

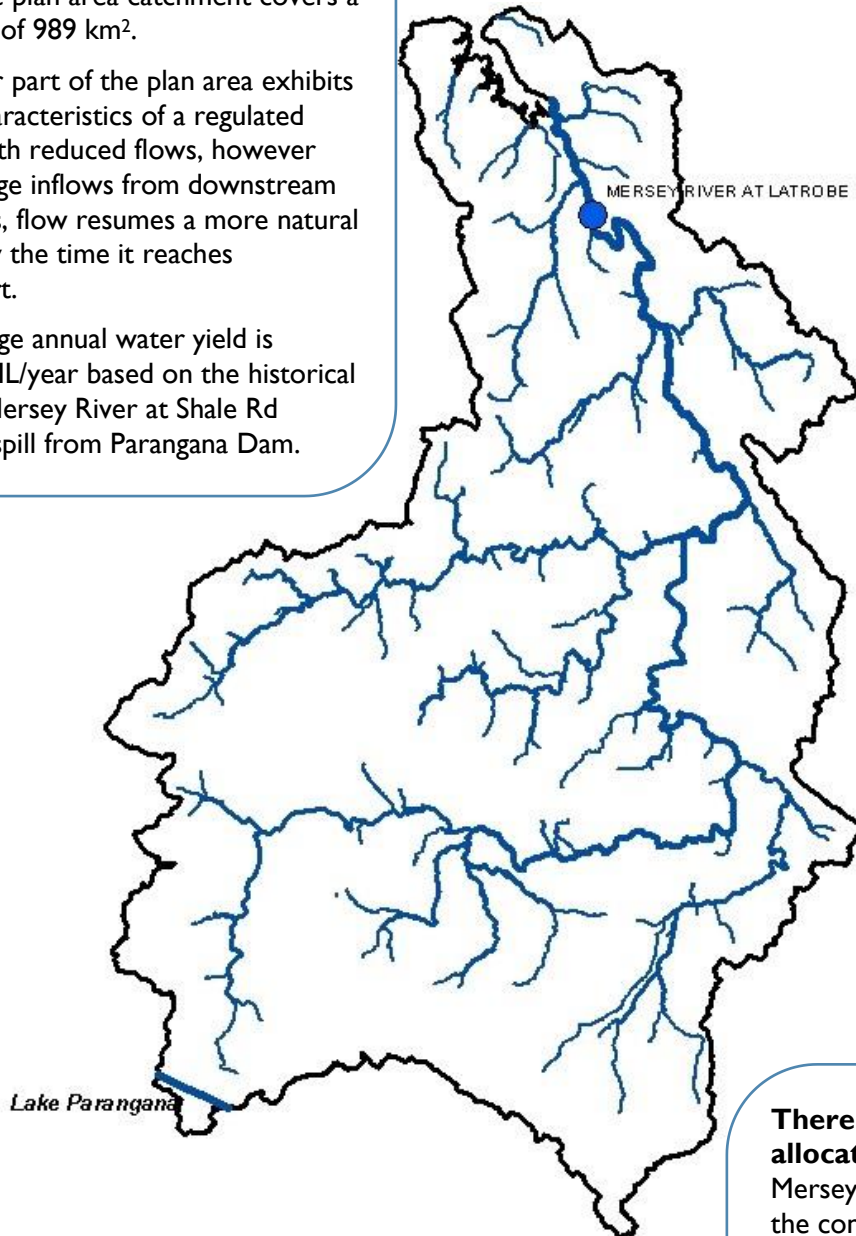
MERSEY RIVER CATCHMENT REPORT 2023/24

The Mersey River catchment

(below Lake Parangana)* is located in the central north of Tasmania and flows north approximately 92 km to Bass Strait. The plan area catchment covers a total area of 989 km².

The upper part of the plan area exhibits typical characteristics of a regulated system with reduced flows, however due to large inflows from downstream tributaries, flow resumes a more natural pattern by the time it reaches Devonport.

The average annual water yield is 631,455 ML/year based on the historical flows at Mersey River at Shale Rd including spill from Parangana Dam.



The Mersey River Catchment Water Management Plan

took effect in August 2005. The Plan is a legal document prepared in accordance with the *Water Management Act 1999*.

The Plan applies to the Mersey River catchment **below** Lake Parangana.

The Plan sets out monthly cease to take thresholds, measured at the NRE Tas stream flow gauging station: Mersey River at Shale Road (near Latrobe).

For full details of the current Water Plan and the revised thresholds go to the NRE Tas Water website.

