevant for permanent trade applications.

PLAN OF ACTIONS

The following plan of actions is suggested:

Table ES-1: Plan of actions

ACTIONS	NEED TO HAVE	NICE TO HAVE
1. Better customer service	<ul style="list-style-type: none"> ▪ Culture of 'working together' with the customer. ▪ Keep everything as simple as possible. ▪ Be available to customers. 	<ul style="list-style-type: none"> ▪ Rebuild trust with the customers.
2. Build awareness of water/entitlement use	<ul style="list-style-type: none"> ▪ Educate licence holders on how to calculate their water use. ▪ Make a request for assistance (from farmer to SRW) easier. 	<ul style="list-style-type: none"> ▪ Basics of groundwater cycle, particularly replenishment.
3. Dispel common misconceptions	<ul style="list-style-type: none"> ▪ Resolve myth around the risk of losing water during the 15-year review (or in drought) on the basis of trade behaviour. 	
4. Making trade transparent	<ul style="list-style-type: none"> ▪ SRW to engage trade partner to passively facilitate trade. ▪ Publish trade volumes and prices. ▪ Ensure clear and up to date information on trade rules and processes is readily available to customers 	<ul style="list-style-type: none"> ▪ Provide some regular market analysis (in line with market and weather)
5. Reduce the complexity of trade processes	<ul style="list-style-type: none"> ▪ Advocate for review of PCV relevance and boundaries. ▪ Set applicant expectations on the timing and cost of the process as early as possible. ▪ Provide clear advice to applicant on factors / triggers that can reduce the cost burden of trade processes 	
Monitoring Success	Action 1. Develop a Customer Satisfaction Evaluation plan. Action 2. Collect trade baseline data.	

1 Introduction

1.1 PURPOSE

The purpose of this study is to identify potential barriers to groundwater trading in the Southwest Limestone Aquifer (SWLA) Groundwater Management Area (GMA). The primary outcome of the study is to find out what potential market changes are required to make groundwater customers feel more confident in the market. The findings will be used by SRW to reduce barriers to groundwater trading in the SWLA.

1.2 OVERVIEW

Victoria's Southwest region is a highly productive agricultural area, and this production is supported by irrigation with water primarily sourced from groundwater. The dairy industry is predominant in irrigation water usage, with smaller contributions from other industries, including beef and sheep production, broadacre cropping, potatoes, horticulture and mixed enterprises.

1.3 THE VALUE OF GROUNDWATER

The following remarks are from irrigators responding to 'What does groundwater mean to your business?':

'Irrigators aren't the most wealthy or best farmers, but they're best at-risk management. Access to groundwater is risk management'.

'Access to groundwater is the key to everything'.

'Having groundwater is risk management, if it ever gets dry.'

'It allows us to grow summer feed, it also mitigates fire risk on a hot day by putting cows in on the green grass on a catastrophic day.'

'We would not have our enterprise without it.'

'Our farm wouldn't exist. It would just be a giant sandpit'.

1.4 PROJECT OBJECTIVES

The key objectives of this study are to:

- Explore why people choose to trade, or not trade, groundwater and document the current barriers to trade across temporary and permanent markets.
- Explore what potential market changes participants in the area would need to feel more confident in the market.
- Develop a plan of actions to better support water market participants – e.g., identifying potential trade partners, streamlining of trade approval process, develop information products, investigate the language used on forms and in customer processes etc.
- Develop a benchmark for market activity and participation which could help to inform future revision of the Local Management Plan in the SWLA
- Discover information to guide future exploration of suitable avenues for trade in line with customer needs.

2 Background

2.1 CONTEXT

This project has arisen because there is interest in active groundwater trading in the SWLA and there is seen to be potential to increase groundwater use in this area.

The majority of the SWLA Groundwater Management Area is within the DEECA designated Glenelg Hopkins Catchment¹ Land Protection Region². Dairy irrigation is concentrated in the south of the region (referred to as the Hopkins River and Portland Coast River basins for surface water management³), while annual horticulture is concentrated in the west (Glenelg River and Millicent Coast River basins). This land use profile is demonstrated below (Figure 2-1 and Figure 2-2) using Agriculture Victoria data on 'Irrigation by Land use'⁴.

¹ <https://www.ghcma.vic.gov.au/our-region/>

² <https://www.water.vic.gov.au/catchments/catchment-management-framework>

³ <https://accounts.water.vic.gov.au/local-water-reports/surface-water-by-river-basin/>

⁴ This AgVic data can be used to assist in planning and prioritising Sustainable Irrigation Program (SIP) delivery and investment. Further work is being undertaken by AgVic to better understand irrigation methods and to undertake quality assurance on the land use data. Future mapping updates will also assist in identifying how irrigation is changing over time.

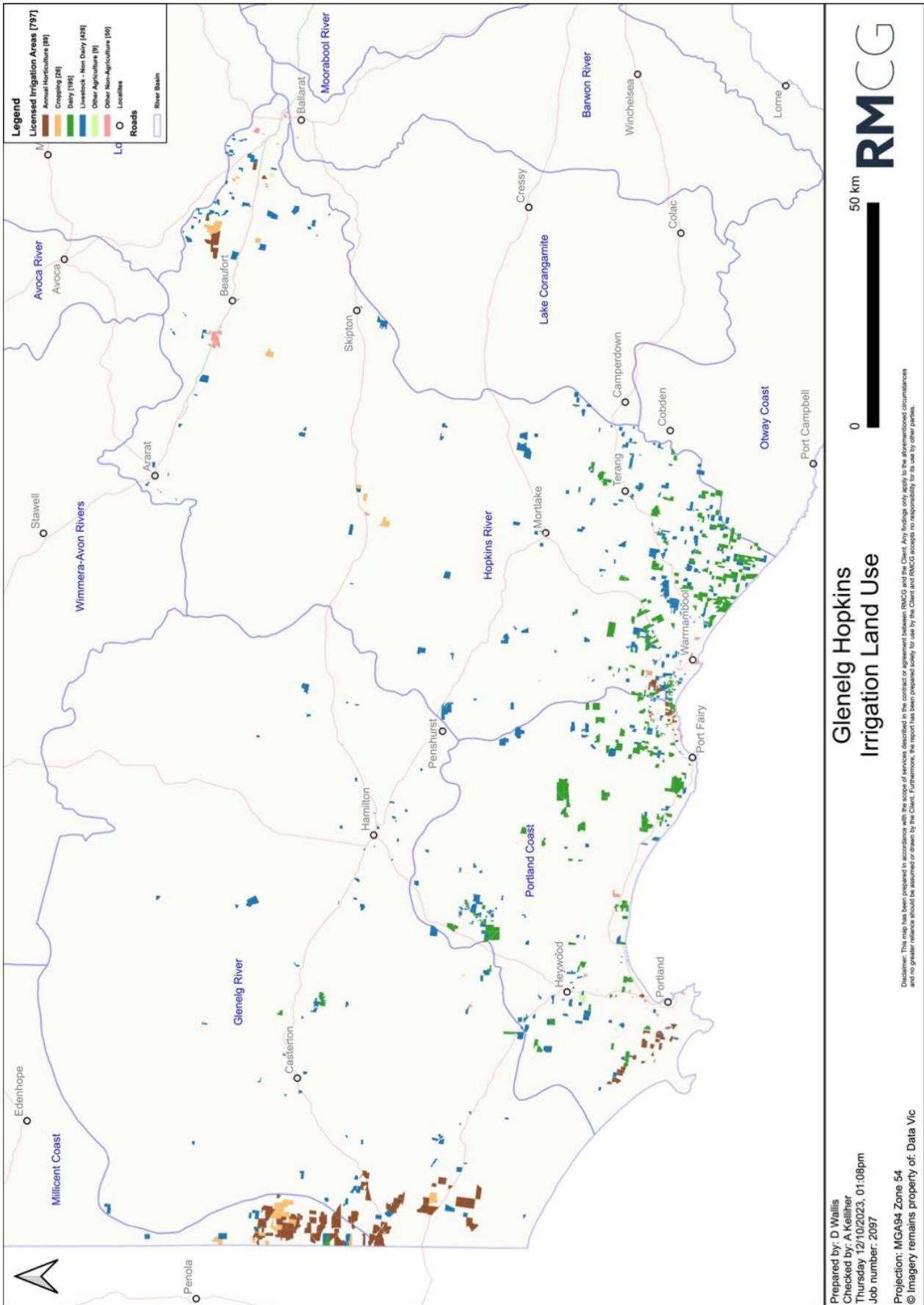


Figure 2-1: Irrigation Land Use – All Sites with Licensed Volume

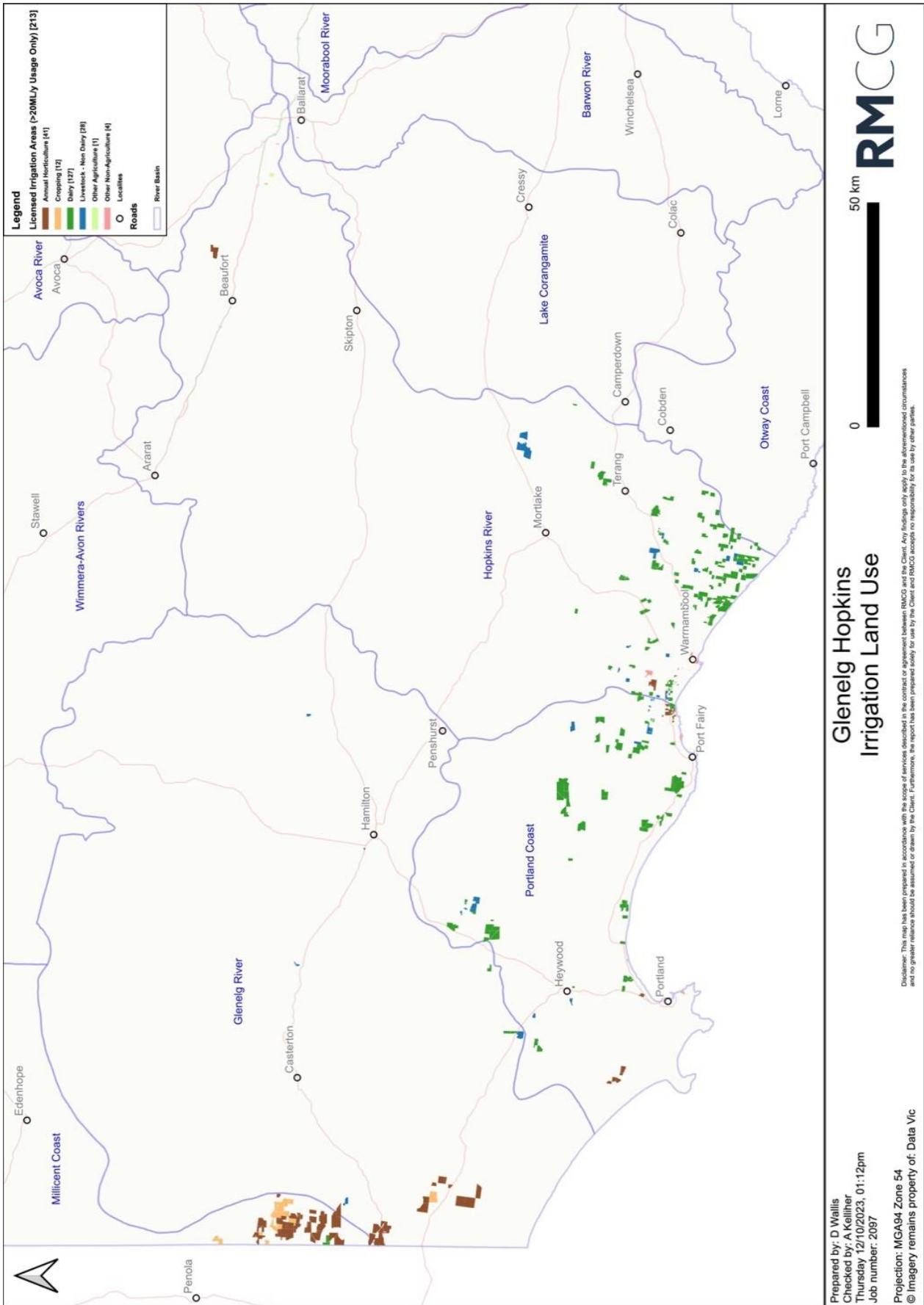


Figure 2-2: Irrigation Land Use – Sites with Usage > 20 ML/yr

VICTORIAN WATER REGISTER DATA

The Victorian Water Register provides information on trades of allocation, entitlement, and permanent or temporary transfers of “take and use” licence water (both surface water and groundwater). Some examples of the volume of trade across Victoria are outlined below. The highlighted rows show summary statistics for temporary groundwater trades (temporary transfer of take and use licences) in Southern Victoria and the Southwest Limestone GMA.

