



Regional Irrigated Land and Water Use Mapping in Unregulated Diversions and Groundwater Areas

Technical Report

OCTOBER 2025



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- Goulburn Broken Catchment Management Authority (GB CMA)
- Department of Environment, Energy and Climate Action (DEECA)
- Agriculture Victoria
- Goulburn-Murray Water (GMW)
- North Central Catchment Management Authority (NCCMA)
- North East Catchment Management Authority (NECMA)
- Murray Dairy
- Fruit Growers Victoria
- Irrigation Farmers Network

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- GMW – John Weber, Bradley Roberts, Joshua Cimera, Peter Clydesdale and for the Customer Services Officers for each Basin
- GB CMA – Carl Walters, Melanie Squires, Vicki Mackenzie, Jen Pagon, Carolyn Nigro
- DEECA – Bonny Glaister, Ruth Hicks, Saul Siritzky, Ella Jorgenson, Jenn Learmonth, Tim Stoddart

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Executive Summary

This project builds upon the methodology and approaches developed under the Regional Irrigated Land and Water Use Mapping (RILWUM) program and complements the work already undertaken in the Goulburn Murray Irrigation District (GMID) and Regulated Diversions projects.

The unregulated diversions across Northern Victoria supply water to landholders supporting diverse agricultural land uses such as dairy, horticulture, beef, sheep, and intensive animals. These systems include both unregulated rivers and creeks, and groundwater (both shallow and deep lead) extractions.

The scope of the Unregulated Diversions Catchments Land and Water Use Mapping project includes the large-scale spatial capture of land and water use data of unregulated diverters within Northern Victoria for the 2023/24 irrigation season. In addition, water use data from 2022/23 was also available and has been included in this report.

It is noted that this project focuses solely on surface water diversions from unregulated rivers and streams within the Broken, Campaspe, Goulburn, Kiewa, Loddon, Ovens, and Upper Murray River basins and the groundwater extractions across both the shallow and deep lead systems. The project did not include Unregulated Registration Licence holders, these may be captured in future project works.

Some key findings from this project include:

- Livestock – Non Dairy and Cropping represented the largest primary land use industries by area. The Goulburn River basin represented the largest area where unregulated diversion water is used, followed by the Loddon River and Ovens River basins.
- The biggest water users were Cropping followed by Dairy (combined), with the largest use in the Loddon River Basin followed by the Campaspe River and Broken River basins.
- Rural Lifestyle/Residential had the greatest number of Take and Use Licences however it only represents 5% of the water used in 2023/24 and 5% of the area covered by Take and Use Licences.

Land and water use across the region is complex and undergoing significant change due to factors such as water supply and demand, water market drivers and seasonal conditions.

Ongoing data collection and mapping will continue to build an understanding of how the region is changing and adapting to reduced water availability. In determining land and water use changes and trends in the unregulated diversions, these findings can inform water, agriculture and planning policy at the local, regional, state and national level.

1. Introduction

The Unregulated Diversions and Groundwater monitoring project builds upon the Regional Irrigated Land and Water Use Mapping (RILWUM) program across the Goulburn Murray Irrigation District and the Regulated Diversions projects and provides a more comprehensive picture of water use and industries across the Goulburn-Murray Water (GMW) region of Northern Victoria.

The large-scale spatial capture of land use data of unregulated diversions and groundwater areas focused on land and water use by industry and Take and Use Licences (TUL) and will assist irrigators and natural resource management agencies in understanding patterns and trends, and support decision making regarding irrigation development.

1.1 Project Outcomes

The project outcomes were to:

- map the primary land use and water use in unregulated diversions and groundwater systems across the GMW Region of Northern Victoria.
- enable assessment of shifting water demands and land use change.
- build understanding of how irrigation regions are changing and adapting.

The scope included unregulated diversions works licences, take and use licences and the groundwater deep lead licences. For the purposes of this report, these are all referred to as Take and Use Licences.

The project did not include unregulated registration licence holder information due to the nature in which authorised lands are captured within the Victorian Water Register, and subsequent land use and water usage data limitations. Lands irrigated under unregulated registration licence holder authorisations may be the subject of a separate package of works at a later date.

1.2 Background

Building on the methodology and approaches developed under the RILWUM program, this project collected information on land use where water use from unregulated and groundwater sources was used, as a tool to support decision makers.

Funding for the project has been provided by Department of Environment, Energy and Climate Action (DEECA) to the Goulburn Broken Catchment Management Authority (GB CMA) who in collaboration with stakeholders, particularly GMW and Agriculture Victoria, has mapped the irrigated land and water use from unregulated rivers and streams diversions and groundwater extraction. The project complements the latest RILWUM work undertaken and the Regulated Diversions project in 2022/23 as well as the mapping undertaken over the past two decades in the GMID.

1.3 Objectives

The project objectives were to:

- Create a land and water use database for the unregulated diversions and groundwater systems of Northern Victoria; and
- Provide enhanced information on land and water use change by industry to support decision makers.