There are currently 340 water allocations at Surety levels 5 and 6 in the Mersey catchment. The table below details the consumptive allocations below Parangana dam.

CONSUMPTIVE WATER ALLOCATION*

Surety Level	Summer Vol.(ML)	Winter Vol. (ML)	Overall Vol. (ML)
S 5	14,595	18,176	32,771
S 6	2,564	1,709	4,273
Total	17,159	19,885	37,044

*below Parangana, Summer is Nov-April inclusive, Winter is May-Oct inclusive. Allocations that overlap these periods have been proportioned monthly into the winter/summer periods e.g an annual license volume is divided evenly into each period.

*The Mersey-Forth power development diverts the majority of water from the upper reaches of the Mersey from Lake Parangana to the Forth River.

CATCHMENT LAND USE

Approximately 30% of the catchment is under production native forests and plantation forestry. A further 26% is used for agricultural purposes with the remaining area supporting a diversity of land uses including mining, and conservation land. The catchment includes the townships of Mole Creek, Sheffield, Railton and Latrobe, and flows to Bass Strait at Devonport. The land use layer was last updated in 2019.

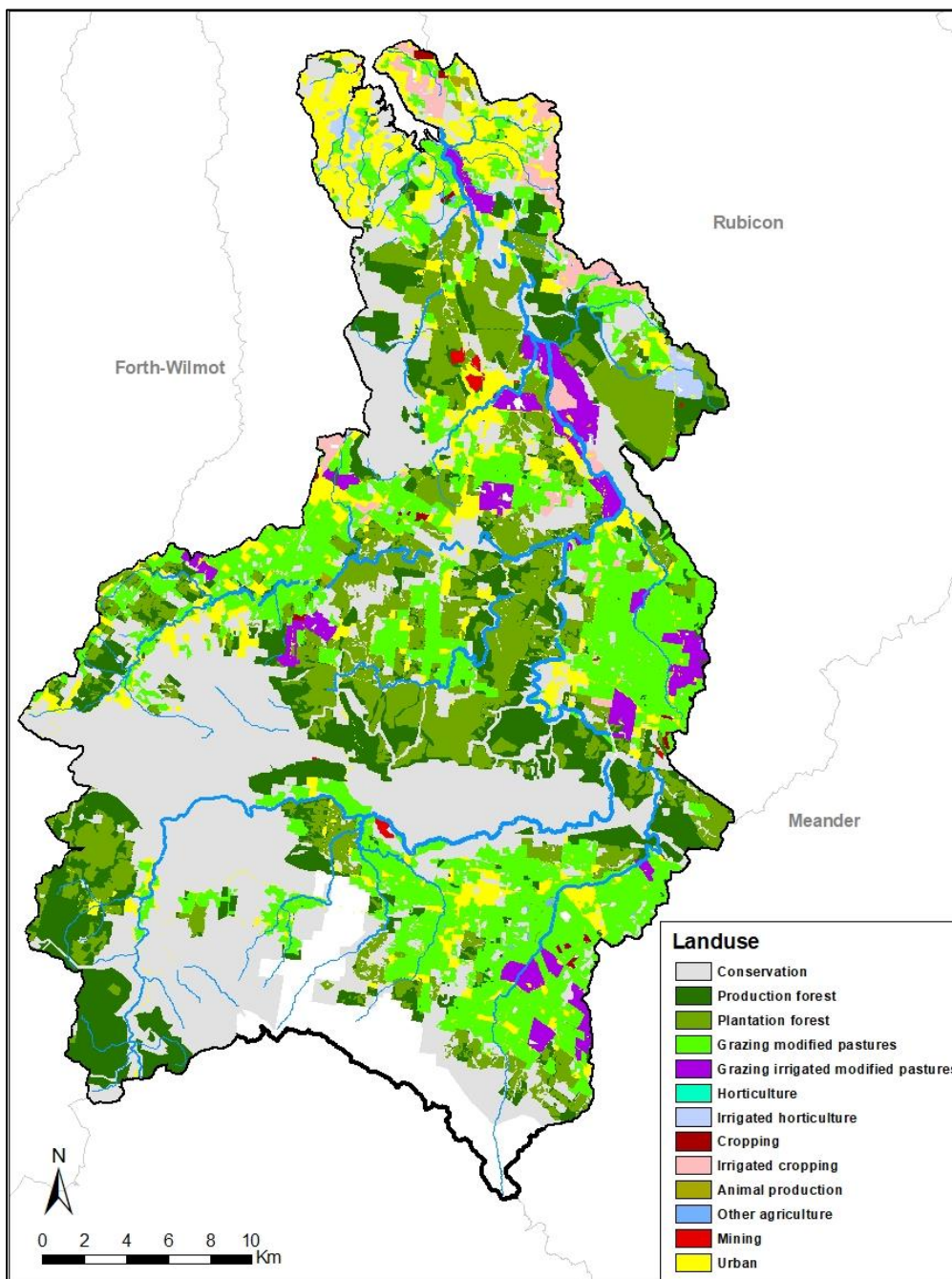


Figure 1. Mersey River catchment land use

For further information contact your local Regional Water Management Officer at the Department of Natural Resources and Environment Tasmania:
Phone: 1300 368 550
Email: Water.Operations@nre.tas.gov.au
nre.tas.gov.au/water

RIVER HEALTH

Waterbugs (macroinvertebrates) are used globally to monitor the health of rivers as they are sensitive to pressures on river systems (e.g. poor water quality, sedimentation). River health monitoring by NRE Tas focuses on the composition of waterbug communities found on the riverbed; however, other values that are not monitored can also contribute to the health of rivers (e.g. water plants, fish, riverbank vegetation).

NRE Tas has four long-term river health monitoring sites in the Mersey River catchment. These sites are on the Mersey River at Shale Road (lower-reach), Kellys Bridge (mid-reach, shown below) and Olivers Road (upper-reach), and the Don River at Sheffield Road (mid-reach). Monitoring indicates:

- Lower-reach: Since monitoring began in 1997 the lower-reach of the Mersey River has remained in moderate to poor condition, with most river health scores (O/E scores) falling within bands B and C
- Mid-reach: Historically the mid-reach of the Mersey River was in good to excellent condition, with river health scores equating to bands X and A (above and equivalent to reference condition). However, since 2004 river health has declined to moderate to poor condition. (shown below).
- Upper-reach: Since monitoring began in 1997 the upper-reach of the Mersy River has remained in good condition, with most river health scores falling within band A (equivalent to reference condition).
- Pre-2015, the mid-reach of the Don River was in good condition, scores mostly equating to band A. However, since 2015 river health has declined to moderate condition, with most river health scores equating to band B (significantly impacted).



Figure 2. River Health Observed/Expected score at the Mersey River at Kellys Bridge site, whole of record

Band X = above reference condition, Band A = equivalent to reference condition,

Band B = significantly impaired, Band C = severely impaired and Band D = impoverished.

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HYDROLOGY SUMMARY

The following pages show plots of long term streamflow (full period of available record), short term flow and rainfall (last 5 water years), and last years flow, rainfall and restriction data, split into winter (May 2023 – October 2023) and summer (November 2023 – April 2024) seasons.

Over the period from May 2023 to April 2024:

- Annual rainfall was well below average, with annual yield below average, noting that these flows include releases from Lake Parangana by Hydro Tasmania to support irrigation.
- An expected El Nino state was declared in September which continued until mid-April.
- Water restrictions were in place during both winter and summer across the catchment, with some form of restriction in place for a total of 61 days (27 winter, 34 summer).