Table 2-1: Trade intensity in a selection of Victorian surface and groundwater systems⁵

REGION	TRADE TYPE	TRADE VOLUME (2021-22) (GL)	SYSTEM VOLUME (GL)	TRADE INTENSITY
1A Greater Goulburn	Allocation	736.7	1,456.5	51%
7 VIC Murray (Barmah to SA)	Allocation	696.9	1,134.6	61%
6 VIC Murray (Dartmouth to Barmah)	Allocation	249.4	463.9	54%
41 Macalister	Allocation	8.6	213.2	4%
Southern Victorian groundwater (all)	Temporary	3.2	262.4	1%
SWLA	Temporary	1.9	80.4	2%

It is clear that there is limited volume of groundwater trading in the SWLA, particularly in comparison to northern Victorian allocation and entitlement trades. However, the Victorian Water Trading Annual Report 2021-22⁶ indicates that the Southwest Limestone GMA was the most active market for permanent and temporary trade for groundwater in southern Victoria, both in terms of the number of trades and the volume traded. It's unclear why but is a potential indicator in the interest in trading.

WATER TRADING IN THE SWLA

The recent history of trade is shown in Figure 2-3 for context. Temporary trading is significantly higher than permanent trading. In 2021-22 there were 11 permanent transfers of entitlement averaging 45 ML and totalling 497 ML. There were 15 temporary transfers averaging 130 ML and totalling 1,945 ML.⁷ In 2022-23 there were 5 permanent transfers averaging 128 ML and totalling 638 ML, and 7 temporary transfers of entitlement averaging 139 ML and totalling 9,853 ML (data supplied by SRW).

⁵ Obtained from the Victorian Water Trading: 2021-22 Annual Report (<https://www.waterregister.vic.gov.au/water-entitlements/entitlement-statistics>) and Southern Rural Water SWL Annual Groundwater Condition Summary 2021-22 (<https://www.srw.com.au/sites/default/files/documents/2023-06/SWL%20Annual%20groundwater%20condition%20summary%202021-22.pdf>)

⁶ <https://www.waterregister.vic.gov.au/images/documents/Victorian-Water-Trading-Annual-Report-2021-22.pdf>

⁷ Note this does not include change in land ownership, which accounted for another 1,515 ML of groundwater in the SWLA changing ownership (but not location). From: Vic Water Trading Annual Report 21-22.



Figure 2-3: Recent trade history (from SRW annual condition summary)

There is limited public information relating to price and the general geographic locations of trade within the SWLA.

WATER USAGE IN THE SWLA

The 2021-22 annual groundwater condition summary notes that metered usage was 33 GL out of a total licenced volume of 80 GL. A review of the data shows that usage has varied between approximately 25 GL and 37 GL per annum since 2017-18. Usage varies in response to climatic conditions. 2021-22 was a relatively low rainfall year and usage increased by comparison to previous years and was 10% higher than the average use over the past 5 years. However, regardless of the weather, groundwater users are not using the maximum permissible volume.

2.2 FACTORS INFLUENCING TRADE

A background review of groundwater trading in SWLA highlighted underlying factors that may have contributed to the low levels of trade in the SWLA. The primary factors contributing to SWLA that were highlighted through consultation with the licence holders (see Chapter 3) are summarised below, and the full background report with a complete list of factors influencing trade in the SWLA can be found in **Appendix 1**. We acknowledge that some of these factors outlined below are out the control of SRW capacity to influence, as they relate to State-level policy, climate conditions and so on.

GEOGRAPHICAL FACTORS

- **Land use homogeneity:** While there are several uses of land within the SWLA region, the predominant use of groundwater is to support the region’s strong dairy industry. It is likely that the majority of users in the SWLA area, will be net sellers in wet years and net buyers in extremely dry years, therefore reducing the likelihood of trade. For the dairy industry it is also an option for farms to provide cattle with supplementary feed rather than irrigating pasture for feed. This substitute to water reduces the potential value of groundwater trade. If the land use changed to a mix of permanent horticulture, dairy/livestock,

and annual crops greater temporary trade would be expected due to the different demand characteristics of each industry.

- **Rainfall and evaporation:** Given the higher rainfall and lower evaporation in the SWLA area compared to intensely irrigated areas such as northern Victoria, there is likely to be less scarcity and less need for trade. By contrast, in northern Victoria, the significant swings from dry to wet periods, and the higher base demand for irrigation water, increase the value and importance of trade to the region.

COST FACTORS RELATING TO THE NATURE OF GROUNDWATER

- **Infrastructure investment:** Groundwater irrigation involves the irrigator investing in most of the 'delivery infrastructure' on their own property. Hence, they are unlikely to invest in this type of infrastructure without holding a highly reliable water entitlement.
- **Value:** Access to groundwater licence volumes fluctuate much less between years compared with allocations to surface water shares. Combined with higher levels of rainfall, the result is that it can be more cost-effective and a better risk management strategy to hold a sufficient supply of licence volume to meet one's own irrigation requirements, rather than relying on temporary trade.

INFORMATION FACTORS

- **Trade price:** Given the lack of publicly accessible trade data, there is unlikely to be an accessible and accurate equilibrium price of groundwater. This means that each trade is dependent on individual negotiations where one or both parties may be unsure of the price of other trades that have been conducted
- **Unclear rules:** The publicly available information regarding trading zones may be perceived as hard to find or difficult to understand, which creates uncertainty
- **Finding a counterparty:** Given the low current utilisation of groundwater trading, there appears to be no material broker interest or incentive in maintaining active registers of potential buyers and sellers. As such, potential traders rely on word of mouth, social media or newspaper advertisements, real estate agents and conveyancers.

SOCIAL FACTORS

- **Perception of Value:** In regard to permanent trade, groundwater entitlement may be retained with the property in expectation of realising a better value at any future property sale, particularly if a sale is being considered. There is a perception that selling groundwater permanently erodes the capital value of property.

POLICY FACTORS

- **Permissible consumptive volumes (PCVs):** For various regions, the minister has specified maximum PCVs in any given year. However, these do not align to the SWLA and exist within subregions. SRW has advised that it monitors the PCV's manually in the event of a trading application. This makes it difficult for potential traders to check PCV compliance or feasibility prior to undertaking a trade. The lack of this upfront feasibility check is likely a barrier to trade in the SWLA.
- **Meeting legislative requirements:** The process of advertising and implementing a groundwater trade is complicated. There is a legislated requirement for the licencing authority (SRW) to ensure that any temporary or permanent trade does not create an adverse impact to other users or the source aquifers, as required by the Water Act 1989 s.40(1). SRW follows applicable Ministerial Guidelines and Policies (e.g. Policies for Take and Use Licences, Ministerial Guidelines for Groundwater Licencing and the Protection of Groundwater-Dependent Ecosystems, and Irrigation Development Guidelines) to ensure that requirements of the Act are met. In practice, this involves using a variety of tools, including visual inspection, desktop assessment, hydrogeological assessments, applying Ministerial approved maximum volumes, and public advertising. Care is taken in undertaking these assessments, to ensure

a safe groundwater supply and to manage risk (reputational, environmental, legal). There are additional costs to applicants associated with meeting these requirements during the application process.

- **Streamlined approvals:** SRW notes that applications can be streamlined in certain circumstances. Where a trade is deemed low risk, it can typically occur without a full groundwater impact assessment / hydrogeological assessment. SRW follows Ministerial Guidelines and works with other agencies to process groundwater licence applications (including transfers) according to approved risk management frameworks. However, the process can be difficult to navigate from an applicant's perspective, which can lead applicants to miss out on opportunities to reduce the risks associated with a proposal, resulting in higher cost and more burdensome approval processes. It is likely that these barriers impact more on permanent trades than temporary trades.

2.3 CONCLUSION

The review of previous reports and data demonstrates the extent to which underlying characteristics of the SWLA region, combined with information and social factors, present barriers to trade. This includes the following:

- Geographical factors such as patterns of land use and reliance on rainfall;
- Cost factors related to the nature of groundwater including need for private investment in infrastructure;
- Social factors such as attitudes to trade arising from a historically different approach to water use compared with other areas such as Northern Victoria;
- Information factors including a major gap in information on trade opportunities and trade rules; and
- Policy factors which influence the cost of processing trades and support for applicants to understand and navigate these policy factors.

Some of these barriers represent intractable challenges which are not easily alleviated in the short-term. However, there is a real opportunity to address other, more obvious barriers and underlying issues.

The findings of the background review of previous reports and data was further tested during consultation with licence holders, as discussed in the following sections of the report.

3 Consultation

3.1 APPROACH

SWLA GMA irrigators were consulted on their experiences of groundwater trading. Consultation activities included:

- **United Dairy Victoria (UDV) meeting:** RMCG presented the aims of the project to approx. 30 UDV members at a general meeting in December 2023. Most attendees were groundwater licence holders. An open discussion was facilitated on the barriers experienced by the dairy industry and all attendees were encouraged to complete the online survey.
- **Online Survey:** An online survey was distributed to all SWLA irrigators email addresses and was open from mid-December 2023 until March 2024 (10 weeks). The survey included questions relevant to groundwater trading (buying and selling), individual farm data (size of land, volume of entitlement etc) and perceived barriers to trade. All email addresses were supplied by SRW, and three separate emails were sent encouraging participation.
- **Targeted interviews:** Follow up phone interviews were undertaken with a selection of irrigators who completed the above survey; and 4 face-to-face interviews were undertaken (Hawkesdale, Mepunga, Warrnambool x 2). The aim of these interviews was to 'deep dive' into barriers to trade, and better understand the key themes identified in the online survey. The interviews (12) covered a sample of irrigation customers across different industries, entitlement volumes and demographics.