1.4 Deliverables

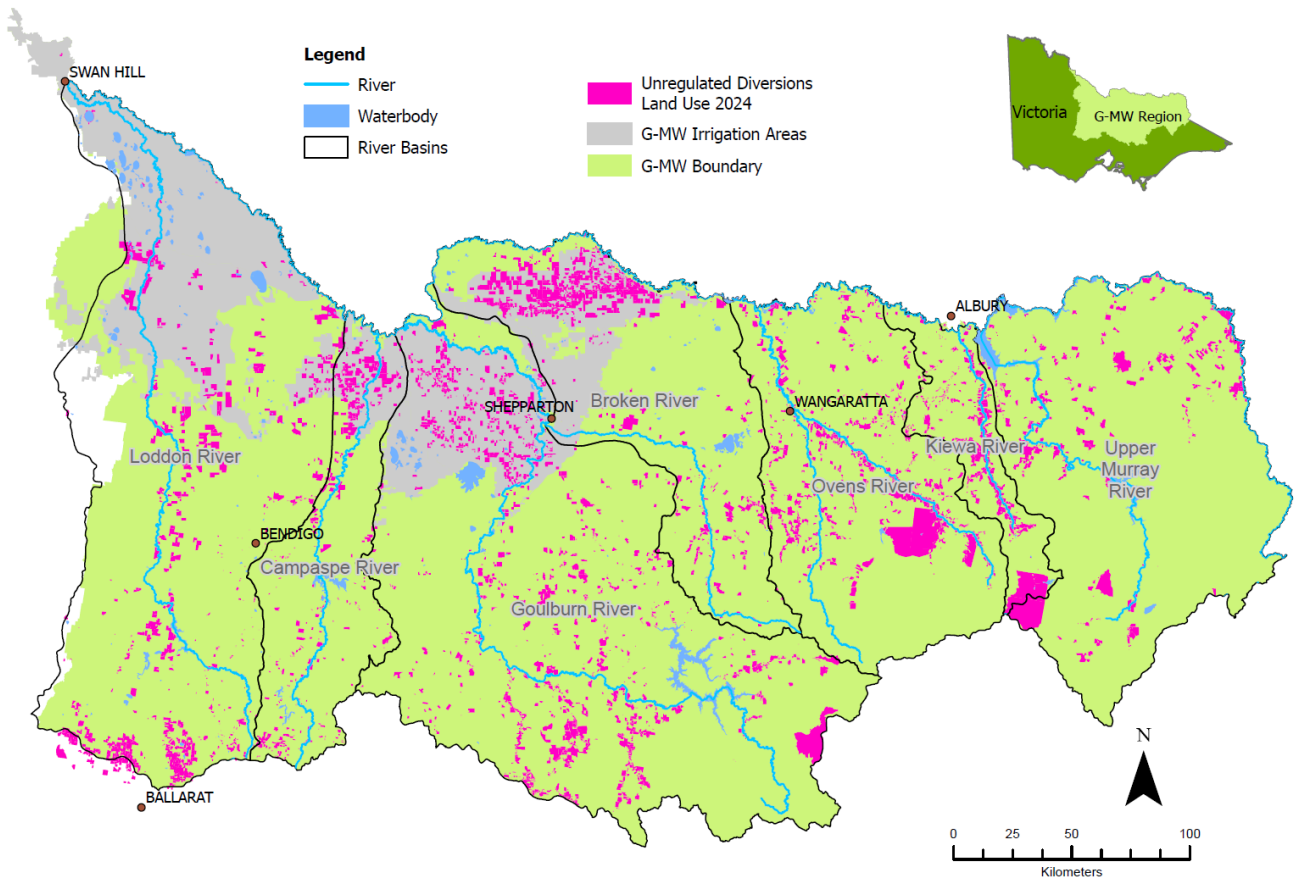
The key deliverables were:

- Development of spatial mapping dataset for the 2023/24 irrigation season against Take and Use Licences using the Geocortex Tool.
- A land use information dataset (land use change, water use change) for the GMW Region.
- A report of findings.

A Stakeholder Reference Group made up of key stakeholders provided input, whilst the Technical Working Group has delivered the project. Appendix 1 provides further details on the membership of the group.

Figure 1 shows the spread of the TUL across the GMW Region that formed the basis of this project.

FIGURE 1: UNREGULATED DIVERSIONS ACROSS THE GMW REGION IN 2023/24 (AGRICULTURE VICTORIA, 2025)



2. Methodology

2.1 Tool Development

GMW's Geographical Information System (GIS) staff developed an interactive tool called Geocortex for the 2018/19 GMID and Regulated Diversions Land and Water Use Mapping projects. This tool was used to capture land and water use data for the regulated diversions across the GMW region. For this project, we refer to Take and Use Licences as the collective term for water use licences (WUL) and bundled entitlement entities (BEE).

2.2 Data Capture

The Geocortex tool uses standardised lists to enable the end user to capture the following data using desktop assessment:

1. Primary Land Use (by Industry, e.g. Cropping) (refer to Table 1)
2. Secondary Land Use (by Industry) (if applicable)
3. Other Land Use (to capture land use categories not already listed)
4. On-Farm Irrigation Modernisation Assessment (Yes or No)
5. Irrigation Methods:
 - Drip
 - Low Level Sprinkler
 - Drip tape Subsurface
 - Fast Flow Flood
 - Conventional Flood
 - Pipe and Riser
 - Pivot and Linear Move
 - Fixed Sprinkler

6. Pump Energy Source:

- Electric (Grid)
- Solar Powered
- Diesel
- Diesel and Electric
- Gravity

7. Comments (to assist with analysis).

Not all the data captured is covered in this report. The water use information has been collected from the GMW TUL data and from information sourced from the Victorian Water Register. A single enterprise can have one TUL covering several land properties and titles. There are also a small number of parcels of land covered by a TUL on the boundaries of the river basins, which appear outside the GMW region, however these are generally associated with other properties in the GMW region, or their licencing is managed through GMW.

A TUL will generally cover the whole parcel of land/title, but the area irrigated on that property/title may only be a small portion of this area.

2.3 River Basins

This project covers the seven river basins across the GMW region:

- Broken River
- Campaspe River
- Goulburn River
- Kiewa River
- Loddon River
- Ovens River
- Upper Murray River

2.4 Analysis of Data

The data was analysed by GMW and the Spatial Information Sciences team at Agriculture Victoria. A selection of Australian Valuation Property Classification Codes was applied to each TUL and then further grouped to refine the classification as demonstrated in Table 1. This was consistent with the land use categories used in the GMID and Regulated Diversions projects.