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August 2024

Full flow record, 1962 - 2024

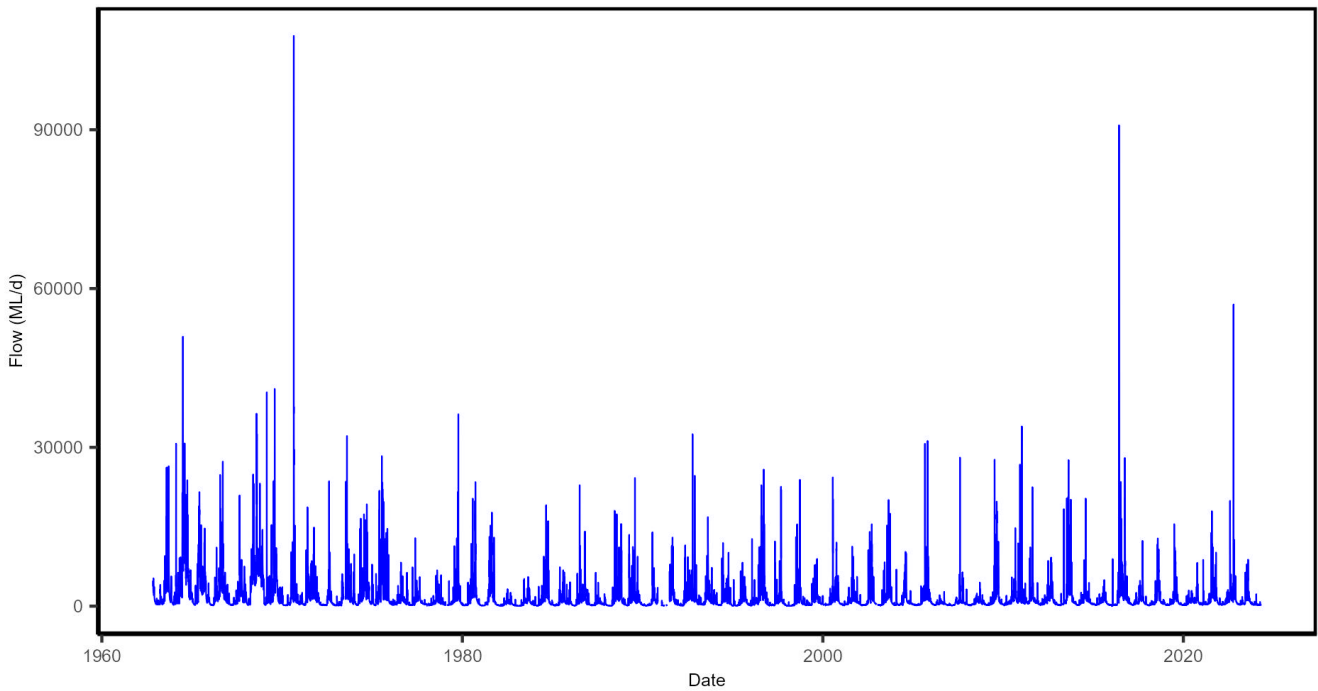


Figure 3. Mean daily flow at the Mersey River at Shale Road (Latrobe) streamflow gauging station, whole of record.

Full record of yields in water years 1962 - 2023

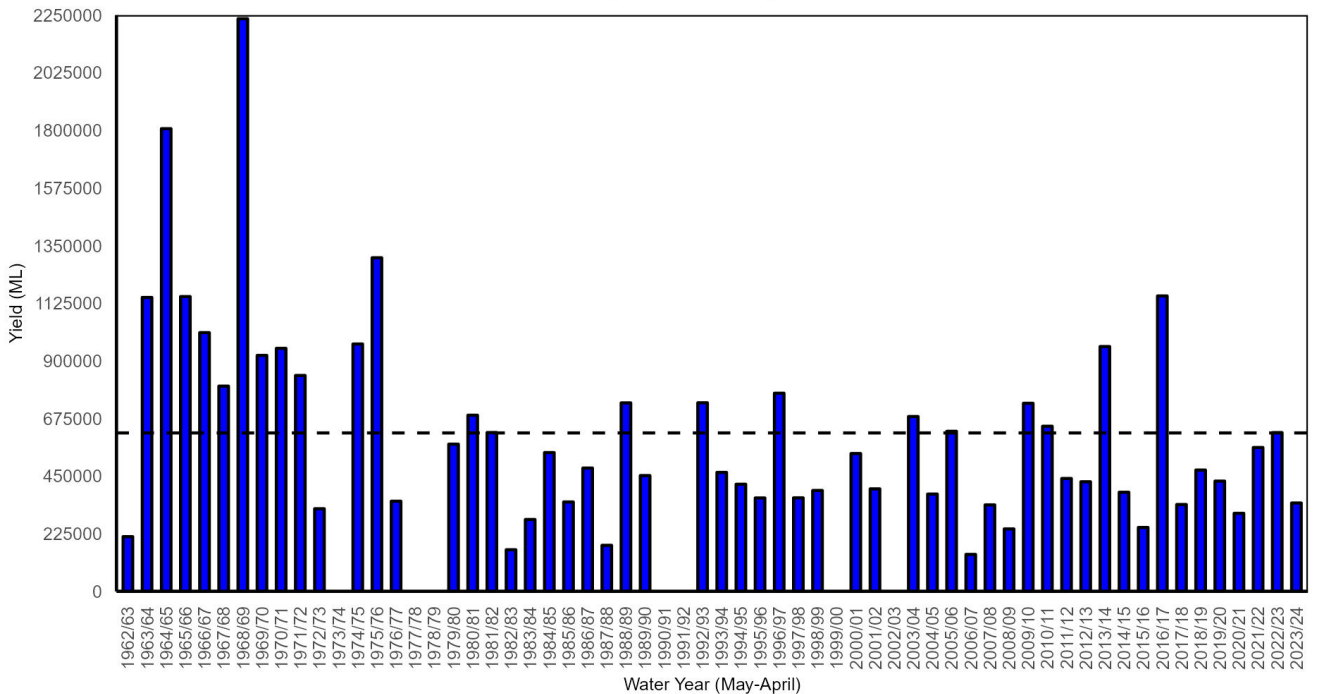


Figure 4. Yields in the Mersey River at Shale Road (Latrobe) streamflow gauging station. Water years with <95% of the daily flow record available are excluded. The long-term mean yield is shown as the dashed horizontal black line (631,455 ML).

