

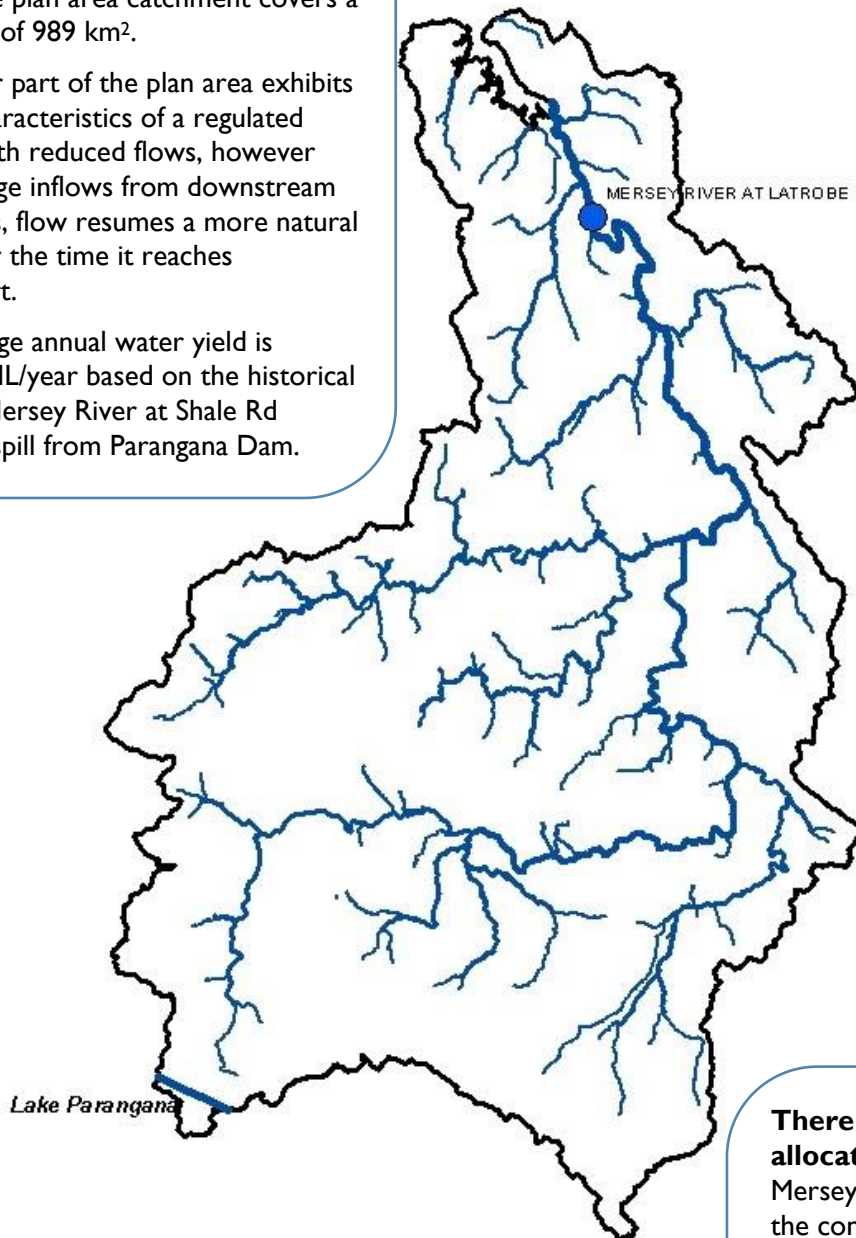
MERSEY RIVER CATCHMENT REPORT 2022/23

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.