TABLE 1: AUSTRALIAN VALUATION PROPERTY CLASSIFICATION CODE (AVPCC 2019) AND LAND USE CLASSIFICATION

PRIMARY LAND USE	SUMMARY CATEGORIES	DESCRIPTION
Domestic livestock grazing	Livestock - Non-dairy	Land used for grazing domestic and commercial livestock.
Livestock production – Beef cattle		
Livestock production – Sheep		
Crop production – Fodder crops	Cropping	Land used for broadacre crops, e.g. grains, oilseeds.
Crop production – Mixed/other		
General cropping		
Cattle feed lot	Intensive – Animals	Land developed with specialist infrastructure for intensive feeding of cattle, pigs, or poultry. It does not include intensive dairy as they are included in the dairy category.
Piggery		
Poultry (broiler or egg production)		
Horse stud/training facilities/stables	Horses	Land developed with specialist infrastructure for a horse stud farm or training facility. May include recreational equestrian.
Livestock production – Dairy cattle	Dairy	WUL with active dairy (milking) shed (at time of survey in August 2022 – May 2023).
	Dairy Agistment & Fodder	No clear link to a Dairy WUL, but dairy cattle were present during survey or a former dairy farm may be in transition.
	Dairy (Combined)	The combined dairy footprint (Dairy, and Dairy Agistment & Fodder).
Horticulture – Annual	Horticulture – Annual	Land used for growing vegetable crops (e.g. tomatoes) and berry crops (e.g. strawberries).
Horticulture – Berry		
Horticulture – Vegetable		
Horticulture – Fruit Tree	Horticulture – Perennial	Land planted to grow fruit and nuts, e.g. olives, stone fruits, tropical fruits, citrus, grapes and hops. Also includes land planted to grow turf.
Horticulture – Grapevine		
Horticulture – Nut Tree		
Horticulture – Turf		

PRIMARY LAND USE	SUMMARY CATEGORIES	DESCRIPTION
Glasshouse Plant/Vegetable Production	Glasshouse Plant/ Vegetable Production	Land developed with specialist infrastructure for the indoor propagation and growing of plants and plant crops.
Rural Residential	Rural Lifestyle/ Residential	A Lifestyle / Residential use dwelling on land in a rural, semi-rural or bushland setting. Primary production uses and associated improvements are secondary to the residential/lifestyle use. <ul style="list-style-type: none"> • Rural Residential <0.5ha; and • Rural Lifestyle <0.5 delivery share and <20ha property size.
Solar Electricity Generation/ Hydroelectricity Generation/ Wind Farm Electricity Generation	Energy	Land developed with specialist infrastructure used in the generation of hydroelectricity, wind powered electricity, or solar electricity (and associated water use).
N/A	*Other	A miscellaneous grouping includes areas such as government land, sports ovals, schools, town water, retirement villages, cemeteries, showgrounds, factories, caravan parks, and vacant/inactive land.
	**Not irrigated	Take and Use Licence associated however not actively irrigating, predominantly dryland farming and utilise their licence for Domestic and Stock purposes.

*The Other landuse category includes public/crown land such as the University of Melbourne's Dookie campus and national parks/crown land (such as Mt Buffalo and Falls Creek ski resort).

**The Not irrigated category includes properties where the water is used for purposes other than irrigation, such as for stock water or for wash down for manufacturing.

2.5 Data collection period

The assessment period was the 2023/24 irrigation season from August 2023 to May 2024. The data was validated against other available sources to ensure consistency of interpretation. The information measures activity at a point in time and should be interpreted with this in mind.

2.6 Privacy Statement

Irrigated enterprises will only be identified by a generic identification and no identifying information will be shared publicly.

2.7 Qualifications/Limitations of Data

Data collection was completed using the field knowledge of GMW Customer Service Officers to integrate field knowledge into the spatial mapping tool. The process has some inherent challenges in interpretation; however, all measures were undertaken to minimise objectivity. Table 2 highlights some of the data limitations and how limitations were managed.

TABLE 2: MANAGEMENT OF DATA LIMITATIONS

ISSUE	RISK	MANAGEMENT OF LIMITATIONS
Incorrect assessment of land use or modernisation status.	Potential for minimal land use categorisation inaccuracy.	Acknowledged high level of local knowledge among GMW Customer Service Officers. Consistent staff training about categorisation. Inclusion of secondary land use (not shown in this report).
Seasonality issues and context.	Land use requires a continued iteration depending on timing of inspection and interpretation.	Acknowledgement that results are a snapshot in time. The benefit of the Geocortex tool and data collection methodology is that it allows for consistent assessment of the same units in the future.
Limitations exist in the accuracy of determining AVPCC codes and sub-categorisation to the 'Dairy cattle agistment/ fodder' land use.	Potential for minimal Dairy land use categorisation inaccuracy, noting that data is not reflective of formal exits from the industry and is not reflective of dairy licence data, but instead, against WUL data.	<p>Consistent methodology in categorisation of properties linked to Dairy. e.g. properties were categorised as linked to Dairy in one of two ways:</p> <ul style="list-style-type: none"> • 'Dairy' – defined as WULs linked with a functioning milking shed at the time of survey; • 'Dairy Agistment & Fodder' – Land use defined as servicing the dairy industry or in transition (but have not been linked to an active dairy WUL). The land use may be used by another AVPCC land use code such as Cropping; or a link may exist with a dairy enterprise that was not found through integration with existing datasets. The decision was made to group these together as 'Dairy Agistment & Fodder' and document the methodology, to enable future investigation. <p>For the purposes of this project, the Dairy sub categories have been reported together as 'Dairy (Combined)'.</p>

(Goulburn Broken Catchment Management Authority; 2024).