In addition, an online **SRW Staff Interview** was facilitated to understand SRW experience on barriers to groundwater trading. This discussion included SRW staff from Planning, Hydrogeology, and SWLA Field.

The results of the consultation activities are summarised below.

3.2 ONLINE SURVEY

The online survey reached a reasonably representative range of participants from across the SWLA GMA. Thirty-three (33) responses were received from groundwater users accounting for around 7,000 ML of licenced volume.

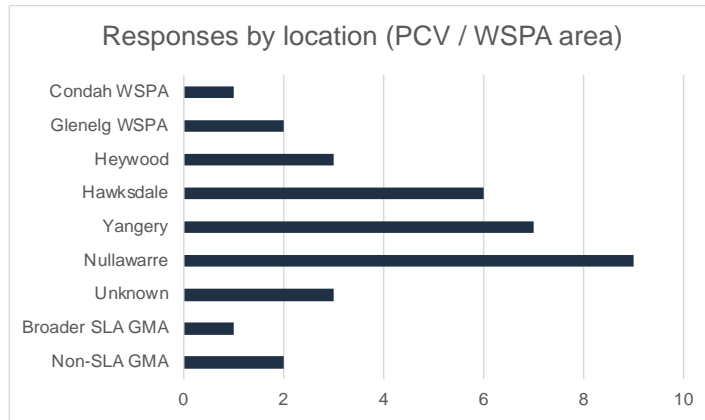
Of the responses received from within the SWLA GMA, a higher proportion of these were from areas with higher volumes of water entitlement (higher Permissible Consumptive Volumes (PCVs)) (Table 3-1 and Figure 3-1), such as Nullawarre and Yangery. Note that all areas are within a PCV.

It was also reported by SWLA Field Staff⁸ that some licence holders were offered the chance to undertake the survey with assistance from the field staff. However, they did not participate in the survey because they have no interest in trading.

⁸ Pers. Comm Clinton Hartley SRW

Table 3-1: Number of survey responses by location and PCV* and Figure 3-1: Number of survey responses by location.

AREA	NO. OF RESP*	PCV (ML)
Nullawarre	9	22,741
Yangery	7	14,352
Hawkesdale	6	16,161
Heywood	3	8,500
Glenelg WSPA	2	15,607



Around 60% of respondents (20) reported dairy as their main land use, followed by beef grazing (8) and mixed enterprise (3). This is considered reflective of the broader pattern of land use among irrigators in the region, as identified in the irrigation use maps in Section 2.2 CONTEXT (Figure 2-1 and Figure 2-2). Other responses were received from respondents with a sheep grazing property, potato farm and a residential subdivision.

Noticeably, the top responses by location were from within the Nullawarre PCV area and the Yangery PCV area, and that all respondents within the Nullawarre PCV area (Figure 3-3) were dairy farmers, while the majority of responses from Yangery PCV area were beef graziers.

Figure 3-2: Number of responses by land use.



Figure 3-3: Location of survey respondents by land use type

IRRIGATION WITH GROUNDWATER

Almost all respondents within the SWLA (29/32) reported groundwater as their dominant source of water. The survey attracted a varied range of irrigators, with respondents from <10ML to >500ML. Close to half of the respondents hold licenced volumes of between 100-500 ML.

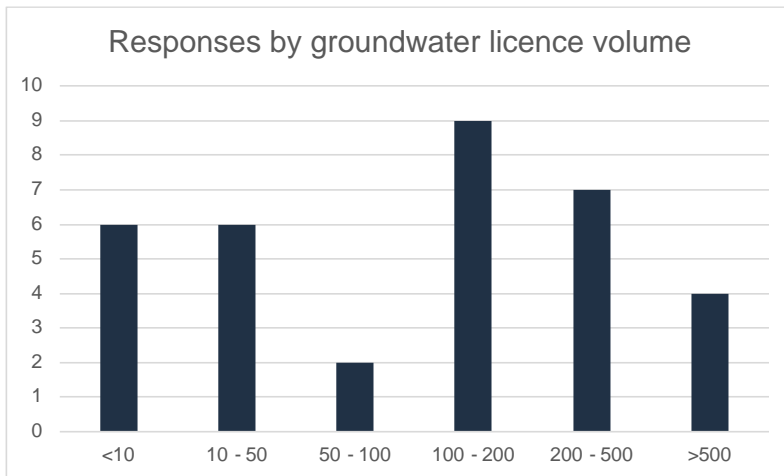


Figure 3-4: Number of survey responses by licence volume.

Although more than half of respondents indicated that they used less than 80% of their licenced volume of groundwater each year (with more than a quarter reporting water use of less than 30%), a significant amount used more than 80% of their entitlement (Figure 3-5). These findings show that water entitlement use varies across the area, which is in line with the types of land use and rainfall variations. Of this 80%, the majority were from Nullawarre (7/9 of the 80%). This likely reflects the high level of allocated resources in the Nullawarre area.

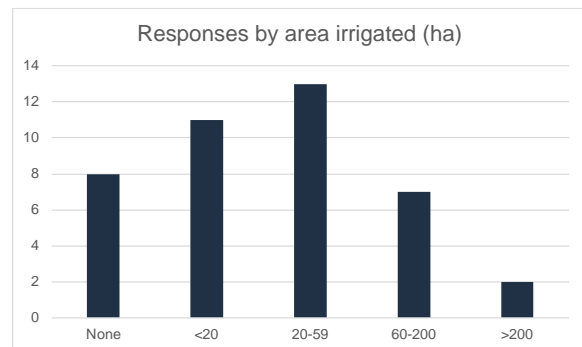
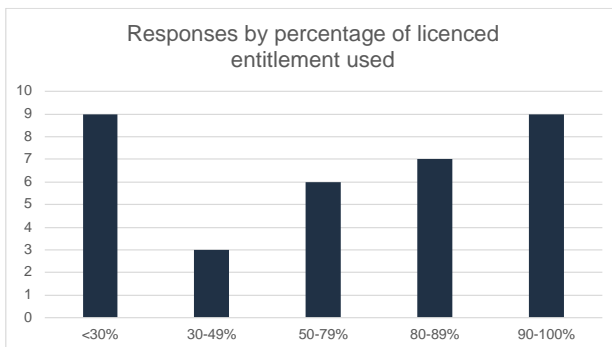


Figure 3-5: Number of responses by percentage of entitlement used and Figure 3-6: Number of survey responses by area irrigated.

The survey also attracted responses from entitlement holders that do not irrigate (8 responses). Of these respondents, 3 had <10ML of entitlement, 4 respondents had 10-50ML and 2 respondents had 200-500ML.

BARRIERS TO WATER TRADE

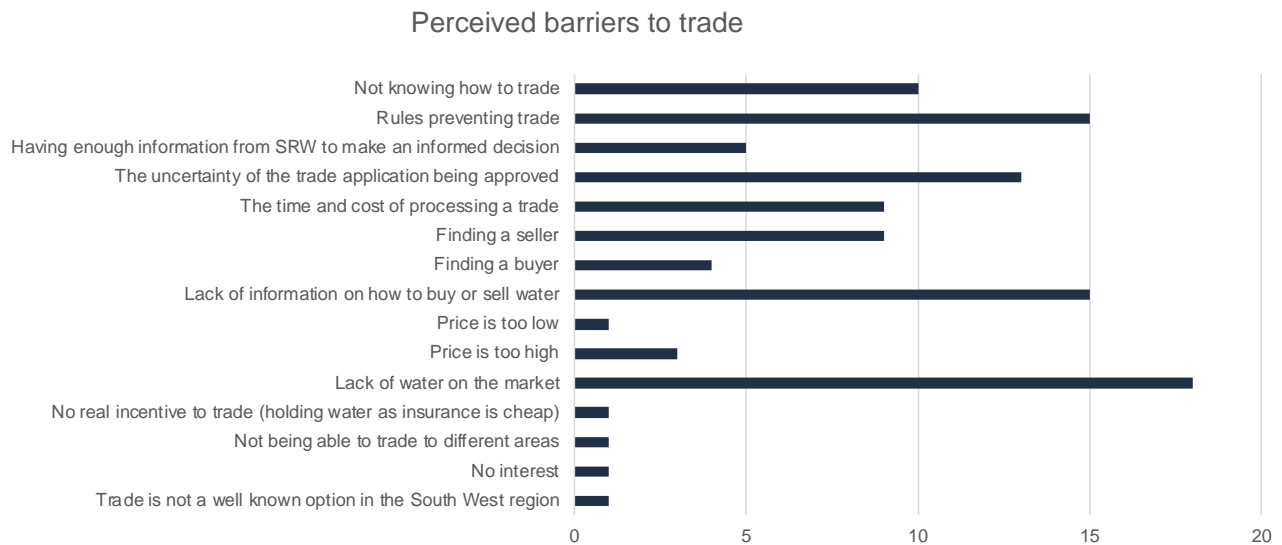


Figure 3-7: Number of responses according to different barriers to trade

Survey respondents shared their views on the main barriers to trade in the SWLA. Interesting trends or observations on the barriers reported include:

- The four most commonly cited barriers were Lack of water on the market (18); Lack of information on how to buy or sell water (15); Rules preventing trade (15) and Uncertainty of a trade application being approved (13)
- Lack of water on the market was consistently reported as a barrier across most locations, with the exception of responses from Yangery, where this issue was not reported at all. This barrier was also most commonly reported among participants who use more than 80% of their licenced entitlement.
- Rules preventing trade was commonly reported as a barrier among respondents based in Yangery and to some extent Nullawarre. Both these areas are highly allocated PCV areas
- Finding a seller and price being too high were more frequently reported as barriers compared with finding a buyer and price being too low. This may be associated with a culture among licence holders that values holding, rather than trading water
- Most respondents who reported finding a seller as a barrier held higher licence volumes of more than 100 ML
- Information barriers, including how to buy or sell water and finding a buyer or seller, were reported by almost all low licence volume holder respondents (<50 ML) and was also commonly reported among respondents using less than 50% of their water. It is possible that groundwater use is less central to farm businesses associated with this group during 'normal' rainfall conditions and therefore a lower incentive exists to seek information on trade.
- The time and cost of processing trades was also among one of the commonly cited barriers (9/34) and this response was fairly well spread across locations, licence volumes and percentage of licenced volume used.