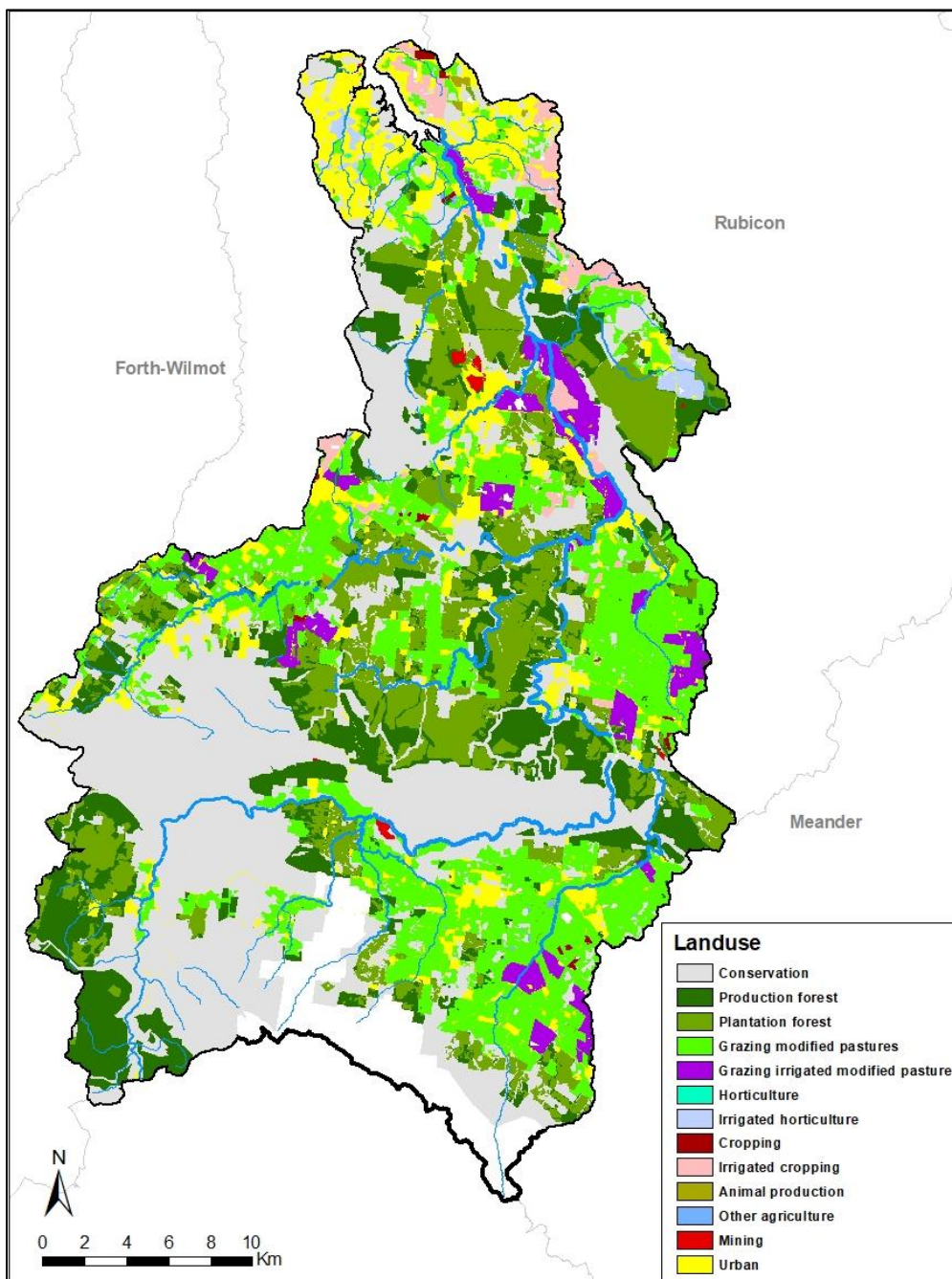


Figure 1. Mersey River catchment land use

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 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 (macroinvertebrate) communities 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) (Figure 2), Olivers Road (mid-reach), and the Don River at Sheffield Road (mid-reach). The upland site in the Mersey River at Olivers Road is in moderate to good condition. Historically, the mid-reach at Kellys Bridge was in good to excellent condition, but since 2004 the health of the river at this site has declined and is now in poor to moderate condition. Since monitoring began in the Mersey River at Shale Road in 1997, the lower reaches of the Mersey River have been in poor to moderate condition. The condition of the mid-reaches of the Don River varies and is generally in poor to moderate condition.

Figure 1 shows the full record of O/E scores for the Mersey River us Old Deloraine Road site, the same charts for each of the other sites can be viewed in the water information portal (<https://portal.wrt.tas.gov.au/Data/Dashboard/74>).