3. Results

The Unregulated and groundwater diversions were mapped across the GMW region in 2023/24. Livestock – Non Dairy represented the largest land use industry, with Cropping being the largest area covered by TULs and water user in that year at 120,465 ha and 10.8 gegalitres (GL). There were 6,599 Take and Use Licences of which the largest entity type was Rural Lifestyle/Residential at 2,036.

Some properties represented in Figure 2 will also have a Water Use Licence and are supplied by the regulated irrigation system and extract water from a groundwater bore.

A summary of the area covered by TULs, water use and number of TULs by river basin for 2023/24 is provided in Table 3 (over page). The Goulburn River and Loddon River basins have the largest area of land covered by TULs.

The highest water use was in the Loddon River basin, followed by the Campaspe River basin. The greatest number of TULs are in the Goulburn River basin followed by the Ovens River basin.

A summary of the breakdown of water usage, take and use licences and area by industry are provided in Table 4 (over page).

Appendix 2 provides summary tables for each river basin for the area covered by TULs, water used and number of TULs.

Further detail on the land use, water use and TULs is provided in the following three sections.

FIGURE 2: UNREGULATED DIVERSIONS AND GROUNDWATER USERS BY INDUSTRY ACROSS THE GMW REGION (GMW LANDUSE REGULATED / UNREGULATED DIVERSION, 2025).

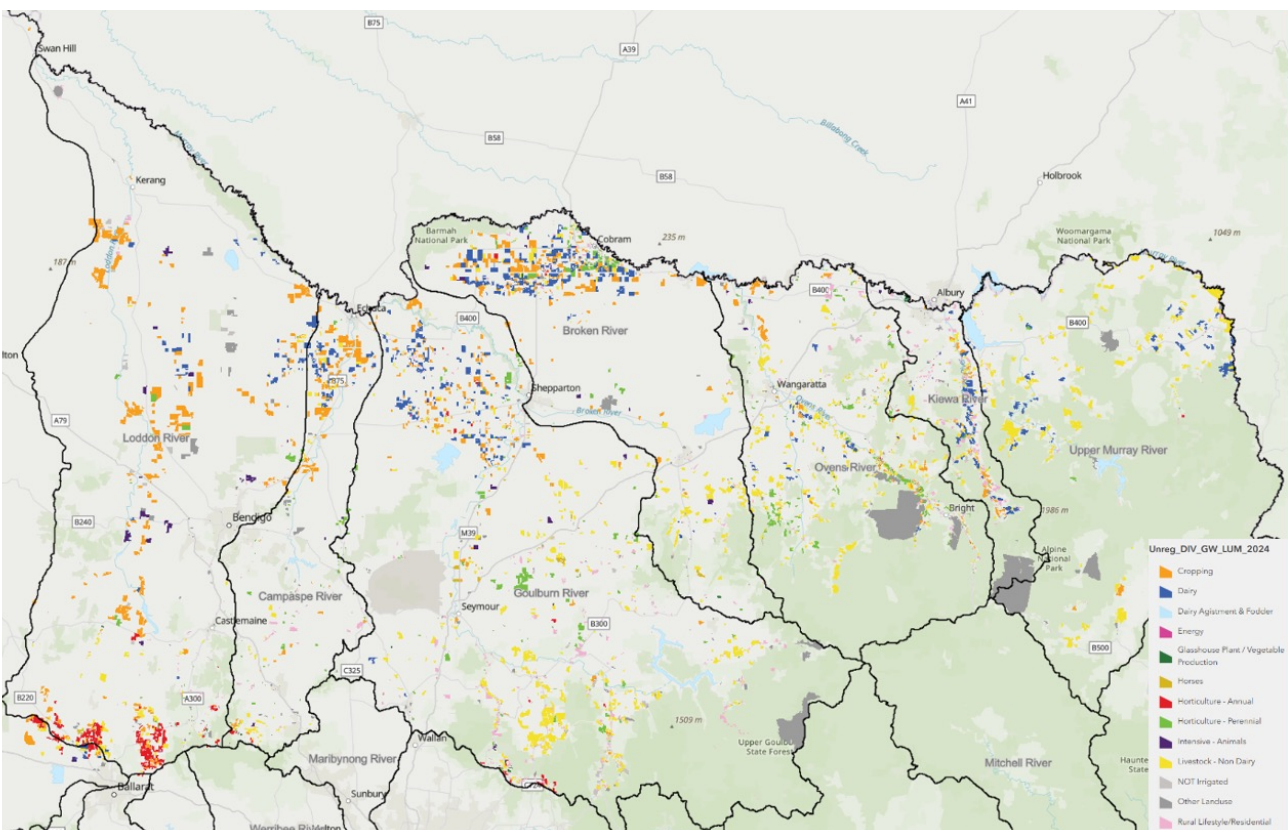


TABLE 3: SUMMARY OF RESULTS BY RIVER BASIN

RIVER BASIN	TUL AREA (ha)	WATER USAGE (ML)	TAKE AND USE LICENCES
Broken River	89,506	14,008	1,004
Campaspe River	30,166	18,540	427
Goulburn River	118,975	10,438	2,121
Kiewa River	28,490	5,427	563
Loddon River	103,069	37,654	779
Ovens River	98,696	13,448	1,201
Upper Murray River	64,995	3,624	504
TOTAL	533,896	103,137	6,599