Respondents' reasons for selecting barriers elicited further insights. Interesting findings included:

- Several responses indicating trade had not previously been considered at all e.g.:
 - “I didn't know you could trade. We have excess water and would like to know more”
- Responses reflecting previous negative experiences of trade, or stories of others' experiences:
 - “Because in the past I've found it very hard to find and trade water”
 - “I have seen with other farmers that have transferred water to new irrigation farms that the rules and regulations and requirements of monitoring bores has been onerous and costly”
 - “I believe... that we can't buy water in my zone (we can lease water though which we do sometimes)”
- Responses indicating high costs and effort required to process trades and uncertainty associated with the outcome:
 - “We started the process of purchasing 100 ML of water. The cost of required information was over \$50,000 (consultants fees) with no indication from SRW if we would receive the water.”
- Challenges due to high level of allocation within the Nullawarre PCV and Yangery PCV area:
 - “Our zone is fully allocated, making trade difficult.” (Nullawarre)
 - “Because we're in a heavily used [allocated] region the hoops we had to jump through to obtain our initial license we're exhaustive (e.g. hydro assessment) and with no certainty of getting water transfer approved.” (Nullawarre)
 - “We have wanted to sell water to another area, but rules state we can't” (Yangery)
 - “Because our area is too hard to find and trade water because SRW claim our area is over allocated” (Nullawarre)

CONCLUSIONS

Survey results suggest that:

- **Many groundwater licences are not fully utilised:** Many licence holders use less water than their licenced volume and tend to hold on to, rather than trade surplus water. This limits the opportunity for trade and accordingly, lack of water on the market was the most commonly cited barrier to trade among survey responses. The exception is the Nullawarre area where the resource is more highly allocated
- **The PCV's are a barrier for irrigators who wish to trade in and out of the PCV zones:** The responses from Nullawarre and Yangery indicate that there is a willingness to trade, but the PCV's are preventing that from occurring.
- **Those already using high volumes of water appeared to be more engaged in trade activities:** This is consistent with the understanding that trade is more actively pursued in situations where there is greater perceived value in an asset. Respondents in this category less commonly reported information barriers compared to smaller licence holder counterparts.
- **Information barriers are significant within the SWLA:** Frequently cited barriers included information on how to buy or sell water and finding a buyer or seller. These responses were especially common among low licence volume holders and also respondents using less than 50% of their water
- **Licence holders are not confident at navigating trade processes, which can be costly:** Rules preventing trade and uncertainty regarding whether trades will be approved were commonly cited barriers. This included concerns around the time and costs involved in processing trades. This finding could indicate overly onerous application processes, a gap in the availability of information or clear communication about how to navigate trade processes, and/or that in practice water trade is overall of lower value to the farm business.

3.3 CUSTOMER INTERVIEWS

During the 12 phone and face-to-face interviews, participants were asked to provide more detail on the barriers to trade that were identified in the survey. This included providing experiences of trade (or lack of), views on trade barriers, access to information on trade and suggested improvements.

The participants shared their own experiences of trade and interests from their individual business perspective, but also reflected upon the implications of improving groundwater trade for the whole district.

As participation was voluntary, it was clear that irrigators who had prior experience of trading or were completely unaware of the trading process and were interested in finding out more, were motivated to participate.

PREVIOUS EXPERIENCES OF TRADING GROUNDWATER

Almost all of the 12 participants (10 out of 12) reported some experience of seeking to trade groundwater in the SWLA:

- One reported withdrawing an application for a permanent transfer due to application costs (e.g. requirements for hydrogeological studies, ongoing monitoring) and uncertainty regarding approval.
- Three reported experiencing difficulties processing permanent transfers, including restrictions being applied and uncertainty regarding approval of the transfer.
- Four reported positive experiences undertaking temporary transfers including relatively simple trade processes.
- However, almost half of the participants expressed some concerns that the process to trade was not well communicated, and that finding water was difficult unless you knew of someone selling by 'word-of-mouth'.
- Three participants reported successful permanent trades that followed on from temporary trades.

CONSULTATION KEY THEMES

1. The rules are preventing trade. In particular, the permissible consumptive volumes (PCV's) and the permanent trade application process.
2. Lack of readily available and easy to understand information on trading.
3. Change in SRW Customer Service over time.
4. Attitudes toward trading.

These themes, the perceptions behind them and contributing reasons are discussed below.

THE RULES ARE PREVENTING TRADE.

PCV's are restricting trade for irrigators who want to expand their operation or supplement their income.

Dairy irrigators in the Nullawarre PCV indicated that PCV's have restricted expanding their operation, and one beef producer in the Yangery PCV that held >100ML was willing to sell water permanently but could not find a buyer within the Yangery PCV.

In response to the question 'are there rules preventing trade that have impacted you?', several irrigators explained:

"The boundaries and selling to a (an area of) higher demand. I'm from SA and it has much more flexible trading rules. It would be good to see a review of the rules". - Yangery PCV, Beef producer.

"In Nullawarre - hugely. I can't lease water from the other side of the line on a map. A change in soil type or river makes sense, a line on the map doesn't. A review of boundaries is difficult but could be positive. We know it's intense around Mepunga and Nullawarre." - Dairy Farmer, Allansford, Nullawarre PCV.

"Where there are high allocation scenarios, look to share it more equitably. i.e., I used 99% of my 6ML allocation, why can't I get more? If there's a demonstrated willingness to use your entitlement. SRW could look at the metering record and ask farmers not using their ML if they can free up water?" - Yambuk, Hawkesdale PCV.

Alternatively, one dairy irrigator with the largest entitlement that participated in this study (>700ML) felt that the PCV's were there to protect the resource.

"Yes, because we're in a high use zone. The rules are there for a reason. I think respect the professionals, because if we overuse the aquifer, and we don't protect the resource, then we could end up with stranded assets. We're protecting everyone's licence as well as trading." - Dairy Farmer, Nullawarre PCV.

Permanent trade process is complex, uncertain and costly.

Each permanent trade requires SRW to assess the Matters to be taken into account identified in [s.40 of The Water Act 1989](#). Applications can only be approved by SRW if they can be shown to have no adverse impact on the environment and existing users. SRW follows Ministerial Guidelines and Policies applicable to Take and Use Licences (e.g. Policies for Take and Use Licences, Ministerial Guidelines for Groundwater Licencing and the Protection of Groundwater-Dependent Ecosystems, and Irrigation Development Guidelines) to ensure that requirements of the Act are met.

The assessment processes followed are complex and can be prohibitively costly for licence holders seeking to trade in the SWLA. In particular, we heard:

- It is a significant financial investment imposed on the irrigator to provide the information required to support a permanent trade application.
- There is a lack of context provided (setting of expectations) on how arduous a trade application can be;
- SRW were not able to indicate upfront some level of likelihood of a permanent transfer being approved, and some information was inconsistent between field staff and approvals staff; and
- There is a significant amount of information required in areas that are not 'Low Risk' and may not be any thresholds on whether a low volume of water could be traded without the required information.

Some of these barriers highlight potential issues with the application processes themselves, while others point to a lack of clear communication and guidance for licence holders about the trade process. These barriers have perpetuated a perception among many irrigators that were interviewed that the process is 'painful' and not worth proceeding with.

Each trade application is unique and as such requires its own review. We understand SRW uses a variety of tools, including a visual site inspection, desktop assessment, hydrogeological assessments, Ministerial approved maximum application volumes and public advertising. It is noted that care is taken in undertaking these assessments, to ensure i) a sustainable groundwater supply, ii) protection of the environment against potentially adverse impacts of water use and iii) the subsequent risk of a formal appeal (VCAT) if SRW errs in its assessment. We note that a responsible assessment is important to reduce adverse impacts on the environment or third parties.

When applying for permanent trade, applicants are required to undertake investigations commensurate with the volume applied for. These investigations may include pumping tests and environmental impact reports to ensure the extraction will have no adverse effects⁹.

For the applicant, if this process falls outside of what is deemed 'low risk', an independent hydrogeological report and the installation of monitoring bores is required to be procured by the applicant and provided to SRW. This process costs upwards of \$50,000 upfront; and may cost more throughout the following years of monitoring, so that the irrigator can prove that there is no adverse impact.

Only after this information is supplied to SRW, can the assessment be undertaken to determine if the permanent trade can be approved. Depending on whether the application is near a Density zone, the Catchment Management Authority may also review the application and suggest conditions to the licence.

This process meets SRW requirements. However, from the perception of the irrigator, this process is the source of resentment for several GMA licence holders that were interviewed. Some examples of the process where the irrigators felt unhappy/frustrated were:

- An irrigator being told by SRW they could not proceed because they were in a high use zone. The irrigator spoke to the hydrogeologist and was able to relocate their bore to another site on their property and was then able to proceed with the application.
- An irrigator being advised that the transfer would be approved, but it was restricted with conditions recommended by the Glenelg-Hopkins CMA later in the process. This restriction was a daily water extraction (pumping) limit, which meant that there was no possible way that the licence holder can physically pump the volume permitted on their licence when the water was needed (October – March).
- Irrigators not proceeding with the hydrogeology report/bores because the risk of an unknown outcome was seen as too great a cost.
- The process of SRW not being able to indicate the likelihood of a permanent transfer, also applies to land sales, where the water transfer is not a subject to the condition of purchasing the land. This was the case for one irrigator who said he had 'many sleepless nights wondering whether the transfer would be approved by SRW', when the whole aim of buying the land was to irrigate on it.

Some quotes relating to the permanent transfer process:

'I am a betting man, but I'm not that much of a risk taker'.

⁹ DELWP 'Groundwater licencing and trading' Fact Sheet number 2. <https://resources.vic.gov.au/legislation-and-regulations/guidelines-and-codes-of-practice/groundwater-licensing-and-trading>

'The other thing they (SRW) couldn't tell us, was there a trigger point to trade 20ML or even 10ML, without the report. Advice was you cannot proceed with this unless you get a hydrogeologist.' - **Irrigator, Dairy**

There was a suggestion that the process is too risk adverse and some of that risk should be transferred to the irrigator.

'It's frustrating for the ones that want to progress, that make the restrictions hard. e.g. for us to expand our footprint, it's nearly impossible because of the red tape we would have to go to increase the area, it would be 5 years of painful monitoring, reporting, meetings, trying to prove we're not impacting the neighbour. If everything is agreed with neighbouring properties prior to permanently transferring GW and we all have an understanding of what that should be. Ideally, we want to reject the modelling, because the seasons change so much. If it looks like it will impact our neighbour, we will stop! There is a lack of common sense in the application process.' - **Irrigator, Dairy.**

The unintended consequence of the lack of security around the 'investment' of the hydrology report and monitoring bores, is that it causes inequality across the landscape and between different types of farms/farmers. i.e., the wealthier businesses can afford to absorb the risk and proceed with funding the studies, whereas the less wealthy that are trying to 'get ahead' cannot.

Apparent conflict with other water use conditions

The ability for all licence holders to apply 'carryover' is confusing for irrigators in high-risk areas (Unused groundwater may be carried over to the following year, up to a maximum of 30% of annual allocation). This carryover policy is appreciated and welcomed by irrigators, but there is confusion¹⁰ as to why a hydrogeology report is required in high-risk areas, but carryover is permitted. *i.e. a licence holder in a density limit area cannot trade 10ML/year without procuring a hydrology report but is permitted to use their remaining carryover in a dry year.*

'Simplify the process. Make it unified, we couldn't get 100ML, but they've virtually given us 50ML this season because of carryover, which is good for us, but it doesn't make sense'. - Irrigator, Dairy.

The confusion again highlights the need for clear communication surrounding groundwater licencing and use and the opportunities and risks associated with trade.

In addition, carryover is a risk management tool that may negate the need to trade, particularly for the temporary market.

LACK OF READILY AVAILABLE AND CLEAR INFORMATION ON TRADING

Most interview participants felt that a lack of information was a barrier to trade in one way or another. This included the following perceived information gaps:

- Lack of information about whether there was water available for sale or willing buyers in the district;
- No information about the market price of water;
- Lack of information about their own water budgeting needs; and
- Lack of information about the trade and allocation process.