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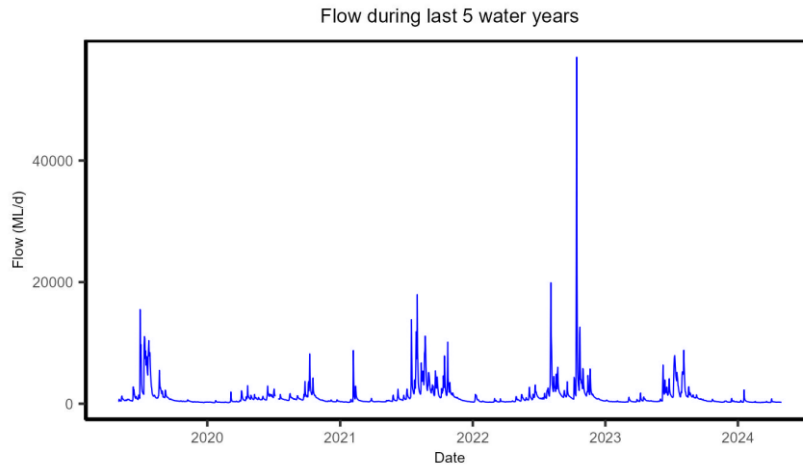


Figure 5. Mean daily flow in the Mersey River at Shale Road (Latrobe) streamflow gauging station for the last five years.

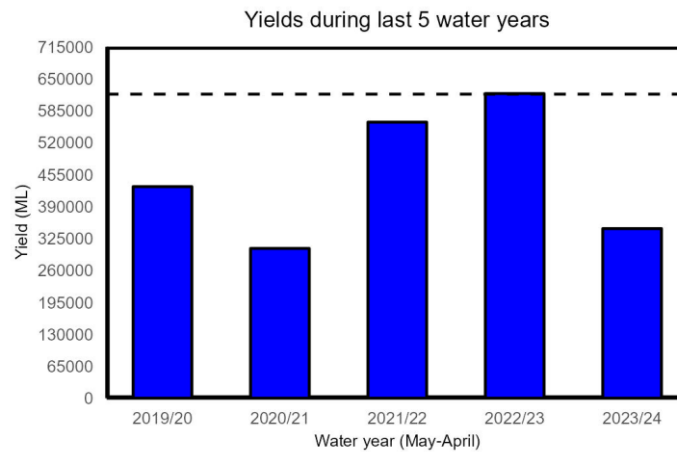


Figure 6. Yields in the Mersey River at Shale Road (Latrobe) streamflow gauging station for the last five years. The long-term mean yield is shown as the dashed horizontal black line (631,455 ML).

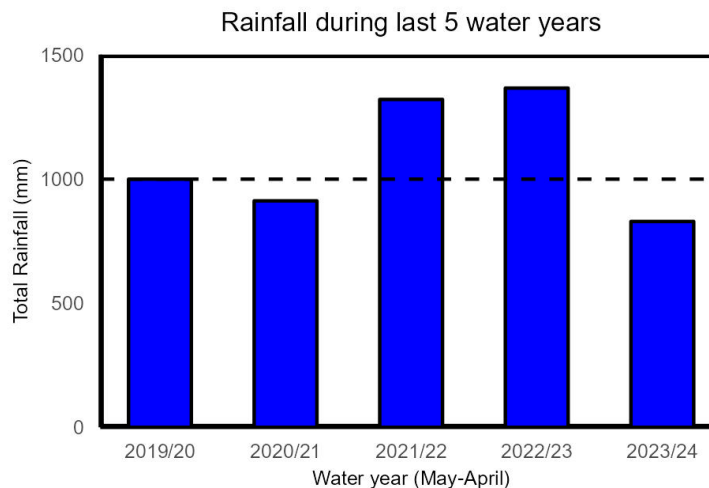


Figure 7. Total rainfall at the Sheffield School Farm BoM weather station during the last five water years. The long-term (1996-2024) mean total rainfall (999 mm) is shown as the black horizontal dashed line.