TABLE 4: SUMMARY OF RESULTS BASED ON INDUSTRY

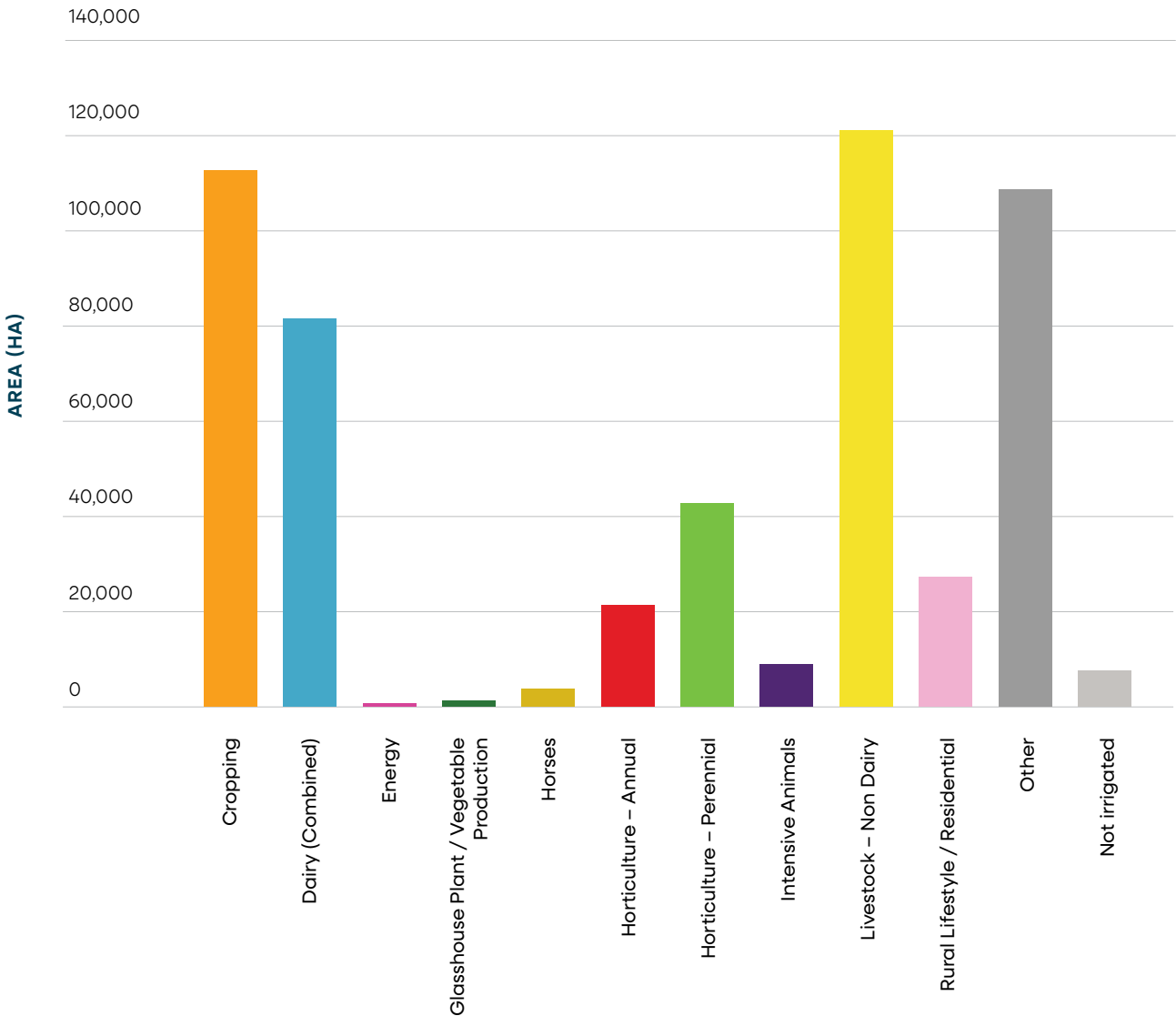
LAND USE	TUL AREA (ha)	WATER USAGE (ML)	TAKE AND USE LICENCES
Cropping	113,445	40,065	851
Dairy (Combined)	80,763	22,328	746
Energy	57	0	1
Glasshouse Plant/Vegetable Production	1,327	334	31
Horses	2,888	122	34
Horticulture – Annual	21,382	7,725	231
Horticulture – Perennial	42,483	7,786	638
Intensive Animals	9,028	939	67
Livestock – Non Dairy	120,465	10,813	1,364
Rural Lifestyle/Residential	26,604	4,881	2,036
Other	107,393	7,816	474
Not irrigated	8,061	330	112
TOTAL	533,896	103,137	6,599

3.1 Land Use

The total land use area for the Unregulated diversions and Groundwater users was 533,896 ha, with Livestock – Non Dairy and Cropping, representing 44% of this area. The ‘other’ category includes areas such as public land and national parks.

Figure 3 shows the land use across the unregulated water users, split into industry groups.

