

RINGAROOMA RIVER CATCHMENT ANNUAL REPORT 2022/23

The Ringarooma Water Management Plan

took effect in December 2014. The Plan is a legal document prepared in accordance with the *Water Management Act 1999*.

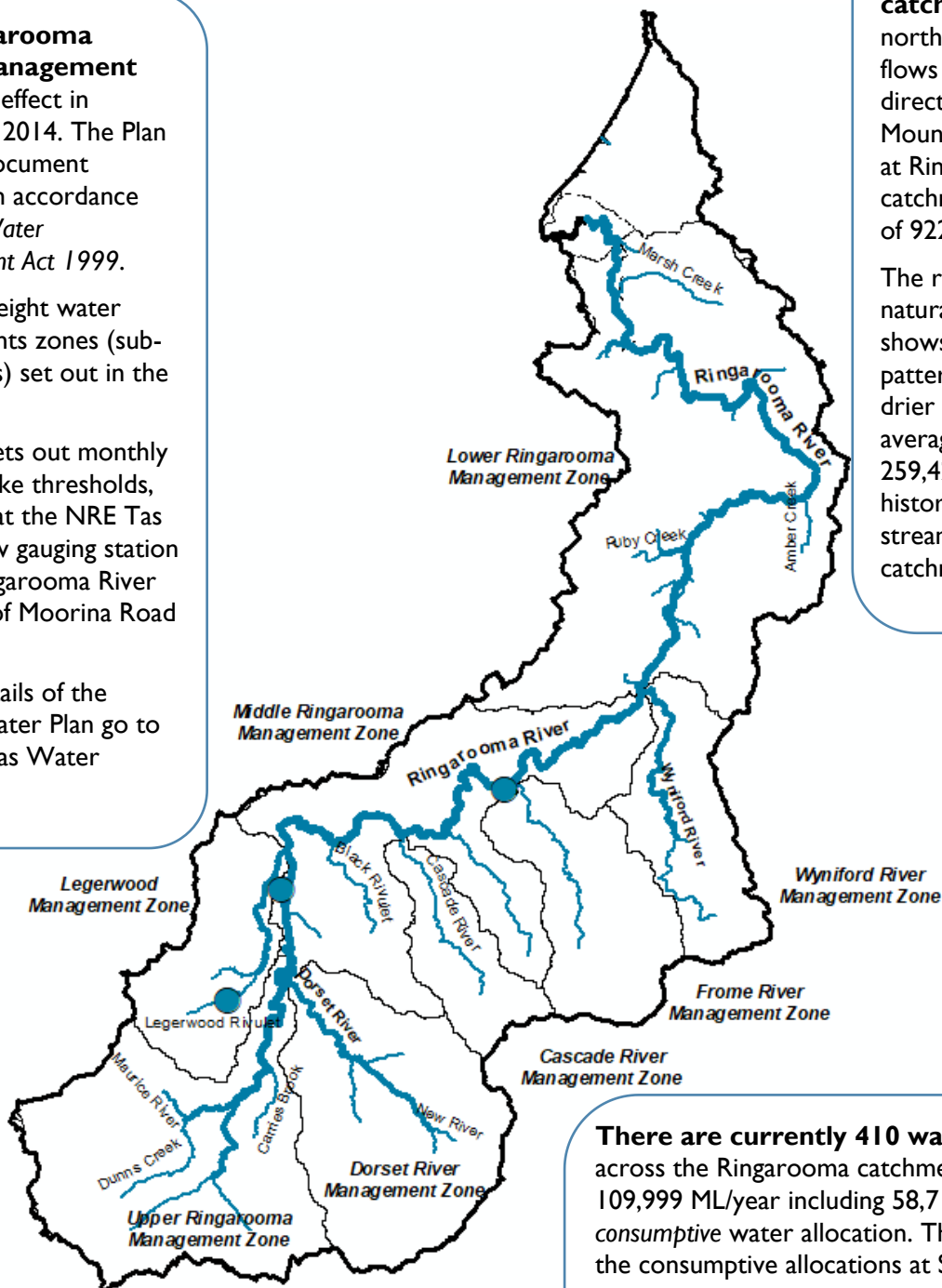
There are eight water managements zones (sub-catchments) set out in the Plan.

The Plan sets out monthly cease to take thresholds, measured at the NRE Tas stream flow gauging station on the Ringarooma River upstream of Moorina Road bridge.

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

The Ringarooma River catchment is located in the north-east of Tasmania and flows in a north-easterly direction from Ben Nevis and Mount Maurice to Bass Strait at Ringarooma Bay. The catchment covers a total area of 922 km².