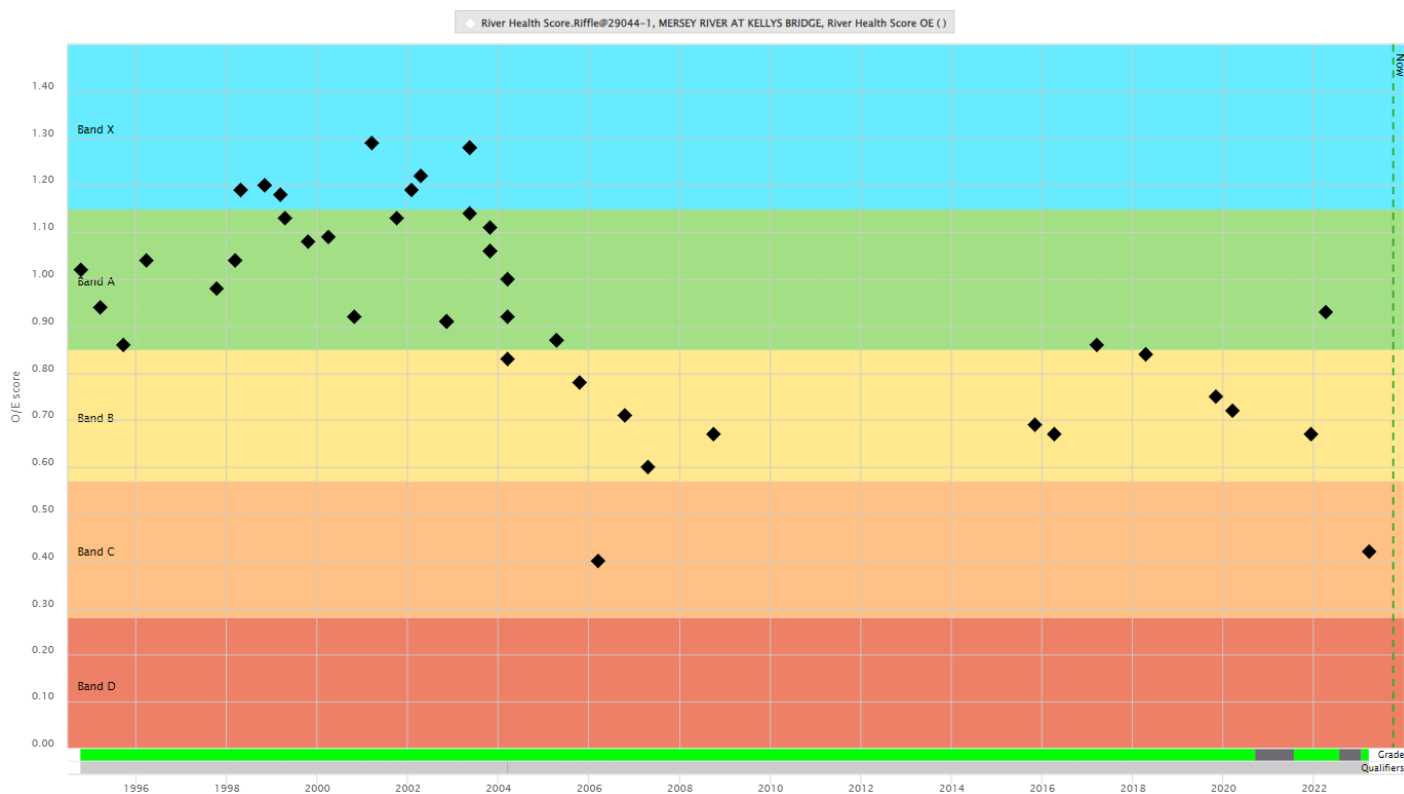


Figure 2. River Health Observed/Expected score at the Mersey River at Kellys Bridge site, whole of record

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 2022 – October 2022) and summer (November 2022 – April 2023) seasons.

Over the period from May 2022 to April 2023:

- Annual yield was close to the long-term average.
- Annual rainfall was above average.
- The 3rd largest flood event across the whole period of available record occurred on the 14th October 2022. It was the 2nd largest flood since the construction of the Mersey River Hydropower Development.
- The climate drivers included La Nina and negative IOD conditions during 2022, which eased in early 2023 and shifted to an El Nino watch by March 2023.
- There were no water restrictions in the catchment.