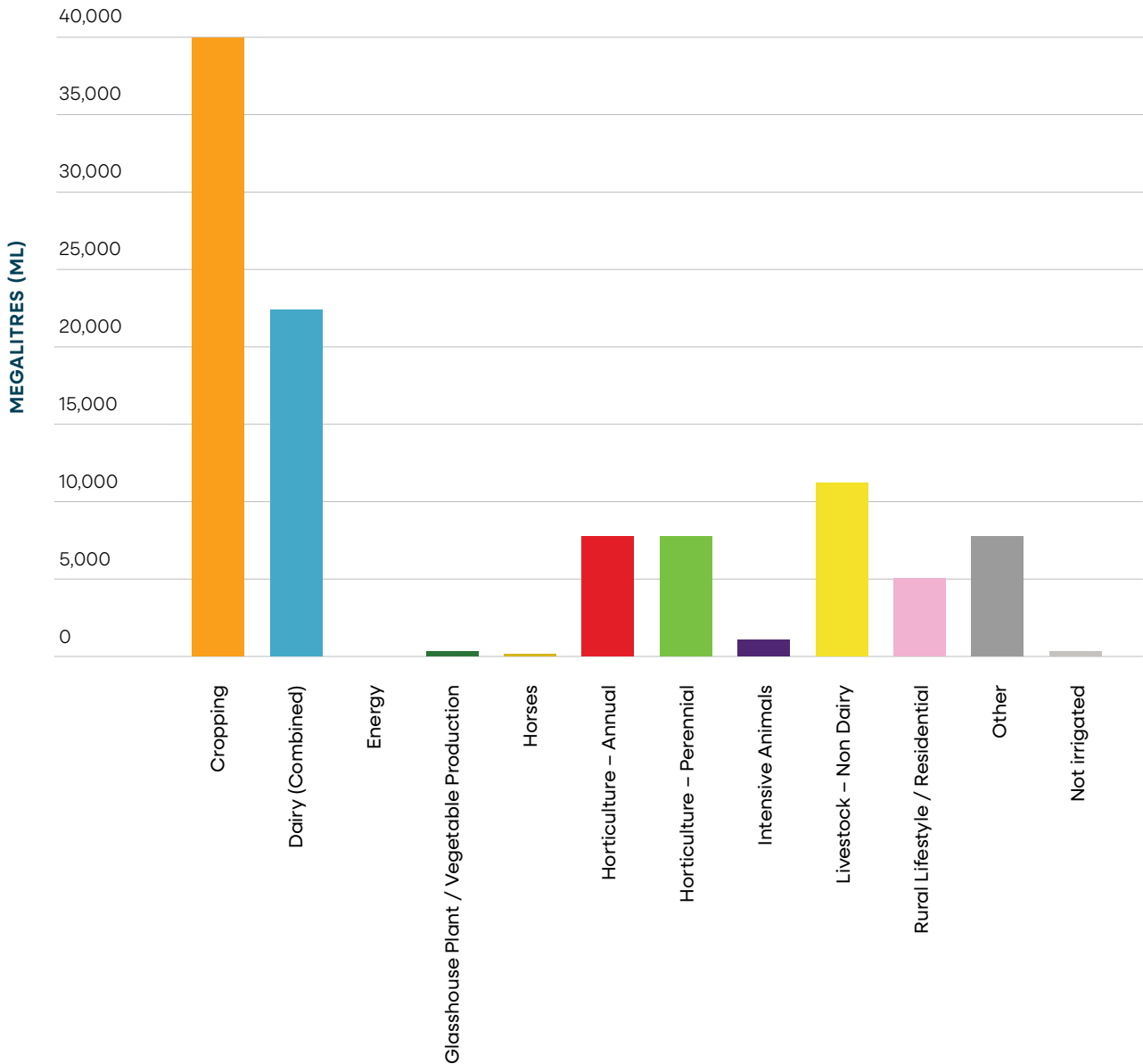
FIGURE 3: LAND USE IN THE UNREGULATED DIVERSIONS CATCHMENTS (ha) 2023/24



3.2 Water Use

The total water use area for the Unregulated diversions and groundwater users for 2023/24 was just over 103 GL, with Cropping and Dairy (Combined) enterprises using the majority of the water, representing 60% of the total water used. Figure 4 shows the water used by unregulated diverters based on industry.

FIGURE 4: UNREGULATED DIVERSIONS CATCHMENTS WATER USE IN MEGALITRES (ML) 2023/24



Water use data was also collated for the 2022/23 irrigation season. Tables 5 and 6 show the total water use by industry and river basin for both 2022/23 and 2023/24. Of note, is the Cropping and Dairy (Combined) entities were the highest water users across both years.

The difference between the water use across the two years is likely due to the difference in rainfall, where some areas experienced flooding in October 2022 therefore reducing the need for water during this period.

TABLE 5: WATER USE FOR 2022/23 AND 2023/24 IRRIGATION SEASONS

LAND USE	WATER USE 2022/23 (ML)	WATER USE 2023/24 (ML)
Cropping	22,553	40,065
Dairy (Combined)	12,105	22,328
Energy	0	0
Glasshouse Plant/Vegetable Production	241	334
Horses	194	122
Horticulture – Annual	6,337	7,725
Horticulture – Perennial	5,969	7,786
Intensive Animals	949	939
Livestock – Non Dairy	7,463	10,813
Rural Lifestyle/Residential	4,602	4,881
Other	9,506	7,816
Not irrigated	318	330
TOTAL	70,239	103,137