Finding a seller/buyer. Some participants reported concerns that sellers are unnecessarily holding but not using their water licence (sleeper licences). Interviews with sellers indicated that they are uncertain of a price

¹⁰ Customer interview

to charge and the process to find a buyer, although one (now retired) licence holder said there was never any incentive to trade 'unless someone came to my front door and asked for it'. The interviewees looking to buy said there is no way of knowing who has water to trade unless you ask your neighbours.

Setting the Price. One irrigator said he leased his water for \$50/ML but had no idea how much he should charge. Another irrigator bought and paid 'top dollar' but didn't realise he paid so much above average market price until later when he discussed with other people. Both traders expressed frustration at this outcome. One irrigator said they could only pay between \$10-20/ML for a temporary trade because of the overheads involved (fuel, labour, using existing irrigation equipment).

Given the lack of publicly accessible trade data, there is unlikely to be an accessible and accurate equilibrium price of groundwater. This means that each trade is dependent on individual negotiations where one or both parties may be unsure of the price of other trades that have been conducted. An increase in the availability of prices would enable more buyers and sellers to enter the market and make informed decisions at lower costs and with greater confidence.

Lack of information about water budgeting needs. Some interviewees did not know how to find out their water entitlement balance and just 'assumed' they were not reaching their limit. Others knew to call the SRW Field Officers to find out. It was clear there was a lack of awareness regarding reaching their entitlement limit, which could be an issue in drier years.

Not sure of the process: There's a perceived disconnect between SRW and its customers in regard to trading. Some respondents had no idea they could trade water. Others have tried but could not find the form or who to contact.

There is agreement that the process on how to approach or find out more information to begin trading is not obvious or clear to the potential trader. Some potential sellers did not appear to be well informed regarding the process and benefits to selling water on the temporary market.

'There was no clear system as to how to trade it. I have asked, I've googled it, it's very unclear. Not only was it unclear, but it was also not clear if it was possible. I did eventually speak to an SRW rep. I also stumbled across a Facebook page.' - Dairy farmer, Nullawarre.

'The forms don't make a lot of sense. I looked on the website, I actually cannot find the form to put in the application to increase the size of my water licence' - Dairy Farmer, Heywood

DECLINE IN LEVEL OF SRW CUSTOMER SERVICE OVER TIME

All interviewees discussed a shift from having regular communication with SRW during meter reads (prior to automation) and via the Warrnambool office, to having minimal regular or personal contact with SRW. All comments of the existing field staff were complimentary, however there appears to be a change in role from what services were traditionally delivered to SRW customers. The following examples were provided by interviewees:

My meter has been snapped for a long time, I honestly wouldn't know who to tell or how to get it fixed. – Dairy farmer, Warrnambool.

There is a lack of common sense in the application process. It was an 8-week process for a permanent trade because the form was filled out incorrectly from my end, but I couldn't understand why. I called and said, 'I don't see what the problem is, can we have a zoom meeting?' But couldn't talk to anyone face to face to look at the form at the same time. We're talking about farmers that aren't very good at paperwork at the best of times. – Dairy Farmer, Yambuk.

What's missing is kitchen table conversations, which we understand is a huge resource to SRW. Because of technology, the meter reads are automated, so the field officers no longer come around and visit. And we used to visit Lynda at the SRW office. – Dairy Farmer, Warrnambool.

Why hasn't the Warrnambool Office reopened? We miss that personal contact. We put the centre pivot in and a new bore in 2012, the lady behind the counter that helped us apply was quite helpful and made it easier for me. The field staff have been really good to us. – Dairy Farmer, Yangery.

It is clear that many licence holders have found this change in level of service challenging and that in turn has impacted upon their capacity or interest to engage more actively in the management of their groundwater licences, through activities such as trade.

'The communications from SRW are general promotion 'feel good' that isn't really relevant to us. I opened the mail, but nothing was interesting. I don't want to be told how good SRW is. I need to trade water, it's a dry year and we've used our allocation. I want a register. I have no idea what to do to find water, I would have seen Linda. I don't even know; I have no idea who the field officer is or how to get in contact with them. There's no clear steps on how to connect with SRW.' - Dairy Farmer, Nullawarre

There was also a comment from a Heywood irrigator that there is minimal customer service past Warrnambool.

We're seen as the poor cousins, you've not noticed? You're on the Nullarbor Plain.

In addition, there is a sense of mistrust that remains as a result of the process for the initial allocation of water entitlements to landholders in the 1990's. Several interviewees brought up how water was originally 'handed out like lollies' and the inequity left by the approach, where their parents or neighbours weren't aware of the value of having a water entitlement over some more savvy irrigators. The process was fair, but the lack of knowledge and understanding of the value of water by some and not others (and what having water would mean in years to come) was perceived as unfair.

'It's frustrating, however they worked it out many years ago has left a legacy. One farmer got 1500ML, then sold half of his off. Then he paid for his 2 centre pivots.' - Dairy Farmer, Yambuk.

'I would like to see transparency around all of it. People are closed off in general talking about water price and trading, we need to open this up. SRW lost a lot of trust over the years through the legacy of handing out entitlements 'like lollies' - they should definitely focus on better customer service or someone to talk to.' - Dairy Farmer, Nullawarre.

ATTITUDES TOWARD TRADING

All interviewees identified the following attitudes as barriers towards trading:

- Belief of threat of 'losing the water'
- Entitlement as an investment / nest egg
- No incentive to trade.

Perception of 'Losing the water'. There is a misconception that a licence holder could potentially lose water entitlement if they have been selling it temporarily on a regular basis, as they are demonstrating that they 'don't need it'. In addition, there is the 'Bank Manager' influence, whereby if 'the banks' don't consider a product with a 15-year review timeline as being a secure investment, then that will create a culture of insecurity in the landscape. i.e. if the banks (whose business is managing risk) are convinced there is a secure product, then that gives farmers confidence. This also applies to investing in new infrastructure. It was noted by one interviewee that it is also a positive, because large international investors e.g., superannuation companies, are not buying farms in the area because the lack of security in the entitlement it is a deterrent.

'I'd never sell because I might need it. I read in the paper someone got \$3000/ML.' - Dairy Farmer, Yangery.

There was some talk or if you don't actively use it there might be an expiry period? i.e., if you leased it out. - Dairy Farmer, Hawkesdale.

The sellers have to be comfortable with trading and to be comfortable with putting their water 'up'. There's a 'they're going to take it off us' attitude. SRW 15-year rule on the licence renewal timeframe, this has been a very fair process, particularly around renewal. But it does deter investors because a 15-year timeframe is not long enough for very large investors i.e. superannuation etc. - Dairy Farmer, Nullawarre.

Largely the people hanging on to water are elderly or conservative...I think it's about half of water are sleeper licences. - Dairy, Nullawarre.

Water as an investment. Any type of resource licence where the resource has value, is seen as an investment by the licence holder. While there is a perception around losing water, there will be many licence holders who have no intention of doing anything with their water licence until they sell their farm, i.e. water is locked up, as it adds to the capital value of the farm.

People want it to stay with the land - it's like a belief. It's a nest egg/superannuation. - Dairy Farmer, Nullawarre.

There's probably a lot of water licences that aren't used. I know a heap of licences that will never get used. They are 'nest eggs' There's an electrician with a 60ML water licence, he got one on his hobby farm. What's the point? He has 10 times more water than I have on my 250-cow dairy farm on Heywood. Another up the road from me has 350ML that they will never use! What's the point. Heywood as an example, 13% allocation is actually used. That's why there's all these licences with water allocated. There's no incentive to trade - it never cost them anything. - Dairy Farmer, Heywood.

No incentive to trade. The annual licenced volume charges for groundwater are very low at \$4.44/ML and the annual SRW fee to hold a groundwater licence is \$404.27. This creates minimal incentive to sell unused water. Note that this low charge is due to the low cost to SRW, as infrastructure required for access is provided by the end user.

INTERVIEW CONCLUSIONS

Customer interviews highlighted the nuances associated with many of the trade barriers identified during the review:

- **PCV's are inhibiting trade for irrigators that wish to buy or lease more water, to expand their operations.** SRW faces an inherent challenge in balancing the management of risks associated with groundwater trade and providing flexibility to customers. There is a definite barrier in trade as a result of the PCV's.
- **Permanent trade process is complex, uncertain and costly:** SRW is obliged to adhere to guidelines and policies that guide the processing of trade applications. However, there is an opportunity for the water corporation to provide better support to customers seeking to navigate these processes. Clearer communication could alleviate many concerns including:
 - Early warning of the potential for prohibitively high costs and more information on the likelihood of success in various scenarios
 - Clearer advice on different options to reduce the risk category of applications (e.g. reduced licence volumes, location of bores or water use conditions)
 - Address common misconceptions regarding the application process for trades and ensure clear and concise information is available.

- **Lack of readily available and clear information on trading:** Information barriers were consistently raised as an issue during interviews and specific challenges were consistently described including:
 - Finding sellers and buyers
 - Uncertainty regarding price setting
 - Uncertainty regarding rules and processes.
- **Decline in SRW customer service over time:** Better customer service could increase confidence among licence holders by providing a trusted point of call for accessing information on trade. A key challenge associated with this barrier is the ongoing trend away from face-to-face customer service towards online services. One option is to provide a dedicated single point of call for the region (which could also be via phone or email). Improving customer service would provide an opportunity to alleviate many other issues explored during this study.
- **Attitudes towards trading:** Negative perceptions of trade perpetuate through both real and perceived barriers. For many farm businesses, groundwater (as a supplementary resource) is still of relatively low importance in terms of production, however it does hold an important place as a risk management tool. Moreover, infrastructure investment barriers and the complexity of permanent trade processes will continue to limit the practicality of trade as a viable option. As a result, there will continue to be licence holders for whom engaging in water trade is not seen as worthwhile. However, some other attitudes towards trade, are perpetuated by common misconceptions and information barriers which are more readily addressed.

4 Findings and Recommendations

4.1 TRADE BARRIER CONCLUSIONS

Drawing together findings from across the background review and consultation, the following key themes have emerged as barriers to trade:

1. **Characteristics of the SWLA and groundwater trading** – The background review, supported by survey findings, clearly demonstrates that there are characteristics of the SWLA and the nature of groundwater trading that mean that major increases in permanent or temporary trade are unlikely in the medium term. This includes:
 - a. Land use homogeneity. The majority of groundwater licence holders are dairy farmers and of that, most irrigate at similar times and have similar demand characteristics,
 - b. Temperate climate. Lower evaporation and higher rainfall than some other irrigation areas result in a relatively low irrigation requirement, particularly in the wetter years. Many of the dairy farms do not irrigate much (or not at all) and rely on rainfall. In a wet year, there would be low demand for groundwater.
 - c. The infrastructure investment required. The need to invest in pumping infrastructure on-farm (GW users are unique as the private user is the main investor in the infrastructure) and farmers being reluctant to invest in such infrastructure if they are heavily exposed to temporary trade.
 - d. Perceived and actual value of the resource to business operations.

However, in the longer-term, if there is a change in climate (less rainfall or dryer years), demand for irrigation water would be expected to increase. A change in land use for irrigation e.g. to a mix of permanent horticulture, dairy/livestock and annual cropping, would also be expected to lead to increased temporary trade.