Full flow record, 1962 - 2023

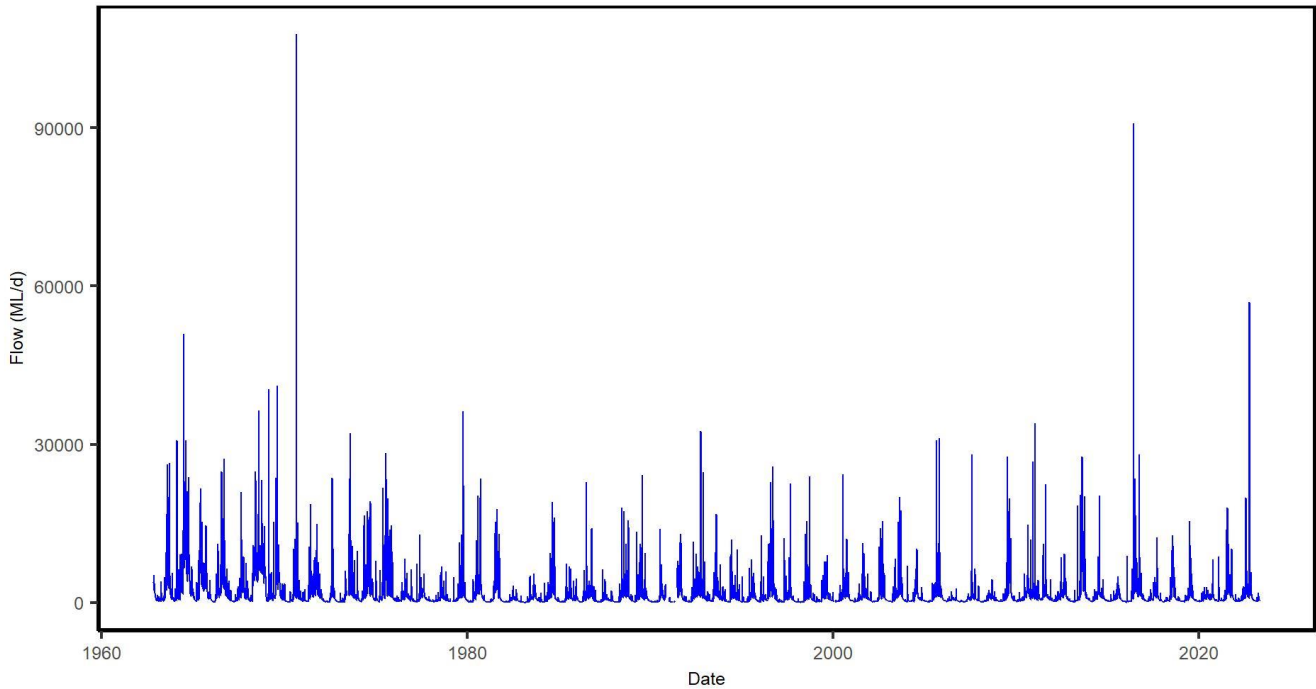


Figure 3. Mean daily flow at the Mersey River at Shale Road (Latrobe) streamflow gauging station, whole of record.