TABLE 6: WATER USE FOR 2022/23 AND 2023/24 BY RIVER BASIN

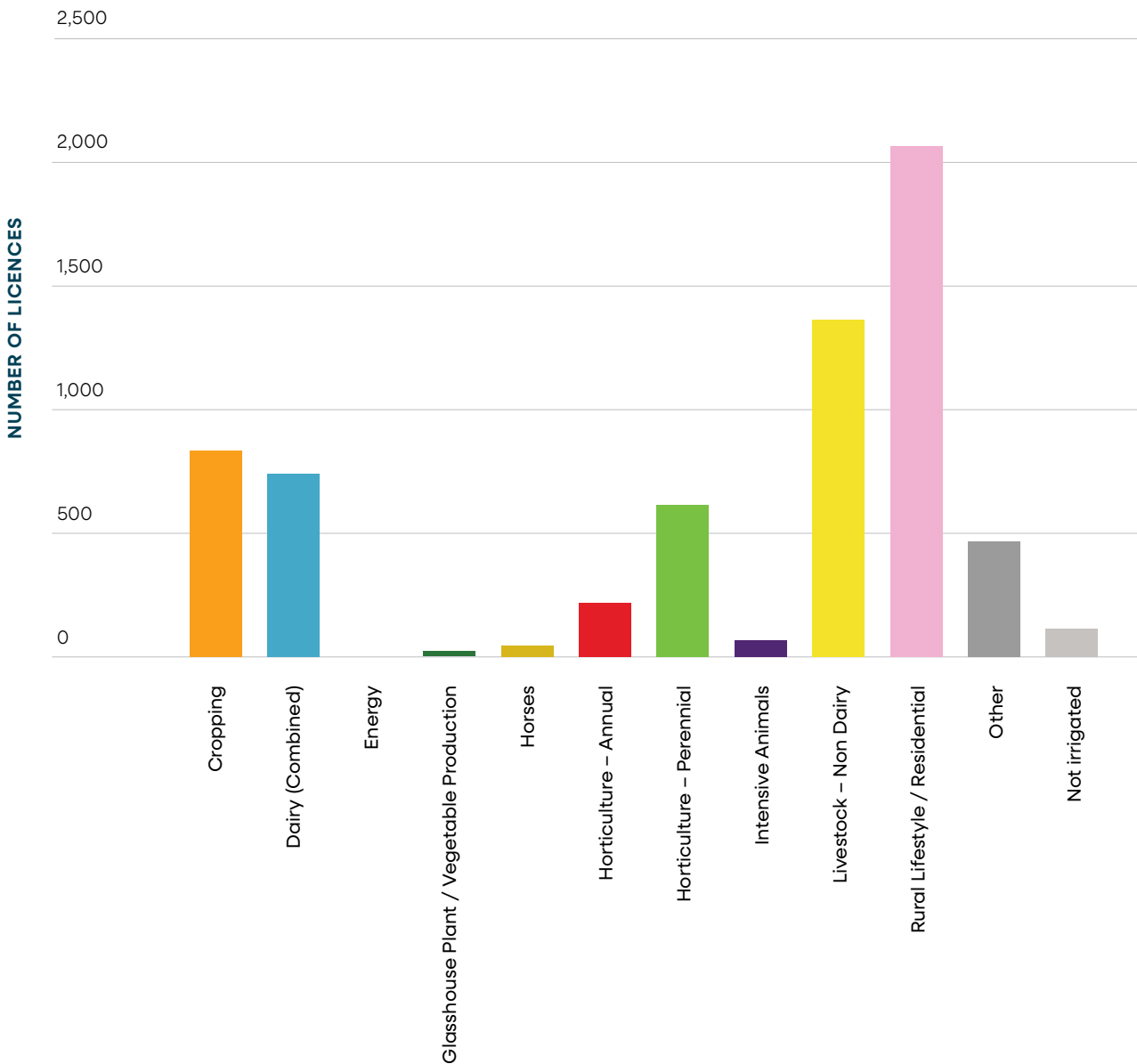
RIVER BASIN	WATER USE 2022/23 (ML)	WATER USE 2023/24 (ML)
Broken River	9,587	14,008
Campaspe River	10,092	18,540
Goulburn River	9,731	10,438
Kiewa River	4,089	5,427
Loddon River	25,729	37,654
Ovens River	8,240	13,448
Upper Murray River	2,770	3,624
TOTAL	70,239	103,137

3.3 Take and Use Licences

The total number of take and use licences for the unregulated diversions and groundwater used was 6,599. Rural lifestyle/Residential and Livestock – Non Dairy represented 53% of TUL holders. Figure 5 shows the number of TULs split by industry.

A series of fact sheets has been developed providing further detail on each river basin.

FIGURE 5: UNREGULATED DIVERSIONS CATCHMENTS 2023/24 TAKE AND USE LICENCES



4. Conclusion

The project has successfully captured the initial data for the water use, land use and TULs for the unregulated diversions and groundwater users across the GMW region.

Data collection in future years will allow for comparisons and identification of changes across the catchment for these three criteria.

Water use across 2022/23 was significantly lower than that of 2023/24 likely due to the wet spring and floods in October 2022, reducing the need for water extraction during this time.

Key findings from the project are:

- The largest area covered by TULs by industry is Livestock – Non Dairy covering 120,465 ha followed by Cropping with 113,445 ha.
- The Goulburn River Basin had the largest area covered by TULs with the second largest area being in the Loddon River basin.
- The largest water use in 2022/23 and 2023/24 was attributed to Cropping with just over 22.5 GL and 40 GL used respectively. Most of the water was used in the Loddon River basin, followed by the Campaspe River basin.
- The greatest number of TULs are attributed to Rural Lifestyle and Residential properties, accounting for 30% of the total number of licences at 2,036. Most TULs are located within the Goulburn River basin.

Ongoing collation and mapping of data will create a valuable data set that can be used for future planning for agriculture and water investment and development as well as informing economic development across the region.

Appendices

APPENDIX 1

Governance Structure for Unregulated diversions catchments project

STAKEHOLDER REFERENCE GROUP

STAKEHOLDER	REPRESENTATIVES
GMW	John Weber, Peter Clydesdale
Agriculture Victoria	Andy McAllister, Rebecca Pike, Matthew Hawken, Rabi Maskey, Dennis Watson
DEECA	Bonnie Glaister
GB CMA	Carl Walters (Chair), Melanie Squires, Vicki Mackenzie (minute taker), Jen Pagon
NCCMA	Rachel Murphy, Mandy Coulson
NECMA	Lachlan Campbell, Helen Wilson
Murray Dairy	Lachlan Barnes, Amy Fay
Fruit Growers (Vic)	Michael Crisera, Nimeshika Aloysius
Irrigated Farmers Network	Damian Jones, Charlie Aves

UNREGULATED DIVERSIONS LUM TECHNICAL WORKING GROUP

STAKEHOLDER	REPRESENTATIVES
Agriculture Victoria	Andy McAllister, Dennis Watson, Matthew Hawken
GMW	John Weber, Stephen Gemmill, Joshua Cimera, Peter Clydesdale, Dale McGraw, Bradley Roberts
DEECA	Bonnie Glaister, Ruth Hicks, Saul Siritzky, Ella Jorgensen, Tim Stoddart, Jenn Learmonth
GB CMA	Carl Walters (Chair), Melanie Squires (Coordinator), Vicki Mackenzie (minute taker), Jen Pagon, Carolyn Nigro
NCCMA	Mandy Coulson
NECMA	Lachlan Campbell, Helen Wilson