The river system has a largely natural flow regime that shows a strong seasonal flow pattern (wetter in winter and drier in summer). The average annual water yield is 259,427 ML/year based on the historical flows at the lowest stream flow gauge in the catchment.



There are currently 410 water allocations across the Ringarooma catchment with a volume of 109,999 ML/year including 58,716 ML/year of *non-consumptive* water allocation. The table below details the consumptive allocations at Surety's 5 and 6.

CONSUMPTIVE WATER ALLOCATION

Surety Level	Summer Vol.(ML)	Winter Vol. (ML)	Overall Vol. (ML)
S 5	8,117	28,921	37,038
S 6	10,714	3,210	13,924
Total	18,831	32,131	50,962

CATCHMENT LAND USE

Approximately 26% of the catchment is under production native forests and plantation forestry. A further 18% is used for agricultural purposes with the remaining area supporting a diversity of land uses including mining, urban areas and conservation land. The catchment includes the townships of Branxholm, Derby, Gladstone and Ringarooma. The land use layer was last updated in 2019.

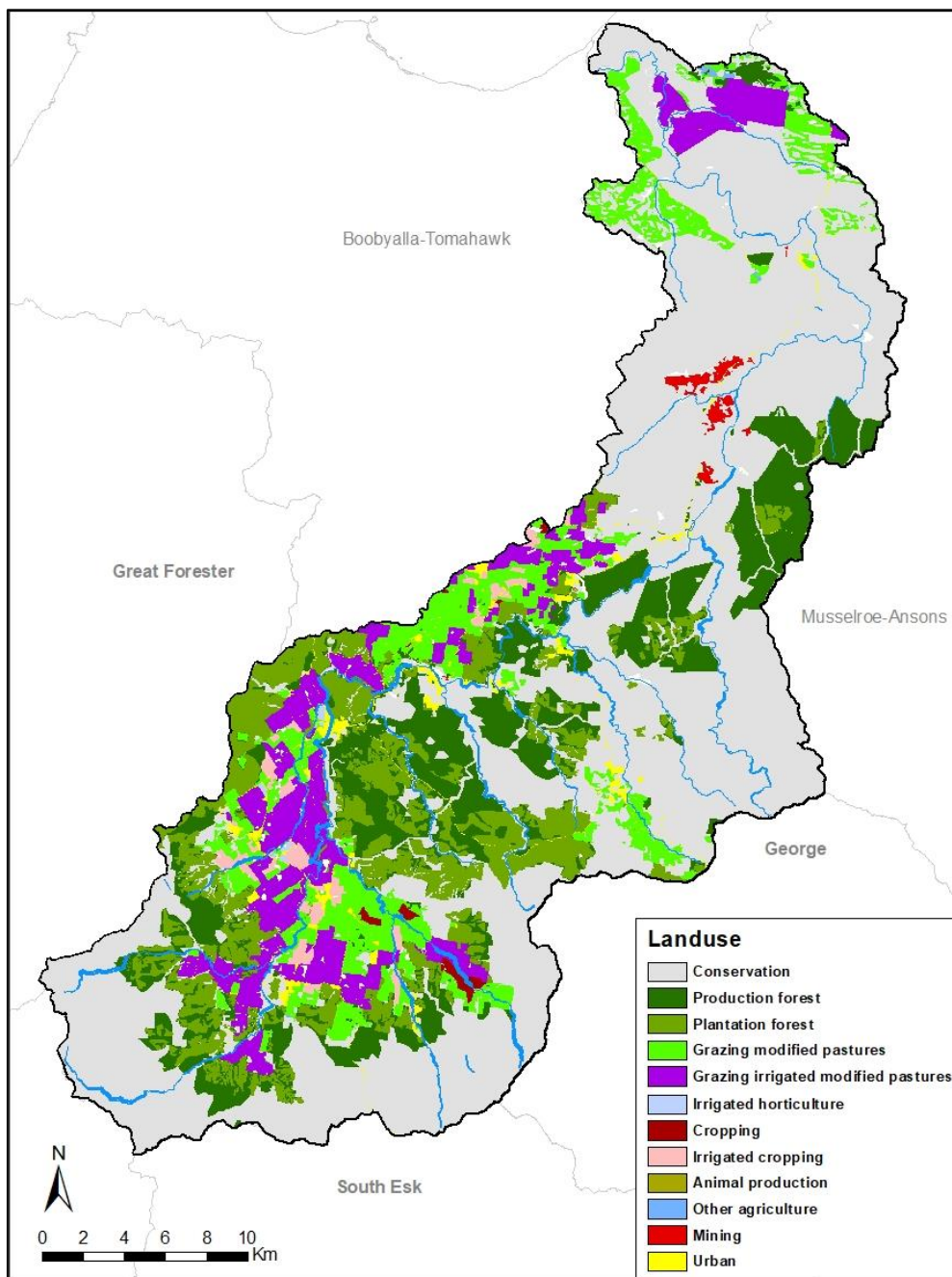


Figure 1. Ringarooma River catchment land use