Full record of yields in water years 1962 - 2022

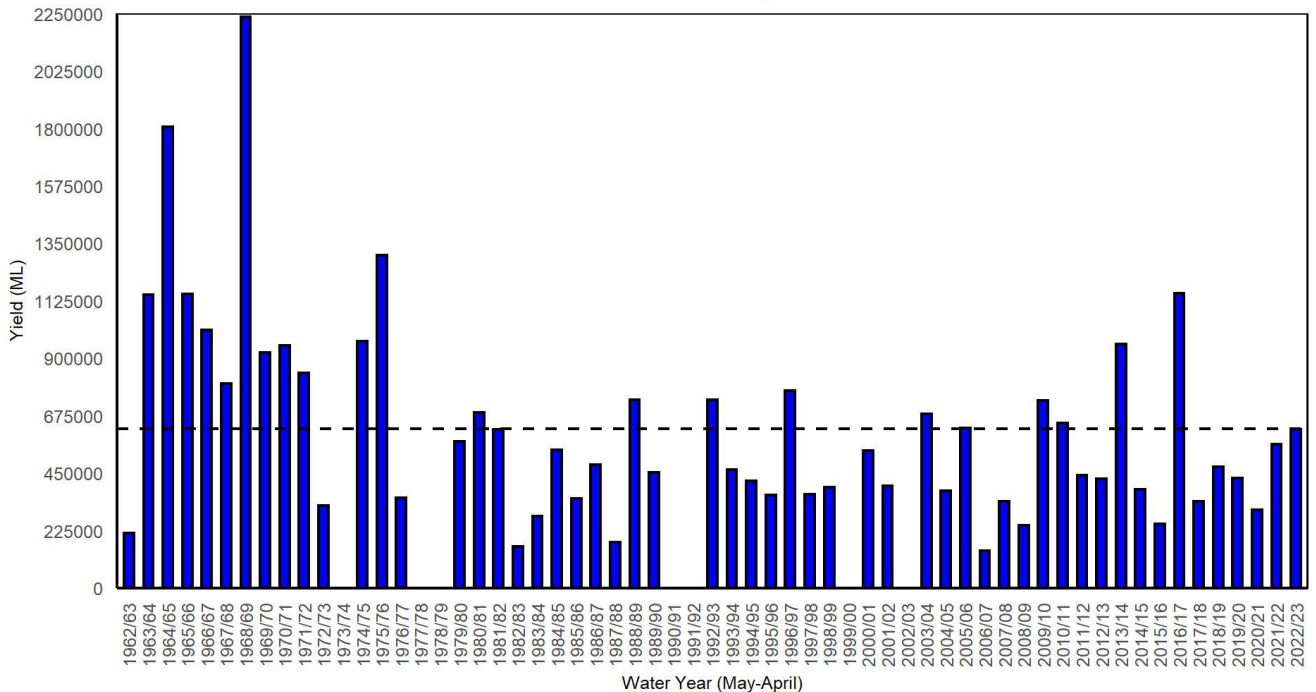


Figure 4. Yields in the Mersey River at Shale Road (Latrobe) streamflow gauging station. Water years with <95% of the daily flow record available are excluded. The long-term mean yield is shown as the dashed horizontal black line (631,455 ML).

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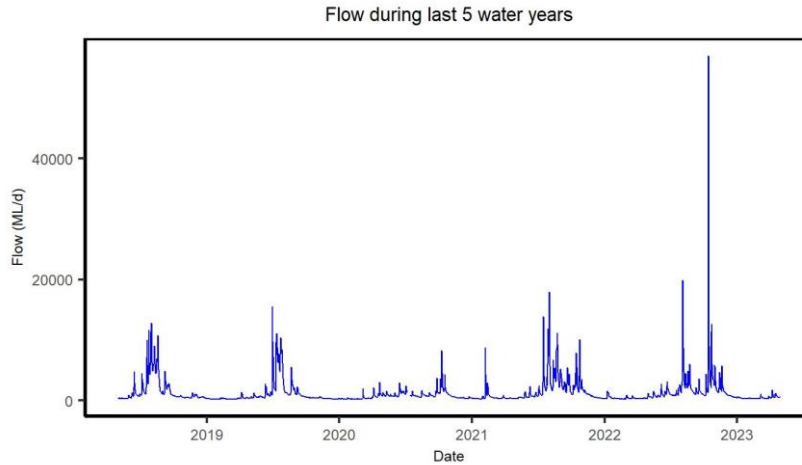


Figure 5. Mean daily flow in the Mersey River at Shale Road (Latrobe) streamflow gauging station for the last five years.

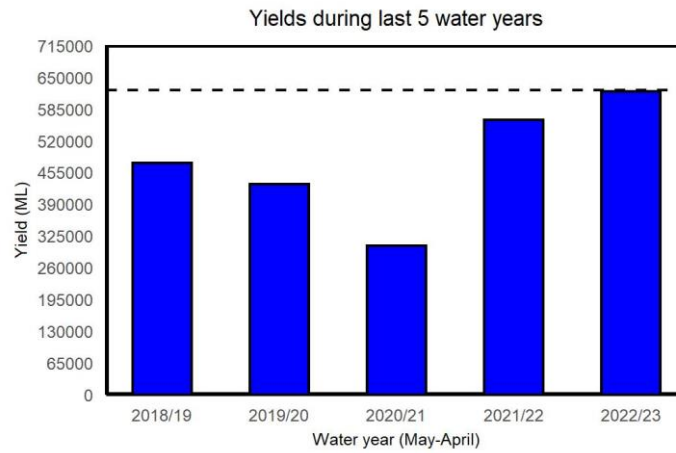


Figure 6. Yields in the Mersey River at Shale Road (Latrobe) streamflow gauging station for the last five years. The long-term mean yield is shown as the dashed horizontal black line (631,455 ML).