APPENDIX 2

Land use, water use and licences by river basin

AREA COVERED BY TAKE AND USE LICENCES ACROSS INDUSTRY AND RIVER BASIN IN HECTARES

LAND USE AREA (ha) BY INDUSTRY	BROKEN RIVER	CAMPASPE RIVER	GOULBURN RIVER	KIEWA RIVER	LODDON RIVER	OVENS RIVER	UPPER MURRAY RIVER	TOTAL
Cropping	25,752	13,203	15,105	4,009	47,571	7,133	672	113,445
Dairy (Combined)	31,252	5,020	15,388	8,569	8,375	3,828	8,332	80,763
Energy			57					57
Glasshouse Plant/ Vegetable Production	458	51	361	352	75	30		1,327
Horses	443		1,954		271	220		2,888
Horticulture – Annual	631	265	2,467	57	17,726	158	79	21,382
Horticulture – Perennial	9,376	2,015	12,955	806	4,113	12,912	306	42,483
Intensive Animals	1,470	308	1,558	82	5,201	409		9,028
Livestock – Non Dairy	13,444	4,738	39,156	4,862	8,084	22,398	27,782	120,465
Rural Lifestyle / Residential	1,810	1,809	11,102	5,693	1,449	3,910	831	26,604
Other	4,741	2,724	15,410	3,312	7,450	46,762	26,993	107,393
Not irrigated	128	34	3,461	748	2,754	935		8,061
TOTAL	89,506	30,166	118,975	28,490	103,069	98,696	64,995	533,896

NUMBER OF TAKE AND USE LICENCES

TAKE AND USE LICENCES BY INDUSTRY	BROKEN RIVER	CAMPASPE RIVER	GOULBURN RIVER	KIEWA RIVER	LODDON RIVER	OVENS RIVER	UPPER MURRAY RIVER	TOTAL
Cropping	221	83	188	63	193	101	2	851
Dairy (Combined)	293	45	178	73	58	40	73	760
Energy			1					1
Glasshouse Plant/ Vegetable Production	4	4	12	6	2	3		31
Horses	3		21		2	8		34
Horticulture – Annual	7	4	59	3	139	17	2	231
Horticulture – Perennial	118	58	149	42	37	232	2	638
Intensive Animals	13	5	21	1	23	4		67
Livestock – Non Dairy	147	77	412	61	84	362	221	1,364
Rural Lifestyle / Residential	130	106	900	258	137	328	177	2,036
Other	61	43	125	42	82	94	27	474
Not irrigated	7	2	55	14	22	12		112
TOTAL	1,004	427	2,121	563	779	1,201	504	6,599

WATER USE IN MEGALITRES (ML) 2023/24

WATER USE (ML) BY INDUSTRY	BROKEN RIVER	CAMPASPE RIVER	GOULBURN RIVER	KIEWA RIVER	LODDON RIVER	OVENS RIVER	UPPER MURRAY RIVER	TOTAL
Cropping	3,402	8,947	1,401	704	22,027	3,466	120	40,065
Dairy (Combined)	6,123	5,820	268	2,892	4,450	1,298	1,477	22,328
Energy								0
Glasshouse Plant/ Vegetable Production	130	8	120	4	53	19		334
Horses	32		75		2	13		122
Horticulture – Annual	719	12	625	29	6,173	155	14	7,725
Horticulture – Perennial	1,072	232	1,684	115	593	4,016	73	7,786
Intensive Animals	83	26	59	2	761	7		939
Livestock – Non Dairy	1,773	2,394	2,298	203	397	2,676	1,072	10,813
Rural Lifestyle / Residential	516	240	2,096	573	338	757	361	4,881
Other	143	858	1,636	851	2,832	988	507	7,816
Not irrigated	15	3	176	54	29	54		330
TOTAL	14,008	18,540	10,438	5,427	37,654	13,448	3,624	103,137

WATER USE IN MEGALITRES (ML) 2022/23

WATER USE (ML) BY INDUSTRY	BROKEN RIVER	CAMPASPE RIVER	GOULBURN RIVER	KIEWA RIVER	LODDON RIVER	OVENS RIVER	UPPER MURRAY RIVER	TOTAL
Cropping	2,391	4,330	1,118	457	12,066	2,172	20	22,553
Dairy (Combined)	3,782	2,969	94	1,807	2,312	112	1,029	12,105
Energy								
Glasshouse Plant/ Vegetable Production	42	8	126	4	46	15		241
Horses	46		133		2	13		194
Horticulture – Annual	614	14	525	20	5,068	82	14	6,337
Horticulture – Perennial	1,181	226	1,508	116	379	2,560		5,969
Intensive Animals	75	20	70	1	775	7		949
Livestock – Non Dairy	970	1,193	2,274	175	337	1,648	866	7,463
Rural Lifestyle / Residential	304	238	2,082	561	337	752	328	4,602
Other	169	1,092	1,630	894	4,377	832	512	9,506
Not irrigated	13	3	172	54	29	47		318
TOTAL	9,587	10,092	9,731	4,089	25,729	8,240	2,770	70,239

References

Australian Valuation Property Classification Code 2019, 2019 Valuation Best Practice Specifications Guidelines

Agriculture Victoria 2025, River Basins Map

Goulburn Broken Catchment Management Authority 2024; Land and Water Use Mapping in Regulated Diversions Catchments of Northern Victoria – Technical Report 2022/23

GMW Landuse regulated / unregulated diversion, 2025; GMW_landuse regulated/unregulated diversion

This Technical Report can be found at

www.gbcma.vic.gov.au