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) and hence are good 'indicators' of river condition. River health monitoring by NRE Tas focuses on the composition of waterbug (macroinvertebrate) communities on the riverbed; however, other components of river ecosystems also contribute to the health of rivers (e.g. sediment and algae on riverbeds, fish, riverbank vegetation).

NRE Tas has two long-term river health monitoring sites in the Ringarooma River catchment. These sites are in the Ringarooma River at Branxholm (mid-reach) and in the Dorset River at Ruby Flats Road (lower reach of this tributary). Historically, the upper Ringarooma River at Branxholm (Figure 2) was in good to excellent good, but it has become more variable and declined recently, and is currently in moderate condition, with several river health scores (O/E scores) equating to band C (severely impaired) and band B (significantly impaired) being recorded since 2013. The long-term monitoring indicates that the condition of the Dorset River varies and is typically in good condition (band A (equivalent to reference condition)).

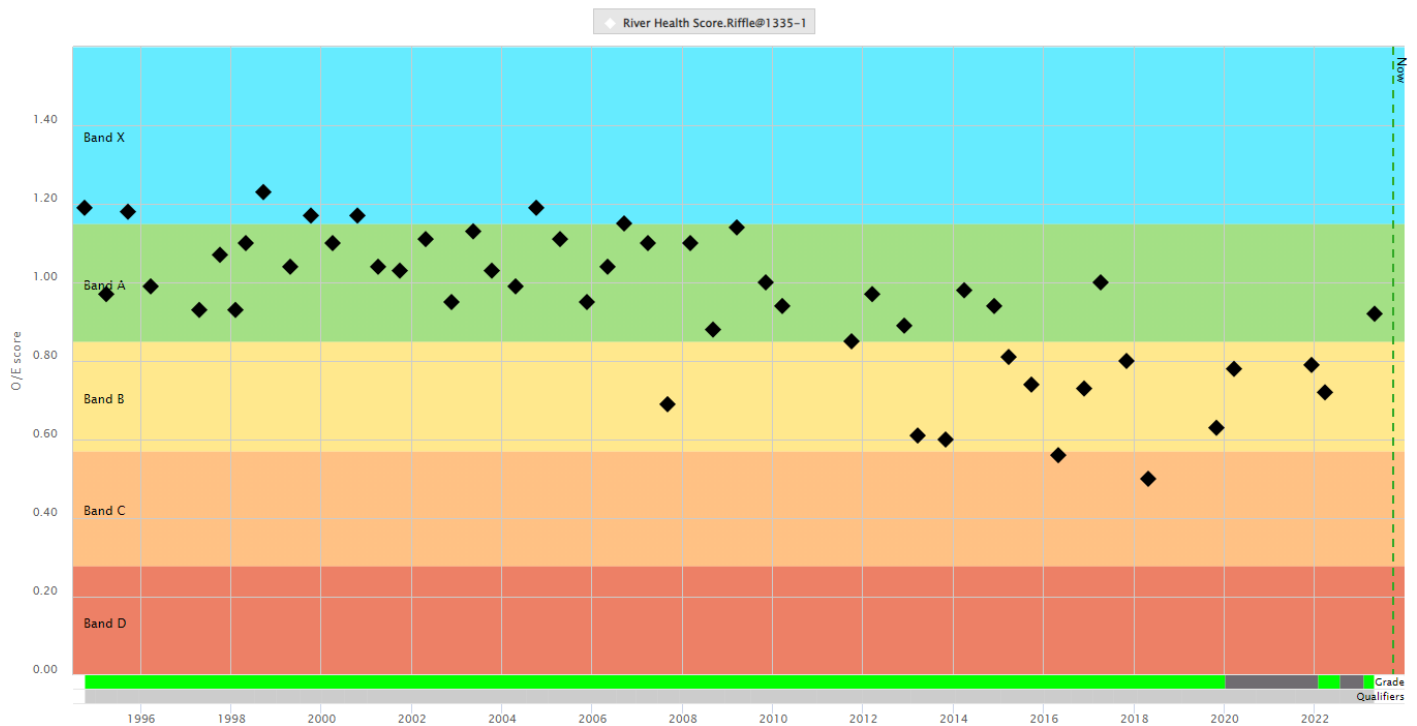


Figure 2. River Health Observed/Expected score at the Ringarooma at Branxholm site, whole of record
Band X = above reference condition, Band A = equivalent to reference condition,
Band B = significantly impaired, Band C = severely impaired and Band D = impoverished.