2. **Permanent trade process is complex, uncertain and costly** – Interview findings highlighted several concerns raised by licence holders regarding the costs and uncertainty associated with permanent trade application processes. Notwithstanding the inherent challenge SRW faces in managing trade processes in accordance with legislated responsibilities and relevant guidelines, clearer communication could alleviate many of the concerns raised, including a focus on providing earlier and clearer advice to potential applicants
3. **PCV's are inhibiting trade for irrigators that wish to buy or lease more water, to expand their operations.** SRW faces an inherent challenge in balancing the management of risks associated with groundwater trade and providing flexibility to customers. There is a definite barrier to trade as a result of the PCV's in Nullawarre and Yangery.
4. **Lack of readily available and clear information on trading** – Survey and interview findings both clearly and consistently highlighted licence holders' concerns regarding information barriers. This ranged from challenges finding sellers and buyers and uncertainty regarding pricing, to the lack of readily available information on trade rules and processes. These barriers are among the simplest challenges to address in the region
5. **Decline in SRW customer service over time** – Interview findings demonstrate that irrigators are experiencing challenges accessing information and advice regarding trade, and that these experiences are at least in part due to a decrease in the frequency of communication with customers via trusted methods (e.g. face-to-face or phone contact with known SRW staff members)
6. **Attitudes towards trading** – The background review highlighted that negative perceptions of trade are perpetuated by different factors. The perceived value of groundwater to farm business operations will continue to be a difficult barrier to address due to many of the underlying characteristics of the SWLA. However, there is a clear opportunity to address common misconceptions identified during the interviews, build basic awareness of trading rules and processes, and provide readily accessible information and timely updates on water use.

4.2 RECOMMENDATIONS

Recommendations have been formulated to address the identified trade barriers as follows.

BETTER CUSTOMER SERVICE

- **Focus on 'working together' with the customer**
- **Keep everything as simple as possible**
- **Be available to customers**
- **Make good with the customers - rebuild trust.**

If SRW want to facilitate increased trading and essentially increase the company's revenue through trade fees, it's essential to strive for excellence in customer service. There appears to be a need to shift the client perception from a bureaucratic organisation to '*how can we make this work*'. The SRW Customer Service Charter and website page 'We are here to help' does express SRW's intent, service levels and what the customer can expect - but from the examples provided in the interviews, there needs to be a more consistent effort to put these words into action.

As should be expected, there was an obvious decline in customer service following Lynda and Gary's departure and the closure of the Warrnambool Office in 2019. It was also clear that their support was greatly valued. As previously mentioned, all respondents were complimentary of the existing field officers' efforts. It is recommended that SRW re-establish a form of assistance that is easily accessible to customers. One suggestion is to offer the option for customers to FaceTime or meet online with relevant staff (i.e. planning and approvals, hydrology). It's important to note that customers like to talk to the same person, with some base understanding (i.e. basic literacy around irrigation and metering works), as it is frustrating talking to someone that does not understand the topic, or to a different person every time. SRW should not look to create a 'call centre' type role.

Through better customer service and making the trade process easier, there is room to make some positive steps between SRW and the customers and lessen some of this inequality.

BUILD AWARENESS OF WATER/ENTITLEMENT USE AND GROUNDWATER TRADING

- **Educate licence holders on how to calculate their water use.**
- **Make a request for assistance (from farmer to SRW) easier.**
- **Clarity around the basics of groundwater cycle and trading.**

Educate licence holders on how to calculate their water use. A simple means of educating each licence holder how to self-calculate the % of allocation used throughout the season would be hugely effective, given 8 out of 10 interviewees did not know how to find out how much water they had used on their entitlement.

Basics of groundwater cycle and trading. Efforts have been made by SRW to improve groundwater literacy in the SWLA, such as the *Groundwater Opportunities in the south west region brochure*, published in 2023. This education could continue. An example would be clearly articulating section 8.3 Trading Rules, in particular the limits on where SWLA licence holders can or can't trade and why. This could be revised into customer-centric visual communication via a short video, a fact sheet, or through presenting this information as a Q&A at a farmer representative group meeting e.g. UDV, Landcare, CMA field day.

Request for assistance (from farmer to SRW) made easier. Some basic marketing would be of benefit on who to contact if you have a question. QR codes have become universally adopted since Covid-19, and a QR code magnet or sticker could be posted to all licence holders. Alternatively, sharing the SRW customer centre

phone number via mobile to each licence holders' mobile phone that they can save in their phone, would be useful. (Note: Action taken here needs to link with the approach to improved customer service.)

DISPEL COMMON MISCONCEPTIONS

- **Resolve myth around the risk of losing water during the 15-year review or in drought being linked to trade behaviour.**

These myths need to be clarified and communicated to foster trust with farmers who will then feel 'safe' and confident to trade.

Given there is such a good understanding of the aquifer by SRW, there should be clarity around the intent of the 15-year review of licence, as it creates uncertainty around long term security.

TRANSPARENCY IN TRADE

- **SRW to engage trade partner to passively facilitate trade.**
- **Publish trade volumes and prices.**
- **Ensure clear and up to date information on trade rules and processes is readily available to customers.**
- **Provide some regular market analysis (in line with market and weather).**

SRW to engage trade partner to passively facilitate trade. It was clear from the interviews that there was a need for someone to facilitate trade. Examples of where trade has been facilitated have been provided below:

- Figure 4-1 is a comparison of groundwater trading structures¹¹ (developed in California) that has simplified the advantages and disadvantages of different trading structures.
- An example from Southern NSW has been provided, where a temporary 'match making service' was provided to irrigators for three years, when water trade first started to increase in the Lower to mid Murray River area.

¹¹ Groundwater Trading as a Tool for Implementing California's Sustainable Groundwater Management Act, 2017. Environmental Defence Fund and Mammoth Trading. <https://www.edf.org/sites/default/files/documents/water-markets.pdf>

Comparison of trading structures

Trading structure	Description	Administrator	Advantages and disadvantages	Participant costs
Bilateral contracts or "coffee shop" markets	The most common form of water transactions worldwide, no formal trading mechanism exists. Participants largely learn of one another by word of mouth.	None; informal and decentralized	Advantages <ul style="list-style-type: none"> • Costless to agency to implement Disadvantages <ul style="list-style-type: none"> • Difficulty identifying an interested party • Difficulty in price negotiation • Difficulty in regulatory compliance 	No third-party fees; high search and transactions costs
Brokerage	Representation of a buyer or seller in a water rights transaction.	Private sector	Advantages <ul style="list-style-type: none"> • Helps identify interested parties • Helps to negotiate price • Specialized agents help in regulatory compliance Disadvantages <ul style="list-style-type: none"> • Still somewhat decentralized • Pricing often favors the represented party 	Brokerage fee
Bulletin boards	A physical or electronic board where interested parties can list information about their water rights for others to get in contact with them.	Private sector, regulatory agencies	Advantages <ul style="list-style-type: none"> • Centralizes trading activity to a degree Disadvantages <ul style="list-style-type: none"> • Difficulty in price negotiation • Difficulty in regulatory compliance 	No third-party fees; moderate search and transactions costs
Auctions and reverse auctions	A physical or electronic system in which buyers outbid one another (auction) or sellers undercut one another (reverse auction) to trade water.	Private sector, regulatory agencies	Advantages <ul style="list-style-type: none"> • Centralizes trading activity to a degree Disadvantages <ul style="list-style-type: none"> • Asymmetric pricing: One side reaps the benefits or gains of trade • Difficulty in regulatory compliance 	Auction fee if privately run
Electronic clearing-houses or "smart markets"	Leverages the power of computer optimization and a tailor-made algorithm to match participants within the trading rules and by price points.	Private sector, regulatory agencies	Advantages: <ul style="list-style-type: none"> • Centralizes trading activity • Automates regulatory compliance • Includes price discovery mechanism Disadvantages: <ul style="list-style-type: none"> • Intensive startup costs to develop 	Trading fee, if privately run

Figure 4-1: Comparison of trading structures (2017)

Example of NSW Department of Water Resources (DWR) Murray Region 'Bulletin Board' 1990's¹².

- The bulletin board was solely for sellers that have the allocation and buyers that needed the water.
- The government acted as a 'match making service'.
- Someone who has a surplus water advised the water corporation. They had to email, confirm use/licence number and DWR would ring back and confirm it was them.
- DWR would confirm the seller is a user and the put the two in touch with each other with their permission.
- Someone had to 'fact check' the seller has the water rights to the water (i.e. is the licence holder). There were some barriers to this when the licence holder was a relative and not the actual licence holder (the licence holders' son, etc)

The water authority (DWR) needed to ensure:

- There were reasonable protocols in place to confirm the seller is the actual legal owner of the water.
- The buyer had been given enough reasonable information to ascertain whether they can use the water i.e. trading zones.
- Both parties, the seller and buyer, needed to confirm that they have the land or need to use the water. It could not be used for water investors or brokers.

¹² NSW water trading was just commencing at this time. In 1995, control and operation of the irrigation system was handed over to the irrigators it served, through the formation of the privatised company Murray Irrigation Limited. See the history of the transition of water markets for MIL [here](#).

Feedback from participants indicate that any trade platform adopted by SRW should be kept simple, transparent and private i.e. no names or personal details until the trade occurs.

SRW have already invested in a trade platform that has been developed and rolled-out in the MID district, known as the 'Southern Rural Water Exchange'. We understand that to expand the Southern Rural Water Exchange for SWLA GMA users to trade, it would incur little or no further investment by SRW, and as such minimal costs to SWLA irrigators. SRW have indicated that there has been positive feedback from all demographics, and believe this would be the best option to facilitate trade in the SWLA GMA, as it would require minimal SRW staff resources and be a consistent platform state-wide.

Publish trade volumes and prices. The process of negotiating is difficult for some people, and even more difficult for all if there is no indicator of price, or at least a range. To create confidence in trading, the price and volume and trade location area, must be published. However, privacy is important, so this publication must be done in a way that sufficiently de-identifies the data. Frequency of reporting would also need to be established as this could become important in a fluctuating market.

Ensure clear and up to date information is readily available to customers. Part of SRW's due diligence to facilitate trading is to equip buyers and sellers with the right information to make the trading process easier.

Provide some regular market analysis (in line with market and weather). Regular market analysis responds to the need for more engaging content that is relevant to the trader. This can include a quarterly trade summary, weather forecasts, trade rules information or facts - and can extend to field days, environmental updates. An example of this is Murray Irrigation Limited 'Talking Water' weekly newsletter, which takes the opportunity each week to update its water users.

REDUCE THE COMPLEXITY OF TRADE PROCESSES

- **Advocate for review of PCV relevance and boundaries.**
- **Set applicant expectations on the timing and cost of the process as early as possible.**
- **Provide clear advice to applicant on factors / triggers that can reduce the cost burden of trade processes**

As concluded, the PCV areas are a barrier to trading (in and out of PCV's) and the permanent trade process is complex and costly.

Advocate for review of PCV relevance and boundaries. To address the barriers to trade because of the PCV's, a review of the PCV boundaries would be beneficial, particularly for the Nullawarre and Yangery catchment. A common-sense approach to review the relevance of PCV's and the boundaries in line with contemporary view of the aquifer and the associated groundwater values (i.e., hydrology, geography, bore monitoring records, rainfall) and not surface factors (roads and/or farm boundaries) would benefit all in the aquifer. This would confirm the relevance of the PCV's for all parties.