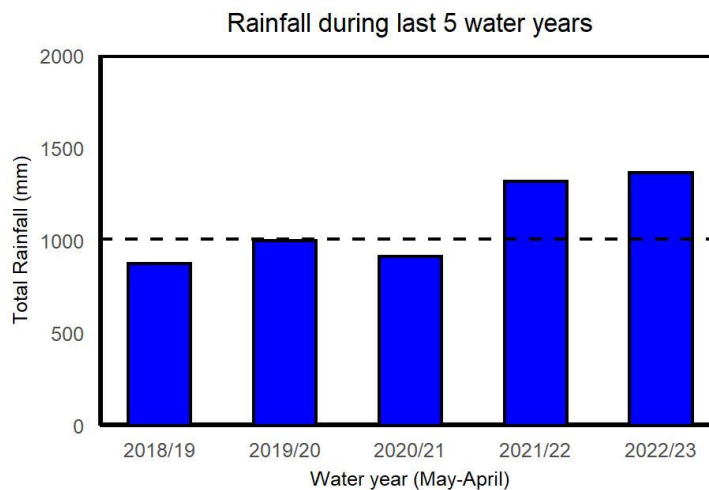


Figure 7. Total rainfall at the Sheffield School Farm BoM weather station during the last five water years. The long-term (1996-2023) mean total rainfall (1039 mm) is shown as the black horizontal dashed line.