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

Over the period from May 2022 to April 2023:

- Annual yield was above the long-term average.
- Annual rainfall was just above average.
- 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, 1977 - 2023

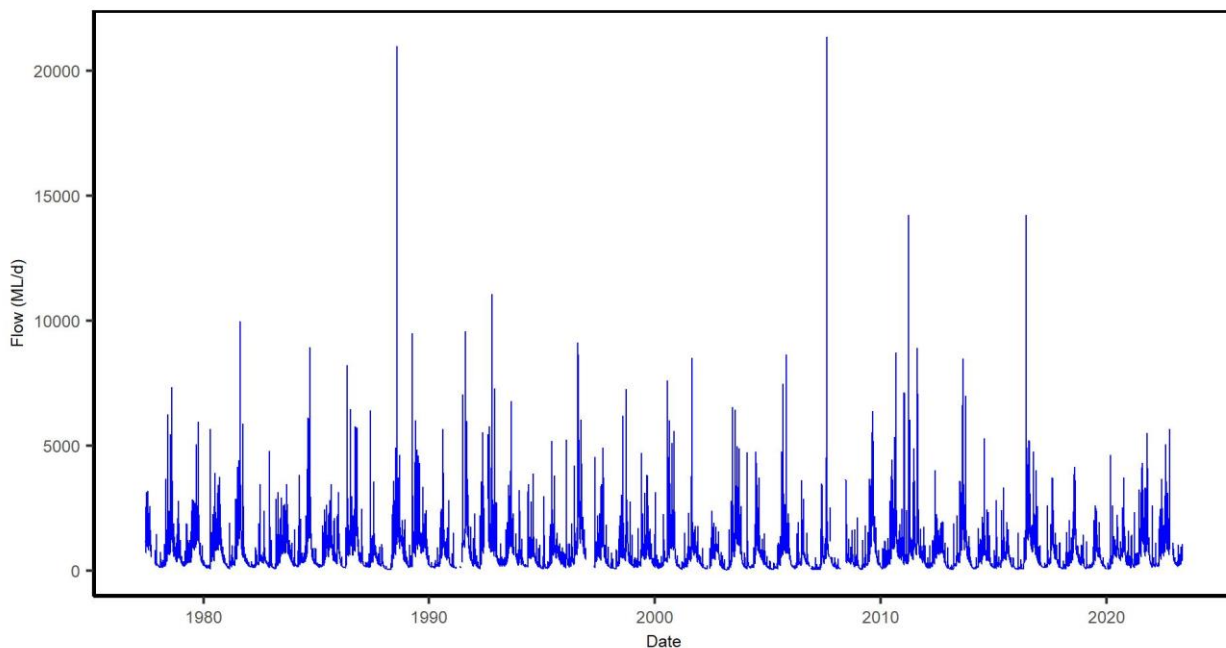


Figure 3. Mean daily flow in the Ringarooma River at the Moorina streamflow gauging station, whole of record.