To reduce the complexity and cost of permanent trade for the applicant, we suggest the following.

1. **Set applicant expectations on the timing and cost of the process as early as possible.** Provide information on:
 - The timing from previous trades i.e. the average processing time is xx months, although some complex trades have taken xxx years, for xx reasons
 - Factors that are taken into consideration when assessing a trade include: the environment and proximity to a waterway, the aquifer you are in, etc.
2. **Provide clear advice to applicant on factors / triggers that can reduce the cost burden of trade processes. Giving them an idea of thresholds** - what's something that we could approve without a lot of investment and what's the trigger to require detailed Hydro report. i.e., Volumetric threshold,

proximity to surface water features / key environmental assets, soil type. If you could just give them some probability / some sort of matrix to guide whether to succeed (outcome of likelihood of volume succeeding)

For SRW internally:

3. Review the information/studies SRW are requesting from the applicant:

- Is the information already available?
- Are you clear why you need it?
- Is the request commensurate with the risk?
- Is there a way to assess the risks using a regional approach rather than expecting it from individual applicants?

The cost of investigations (~\$10,000-\$30,000) is very significant to some primary producers and only information that is essential should be requested.

4.3 PLAN TO ACTION

The aim of the below table is for SRW to have a plan of actions to better support water market participants. The actions have been separated as 'need to Have' and 'nice to have' for the benefit of SRW.

Table 4-1. Plan of actions to remove barriers to trade in the SWLA.

ACTIONS	NEED TO HAVE	NICE TO HAVE
1. Better customer service	<ul style="list-style-type: none"> ▪ Culture of 'working together' with the customer. ▪ Keep everything as simple as possible. ▪ Be available to customers. 	<ul style="list-style-type: none"> ▪ Rebuild trust with the customers.
2. Build awareness of water/entitlement use	<ul style="list-style-type: none"> ▪ Educate licence holders on how to calculate their water use. ▪ Make a request for assistance (from farmer to SRW) easier. 	<ul style="list-style-type: none"> ▪ Basics of groundwater cycle, particularly replenishment.
3. Dispel common misconceptions	<ul style="list-style-type: none"> ▪ Resolve myth around the risk of losing water during the 15-year review (or in drought) on the basis of trade behaviour. 	
4. Making trade transparent	<ul style="list-style-type: none"> ▪ SRW to engage trade partner to passively facilitate trade. ▪ Publish trade volumes and prices. ▪ Ensure clear and up to date information on trade rules and processes is readily available to customers 	<ul style="list-style-type: none"> ▪ Provide some regular market analysis (in line with market and weather)
5. Reduce the complexity of trade processes	<ul style="list-style-type: none"> ▪ Advocate for review of PCV relevance and boundaries. ▪ Set applicant expectations on the timing and cost of the process as early as possible. ▪ Provide clear advice to applicant on factors / triggers that can reduce the cost burden of trade processes 	
Monitoring Success	Action 1. Develop a Customer Satisfaction Evaluation plan. Action 2. Collect trade baseline data.	

5 Benchmark for success.

The aim of this chapter is to develop a benchmark for market activity and participation which could help to inform future revision of the Local Management Plan in the SWLA.

It's important to emphasise that SWLA will most likely have one of the lowest quantities of temporary trade in Victoria, even if SRW is performing well. We also note that in context of SRW groundwater management areas in Southern Victoria, the SWLA has the most trade activity.

Any monitoring of success and developing a benchmark is difficult without knowing what changes will be implemented by SRW following this report. As such, the following are suggestions only.

To measure success, SRW will need to define what success looks like. Success should ideally combine trade data (types, frequency, sellers, buyers) and customer satisfaction (ease of trade, satisfaction with process).

As such, we advise the following Actions:

Action 1. Develop a Customer Satisfaction Evaluation plan in relation to customer satisfaction for SRW Customers. This plan should:

- Define what success is.
- Identify the logical steps that would lead to success, and
- Identify measurable goals to measure progress along the way.

Action 2. Collect baseline data. To measure success regarding **trade only**, a suggestion is to begin collecting baseline data on trade and start from there. In theory, trade should increase as the barriers are removed, on the proviso it is not a significantly wet season (and therefore less demand for water).

All the factors and barriers mentioned throughout the report mean that in the short to medium-term temporary trade in SW Vic is likely to be low, particularly in wetter years. Therefore, it is more relevant to look at medium to longer term trends rather than annual.

Table 5-1. Monitoring suggestions.

INDICATOR	BASELINE DATA	2-3 YEARS
Trading amount	Collect in 2023/24	Baseline is 23/2024 data.
Permanent trade Temporary trade	<ul style="list-style-type: none"> ▪ Number of trades ▪ Types of trades ▪ Trade volumes ▪ Time duration (from application to final transfer) ▪ Number of applicants that cancelled permanent trade application following site visit (i.e. due to costs) ▪ Customer satisfaction goals developed 	<ul style="list-style-type: none"> ▪ Number of trades ▪ Types of trades ▪ Trade volumes ▪ Time duration (from application to final transfer) ▪ Number of applicants that cancelled permanent trade application following site visit (i.e. due to costs) ▪ Customer satisfaction feedback.

Appendix 1: Background research report on trading barriers in the SWLA

Southwest Limestone GMA – background research report on water trading barriers

Southern Rural Water

December, 2023

1 Summary

PURPOSE

The purpose of this paper is to undertake a broad review of background material to identify potential barriers to groundwater trading in the South West Limestone Aquifer Groundwater Management Area (SWLA). This paper will inform the consultation and findings for this SRW and DEECA project.

OVERVIEW

Victoria's Southwest region is a highly productive agricultural area, and this production is supported by irrigation with water primarily sourced from groundwater. The dairy industry is predominant in irrigation water usage, with smaller contributions from other industries, including beef and sheep production, broadacre cropping, potatoes, horticulture and mixed enterprises. Demand for irrigation is likely to increase in response to climate change, subject to water availability.

SUMMARY OF ISSUES

This paper identifies potential barriers to trade within the SWLA region, including economic, social and geographical factors. We note that where some trading rules may represent barriers to trade, these rules may be required to reduce adverse impacts on the environment or third parties.

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Gunditjmara and Eastern Maar people as the Traditional Owners of the Country on which this project is based. We recognise their continuing connection to land, waters and culture and pay our respects to their Elders past and present, and we acknowledge emerging leaders. Moreover, we express gratitude for the knowledge and insight that Traditional Owners and other Aboriginal and Torres Strait Islander people contribute to our shared work in Australia.

We pay respects to all Aboriginal and Torres Strait Islander communities. We recognise that Australia was founded on the genocide and dispossession of First Nations people and acknowledge that sovereignty was not ceded in this country. We embrace the spirit of reconciliation, working towards self-determination, equity of outcomes, and an equal voice for Australia's First People.

2 Current trading summary

2.1 VICTORIAN WATER REGISTER DATA

The Victorian Water Register provides information on trades of allocation, entitlement and “take and use” water (both surface water and groundwater). Some examples of the volume of trade across Victoria are outlined below.

Table 2-1: Trade intensity in a selection of Victorian surface and groundwater systems¹

REGION	TRADE TYPE	TRADE VOLUME (2021-22) (GL)	SYSTEM VOLUME (GL)	TRADE INTENSITY
1A Greater Goulburn	Allocation	736.7	1,456.5	51%
7 VIC Murray (Barmah to SA)	Allocation	696.9	1,134.6	61%
6 VIC Murray (Dartmouth to Barmah)	Allocation	249.4	463.9	54%
41 Macalister	Allocation	8.6	213.2	4%
Southern Victorian groundwater (all)	Temporary	3.2	262.4	1%
SWLA	Temporary	1.9	80.4	2%

¹ Obtained from the Victorian Water Trading: 2021-22 Annual Report (<https://www.waterregister.vic.gov.au/water-entitlements/entitlement-statistics>) and Southern Rural Water SWL Annual Groundwater Condition Summary 2021-22 (<https://www.srw.com.au/sites/default/files/documents/2023-06/SWL%20Annual%20groundwater%20condition%20summary%202021-22.pdf>)

It is clear that there is limited volume of groundwater trading, particularly in comparison to northern Victorian allocation and entitlement trades.

The Victorian Water Trading Annual Report 2021-22² indicates that the Southwest Limestone GMA was the most active market for permanent and temporary trade for groundwater in southern Victoria, both in terms of the number of trades and the volume traded.

2.2 SOUTHERN RURAL WATER DATA

Maps of the SWLA GMA and its overlapping zones are publicly available via www.srw.com.au/groundwater. There are also links to supporting management plans and summary information relating to the annual trade volumes of both permanent and temporary trades.³ However, there is no information relating to price or any specific geographic locations of trade within the GMA.

The 2021-22 annual groundwater condition summary notes that the metered usage was 33 GL out of a total licenced volume of 80 GL. A review of the data shows that usage has varied between approximately 25 GL and 37 GL per annum since 2017-18. Usage varies in response to climatic conditions. 2021-22 was a relatively low rainfall year and usage increased by comparison to previous years and was 10% higher than the average use over the past 5 years.

However, regardless of the weather, groundwater users are not using the maximum permissible volume. The lack of scarcity may be a key reason for limited value of additional trade, as customers may be able to simply increase their usage up to their licenced volume before needing to trade. However, this depends on individual situations and who currently holds the entitlements.

In 2021-22 there were 11 permanent transfers of entitlement averaging 45 ML and totalling 497 ML. There were 15 temporary trades averaging 130 ML and totalling 1,945 ML.⁴

The recent history of trade is shown in Figure 2-1 for context. Temporary trading is significantly higher than permanent trading.

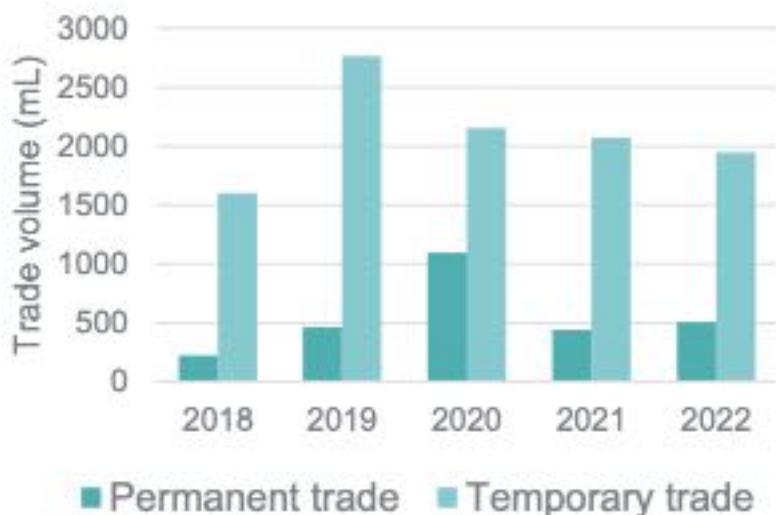


Figure 2-1: Recent trade history (from SRW annual condition summary)

² <https://www.waterregister.vic.gov.au/images/documents/Victorian-Water-Trading-Annual-Report-2021-22.pdf>

³ <https://www.srw.com.au/sites/default/files/documents/2023-06/SWL%20Annual%20groundwater%20condition%20summary%202021-22.pdf>

⁴ Note this does not include change in land ownership, which accounted for another 1,515 ML of groundwater in the SWLA changing ownership (but not location). From: Vic Water Trading Annual Report 21-22.