Rainfall, low flows and restriction periods during winter 2022/2023

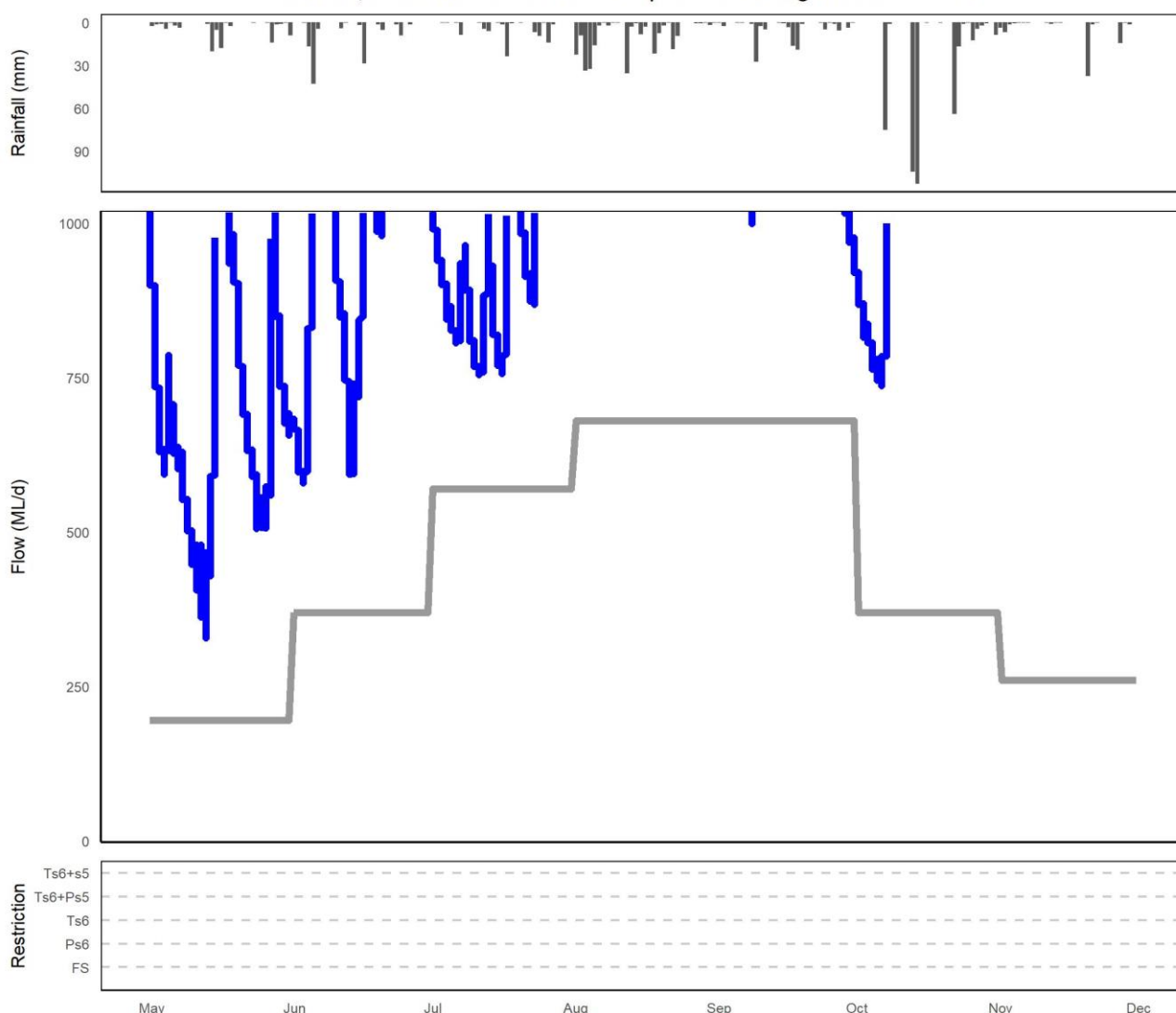


Figure 8. Summary of rainfall, low flows and restrictions in the Mersey River catchment during winter (May-October) 2022.
 Top plot: daily rainfall (Sheffield School Farm BoM site).
 Middle plot: instantaneous flow (<1000 ML/d) Mersey River at Shale Road (Latrobe) station (compliance flow site).
 Bottom 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 2022).

Restriction Type	Days at restriction level in 2021/22	Days at restriction level in 2022/23
Partial Surety 6	0	0
Total Surety 6	0	0
Total Surety 6 + Total Surety 5	0	0