Rainfall, low flows and restriction periods during winter 2023/2024

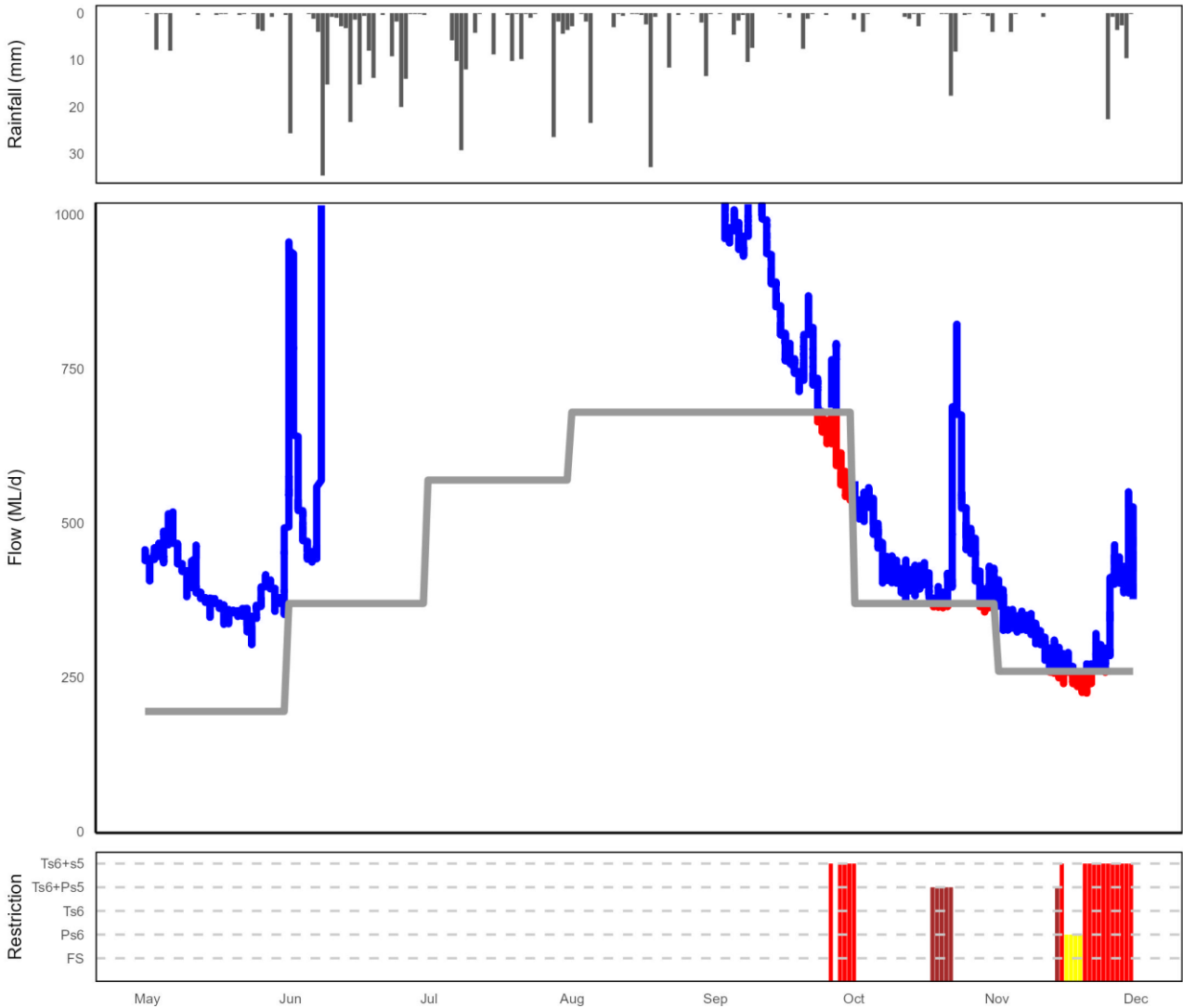


Figure 8. Summary of rainfall, low flows and restrictions in the Mersey River catchment during winter (May-October) 2023.

Top plot: daily rainfall (Sheffield School Farm BoM site).

Middle plot: instantaneous flow (<1000 ML/d) Mersey River at Shale Road (Latrobe) station (compliance flow site).

Bottom plot: days when restrictions were in place.