3 Economic and policy factors

There are several economic and policy factors that may explain the low rates of trade in the SWLA region (as outlined above). These relate to trading rules, cost, information and time of undertaking a trade.

3.1 POLICY FACTORS

No adverse impact. The process of advertising and implementing a groundwater trade is complicated. In particular, there is a requirement for the licencing authority (SRW) to ensure that any temporary or permanent trade does not create an adverse impact to other users or the source aquifers, as required by the *Water Act 1989* s.40(1) Matters to be taken into account. In practice, this is assessed using a variety of tools, including visual inspection, desktop assessment, ministerial approved maximum volumes and public advertising. It is also noted that care is taken in undertaking these assessments, to ensure a safe groundwater supply and the subsequent risk of formal appeal (VCAT) if SRW errs in its assessment.

Visual inspection: SRW officers advised that a physical visit may yield information relevant to determining the presence of a potential adverse impact. For example, a groundwater licence issued in proximity to a local waterway may cause a local adverse impact.

Advertising: To ensure that no community members hold information relevant to an adverse impact assessment, SRW will routinely undertake community advertising to elicit community knowledge prior to the assessment of non-streamlined transfers – both temporary and permanent. It is plausible that any groundwater licence holder may be discouraged from potentially trading if there is community concern regarding an application to trade.

Permissible consumptive volumes (PCVs): For various regions, the minister has specified maximum PCVs in any given year. However, these do not align to the SWLA and exist within subregions. SRW has advised that it monitors the PCV's manually in the event of a trading application. This makes it difficult for potential traders to check PCV compliance or feasibility prior to undertaking a trade. The lack of this upfront feasibility check is likely a barrier to trade in the SWLA.

Density rules: A maximum groundwater extraction density is permitted within the SWLA. This is defined as a ML per km² limit within a 5km radius, with different limits if the location is within a certain proximity of a waterway. If the extraction volume (per km²) exceeds the threshold, this is an indicator that there may be an adverse impact on other licence holders if the aquifer is unable to replenish itself to offset the volume extracted. This information is not published in real time, and SRW undertakes modelling each time a trade could potentially breach this density. This is a potential cause of uncertainty for an applicant.

Streamlined approval: SRW notes that applications can be streamlined in certain circumstances. Where a trade is deemed low risk, it can occur without a full groundwater impact assessment. To inform our investigation, we seek information from SRW regarding the percentage of trades that are streamlined.

While we note that these considerations are necessary in SRW's assessment, it is likely that these issues still represent barriers to groundwater trade. It is likely that these barriers impact more on temporary trades than permanent trades.

Carryover: Unused groundwater may be carried over to the following year, up to a maximum of 30% of annual allocation. Carryover volume is then considered to be "used first" in SRW's usage accounting. There is no accumulation of carryover year on year and carryover is non-tradable. Given use is well below entitlement volume, carryover is counter to trade. It is understood that carryover was implemented due to the lack of trade to assist licence holders to manage dry years.

SA Border area: The tertiary limestone aquifer extends into both states and groundwater is the principal source of reliable natural water. The Border Groundwaters Agreement is in place and applies to a 20 km strip either side of the border. Recent review has identified the need for a consistent approach to account for the water used by plantation forests and the need for studies into the risks arising from long term declines in groundwater levels. These included studies on the inter-connection between the Tertiary Confined Sand Aquifer and the Tertiary Limestone Aquifer, the risk of sea-water intrusion in South Australian Coastal Region and aquifer depletion in the Lake Mundi area in Victoria.⁵ Lake Mundi is a key area of groundwater use in the SWLA and depletion will threaten ongoing access for existing users and will be a barrier to trade.

3.2 COST FACTORS

Trade price: Given the lack of publicly accessible trade data, there is unlikely to be an accessible and accurate equilibrium price of groundwater. This means that each trade is dependent on individual negotiations where one or both parties may be unsure of the price of other trades that have been conducted. An increase in the availability of prices would enable more buyers and sellers to enter the market and make informed decisions at lower costs and with greater confidence.

Trading cost: The direct transaction costs of a trade may be significant. Review of SRW's 2023-24 price list, identifies there is a price listed for low, medium and high impact licence transfers. While it is not clear if this applies to groundwater transfers, it is likely that any groundwater licence trade, temporary or permanent, would incur a fee of either \$948 or \$2,432.⁶ This level and uncertainty of application of the charge could represent a barrier to trade. It is understood from SRW that payment is made on the basis of initial assessment, but this may change through the process, with refunds made if required.

Value: Given the higher rainfall in the SWLA area compared to northern Victoria, there is likely to be less scarcity and less need for trade. By contrast, in northern Victoria, the significant swings from dry to wet periods, and the higher base demand for irrigation water, increase the value and importance of trade to the region.

As a large proportion of land use in the SWLA region is dairy, it is possible to provide cattle with supplementary feed rather than irrigating pasture for feed. This substitute to water reduces the potential value of groundwater trade.

Annual charges: the annual licenced volume charges for groundwater are very low at \$4.44/ML. This creates minimal incentive to sell unused water. Note that this low charge is due to the low cost to SRW, as infrastructure required for access is provided by the end user.

Cost of infrastructure: The costs of developing, maintaining and operating a groundwater irrigation supply bore may be a barrier to trade, particularly for new groundwater users, but also where there is aging or failed infrastructure.

3.3 INFORMATION FACTORS

Finding a counterparty: Given the low current utilisation of groundwater trading, there appears to be no material broker interest or incentive in maintaining active registers of potential buyers and sellers. There are likely to be significant search costs related to finding a counterparty to trade with. Potential traders rely on word of mouth, social media or newspaper advertisements, real estate agents and conveyancers.

Unclear rules: The publicly available information regarding trading zones may be perceived as hard to find or difficult to understand, which creates uncertainty. Also, all groundwater trades are subject to an individual

⁵ Border Groundwaters Agreement Review Committee Thirty-Seventh Annual Report – To 30 June 2022

⁶ <https://www.srw.com.au/sites/default/files/documents/2023-06/Tariff%20Schedule%202023-2024.pdf>

assessment prior to approval. While we are confident that SRW staff could clarify rules and provide advice verbally, potential traders may be discouraged due to this lack of immediate clarity.

Groundwater not well understood: the groundwater aquifers can be fractured locally and are not necessarily well understood. This is complicated by groundwater not being visually obvious. This is likely to make it more difficult for users/licence holders, particularly new entrants.

Online access: Online access to any service (i.e., online trading platform) may offer the potential to increase the utilisation of the service. For surface water allocation trades in SRW's districts, 96% of trade applications (110 of 114)⁷ were manual rather than being online. We note the presence of a Facebook group (Groundwater and Rivers), however this group has 288 members⁸ across all SRW regions whereas the SWLA region has 788 groundwater licences.⁹ While no specific data is available about groundwater trades (beyond several posts in the SRW water trading Facebook group advertising water available to trade), lack of utilisation and availability of online trading applications is likely to inhibit the use of trade.

3.4 TIME FACTORS

Timeliness: Market effectiveness relies on prompt resolutions of trade so that traders can make optimal decisions. This is particularly applicable to temporary trades. Current guidelines state that all temporary and permanent groundwater trades must be manually approved, although the SWLA LMP lists criteria in which trades can be assessed without a professional hydrogeological report. However, we could not find any evidence of mandated service standards or indications of the timeliness of approvals. The publication of such timelines could give confidence to potential traders that their trade application would be promptly considered. SRW could also consider a Guaranteed Service Level scheme whereby a rebate is provided to any customer whose processing time exceeds a predetermined time limit.

4 Social and geographical factors

4.1 SOCIAL FACTORS

Land use homogeneity: While there are several uses of land within the SWLA region, the predominant use of groundwater is to support the region's strong dairy industry. This comparative homogeneity of land use may inhibit trading. This is particularly the case for temporary trading – the majority of buyers and sellers are likely to want (or not want) water at the same time so there is not a balance between supply and demand. It is likely that the majority of users in the SWLA area are likely to be net sellers in wet years and net buyers in extremely dry years, therefore reducing the likelihood of trade.

The second key use of water is for vegetables (potatoes). The limited trade between dairy and vegetables at present may be due to lack of communication given the different main geographic locations as potatoes are mainly over to the northwest along the SA border.

Further change to land use over time, such as an influx of stone/pome fruit production, may see a dramatic change to the trade situation – initially this might be seen in permanent trading and then later in temporary trading.

Culture: Traditional farming practices in the SWLA area are likely to be utilising groundwater when required to supplement natural rainfall. This is different to the culture of farming practices in irrigated areas of the

⁷ <https://www.waterregister.vic.gov.au/images/documents/Victorian-Water-Trading-Annual-Report-2021-22.pdf>

⁸ <https://www.facebook.com/groups/SRWgroundwaterandrivers/>

⁹ <https://www.waterregister.vic.gov.au/water-entitlements/entitlement-statistics>

Southern Connected Basin whereby irrigation water is seen as an essential input to a successful farming enterprise. While trading rules in northern Victoria have been largely unchanged for over a decade, trade volumes have steadily increased as the culture of trading water has become embedded with modern irrigation enterprises.

Perception of value: Economic theory suggests that people value a product at its lowest marginal value.¹⁰ If comparing to rainfed production, this may reduce the value that customers place on the higher cost of groundwater supply. However, if comparing to the cost of supplementary feed supply during dry conditions, the value of groundwater may be considered much higher.

In regard to permanent trade, groundwater entitlement may be retained with the property in expectation of realising a better value at any future property sale. There is a perception that selling groundwater permanently erodes the capital value of property.

Unmetered services: Current SRW trading rules state that only licences over 20 ML need to be metered. This means that a significant percentage of customers receive unmeasured supplies. These customers have no incentive to trade as they could just increase their volume as required.

Climate change: Uncertainty over future rainfall may be limiting willingness to permanently trade groundwater.

4.2 GEOGRAPHICAL FACTORS

Physical limitations: The objective of trading rules in any system are to codify the physical limitations inherent in the system while preventing adverse environmental outcomes. In the SWLA region, rules exist that limit trade, such as maximum allocation densities. While these are barriers to trade, rules exist to avoid and limit adverse environmental or third-party impacts from trading what is a public good resource.

Potential market size: there are natural limits to the potential size of the SWLA market, as defined by hydrologic connectivity and aquifer volumes (with access capped by the Permissible Consumptive Volume PCV). This will impact on the number of participants potentially trading.

5 Next Steps

Through both the brief online survey and more extended phone/face-to-face interviews with SWLA licence holders, we will further investigate the barriers to groundwater trading. This will include investigation of barriers identified above, along with others raised by the consultation findings.

Based on this increased understanding of trade barriers, we will then identify opportunities to support increased future trade.

¹⁰ Prevos (2017) Customer Experience Management for Water Utilities: Marketing Urban Water Supply, International Water Association.

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