Rainfall, low flows and restriction periods during summer 2022/2023

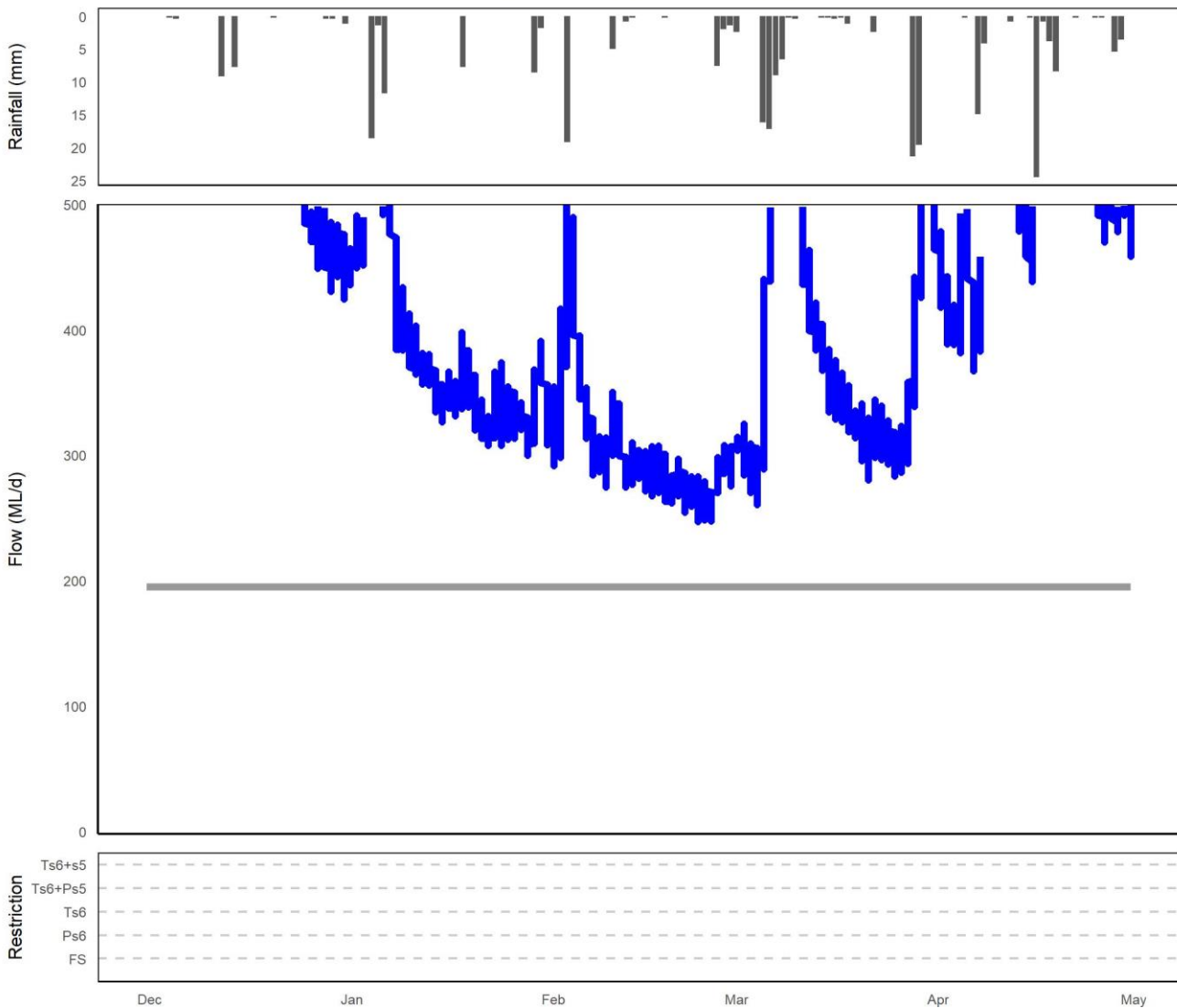


Figure 9. Summary of rainfall, low flows and restrictions in the Mersey River catchment during summer 2022/23 (Nov-April).
 Top plot: daily rainfall (Sheffield School Farm BoM site).
 Middle plot: instantaneous flow (<500 ML/d) Mersey River at Shale Road (Latrobe) station (compliance flow site).
 Bottom plot: days when restrictions were in place.

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

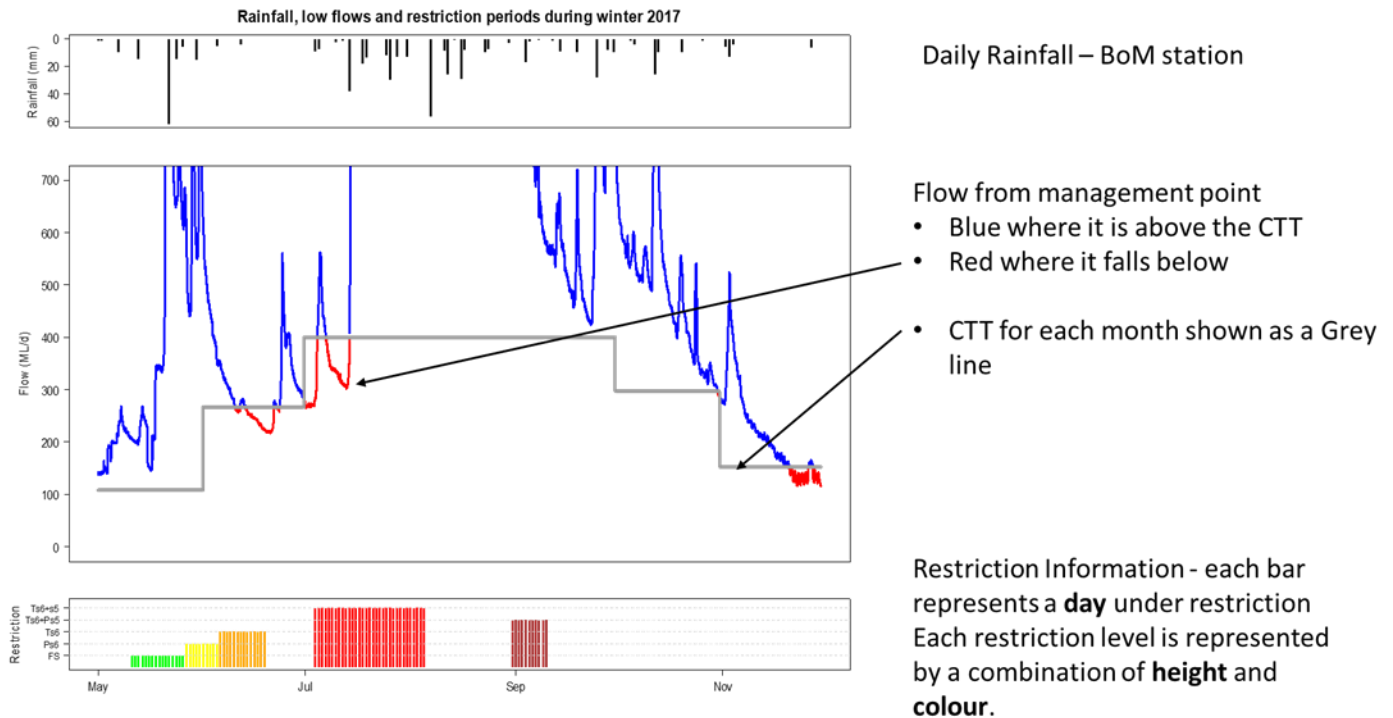
Table 2. Restriction levels and total days at each level for the summer period (182 days: Nov 2022 – April 2023).

Restriction Type	Days at restriction level in 2021/22	Days at restriction level in 2022/23
Partial Surety 6	0	0
Total Surety 6	0	0
Total Surety 6 + Total Surety 5	0	0

EXAMPLE ONLY

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

EXAMPLE ONLY

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October 2023