NOTE: Refer to the last page for a 'legend' and description on how to interpret these plots

Table 1. Restriction levels and total days at each level for the winter period (184 days: May - October 2023).

Restriction Type	Days at restriction level in 2022/23	Days at restriction level in 2023/24
Partial Surety 6	0	4
Total Surety 6	0	0
Total Surety 6 + Partial Surety 5	0	6
Total Surety 6 + Total Surety 5	0	17

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Rainfall, low flows and restriction periods during summer 2023/2024

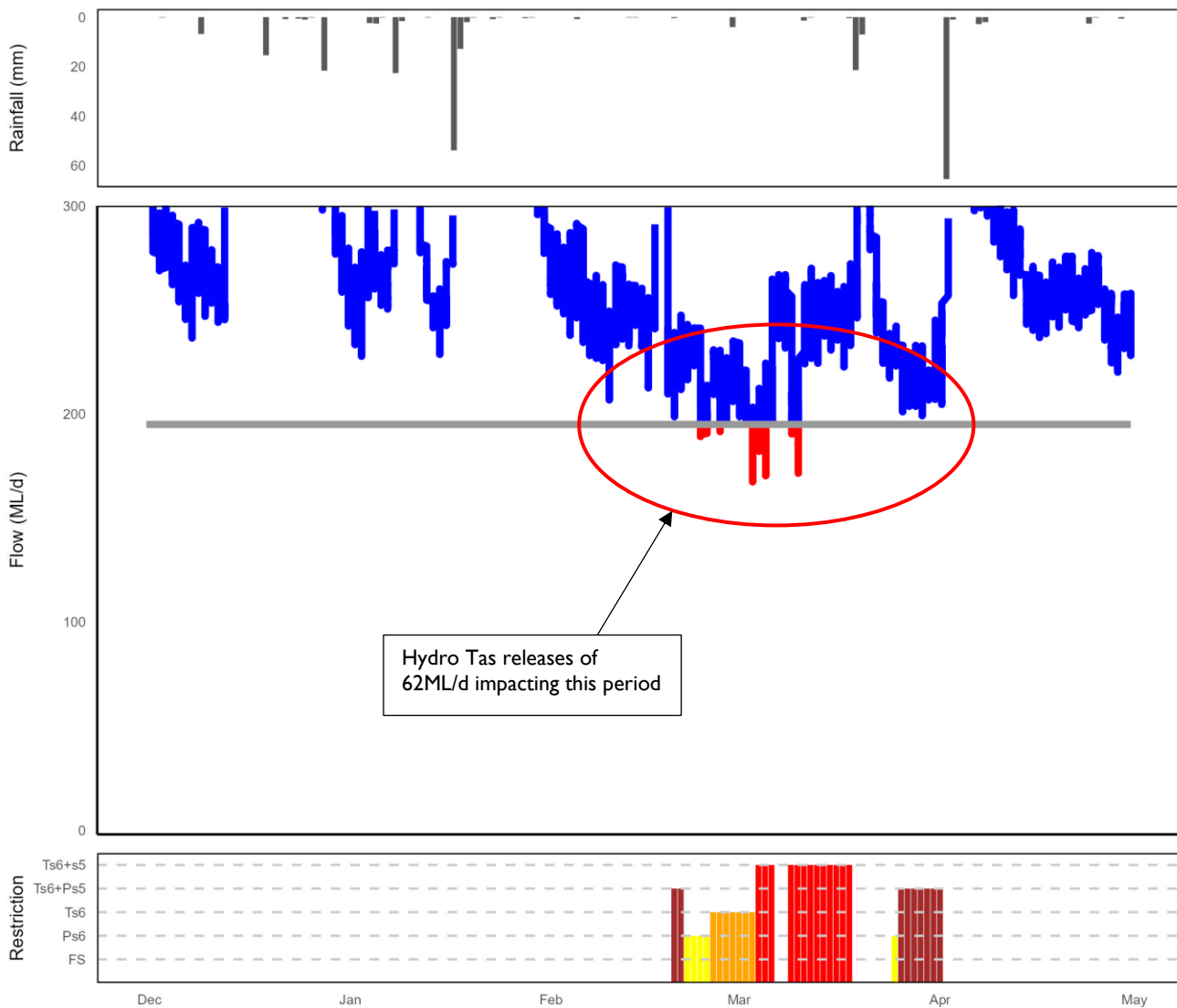


Figure 9. Summary of rainfall, low flows and restrictions in the Mersey River catchment during summer 2023/24 (Nov-April).

Top plot: daily rainfall (Sheffield School Farm BoM site).

Middle plot: instantaneous flow (<300 ML/d) Mersey River at Shale Road (Latrobe) station (compliance flow site).

Full irrigation restriction at 195ML/d note staged restrictions apply above this level

Bottom plot: days when restrictions were in place.

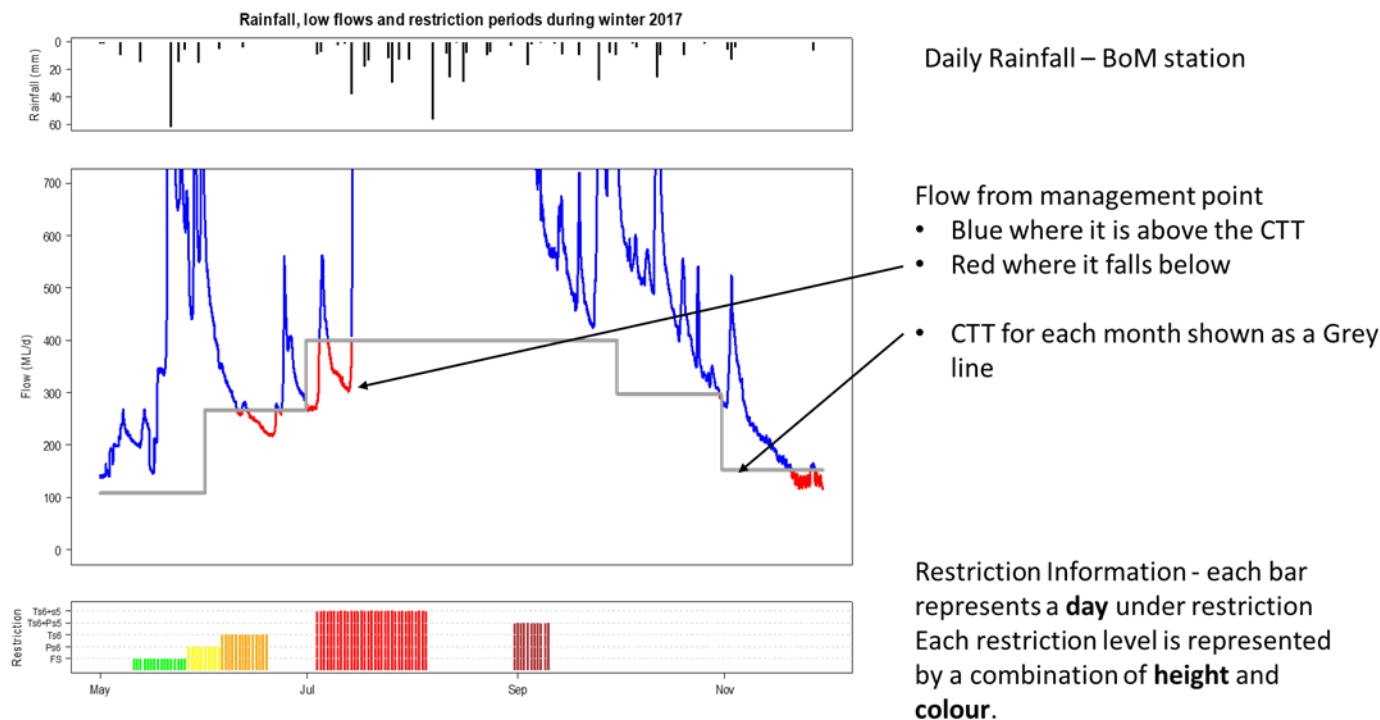
NOTE: Refer to the last page for a 'legend' and description on how to interpret these plots

Table 2. Restriction levels and total days at each level for the summer period (182 days: Nov 2023 – April 2024).

Restriction Type	Days at restriction level in 2022/23	Days at restriction level in 2023/24
Partial Surety 6	0	5
Total Surety 6	0	7
Total Surety 6 + Partial Surety 5	0	9
Total Surety 6 + Total Surety 5	0	13

Rainfall, flow and restriction plot legend

NOTE: This is a hypothetical example to assist in interpreting the plots in the main body of this document.



Flow Restriction definitions:

- FS = flow sharing (only some catchments), shown in GREEN
- Ps6 = partial surety 6 ban, shown in YELLOW
- Ts6 = total surety 6 ban, shown in ORANGE
- Ts6+Ps5 = total surety 6 and partial surety 5 ban, shown in BROWN
- Ts6+s5 = total surety 5 and 6 ban, shown in RED