Full record of yields in water years 1977 - 2022

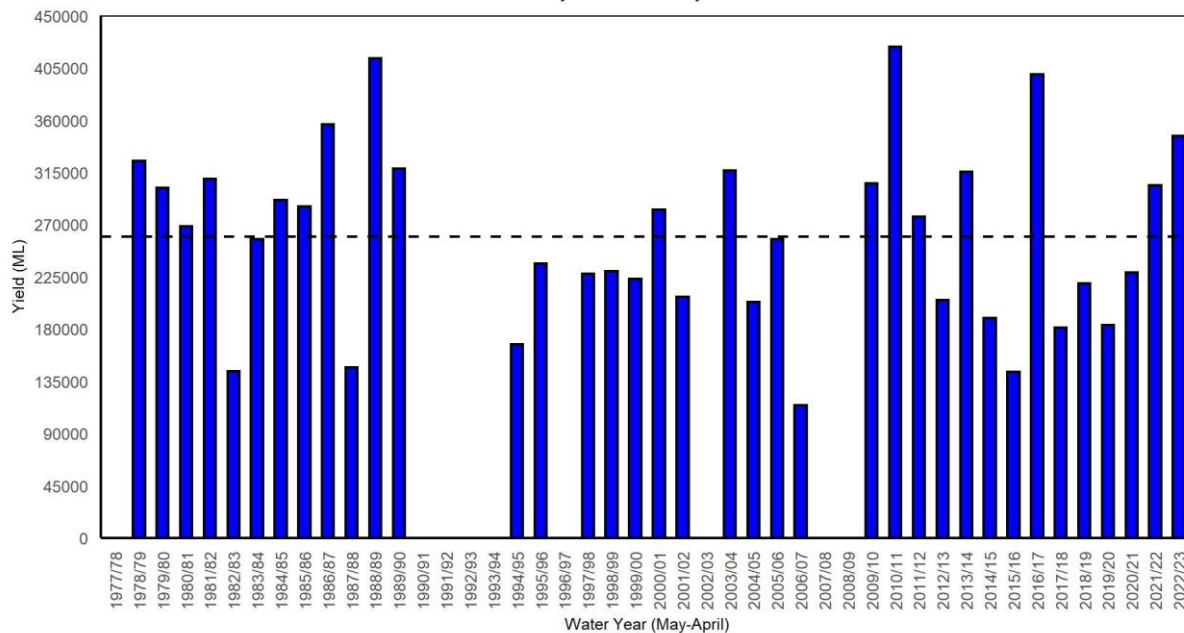


Figure 4. Yields in the Ringarooma River at the Moorina streamflow gauging station. Water years with <95% of the daily flow record available are excluded. The long-term mean yield is shown as the dashed horizontal black line (259,427 ML).

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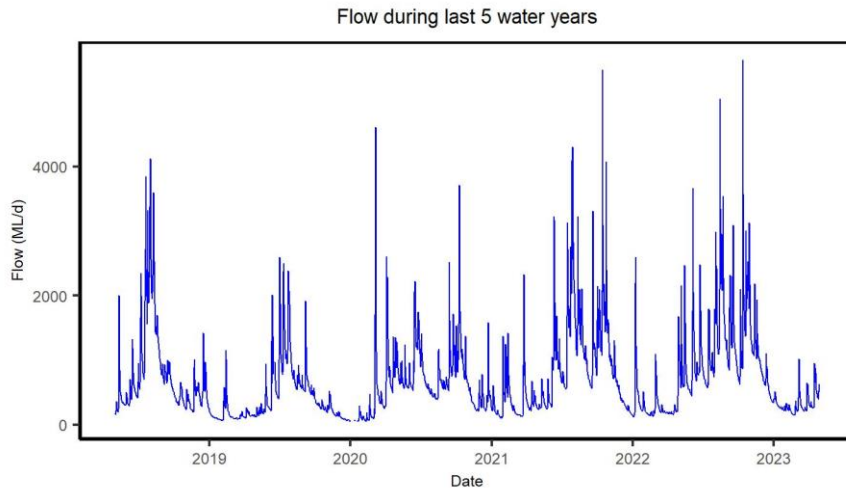


Figure 5. Mean daily flow in the Ringarooma River at the Moorina streamflow gauging station, last five years.

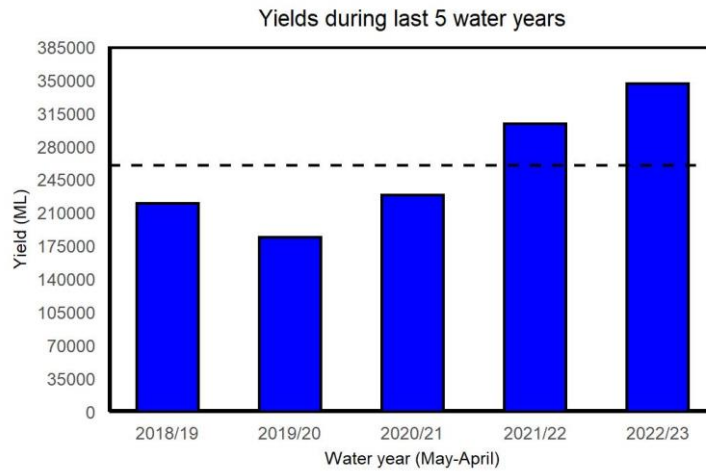


Figure 6. Yields in the Ringarooma River at the Moorina streamflow gauging station for the last five years. The long-term mean yield is shown as the dashed horizontal black line (259,427 ML).

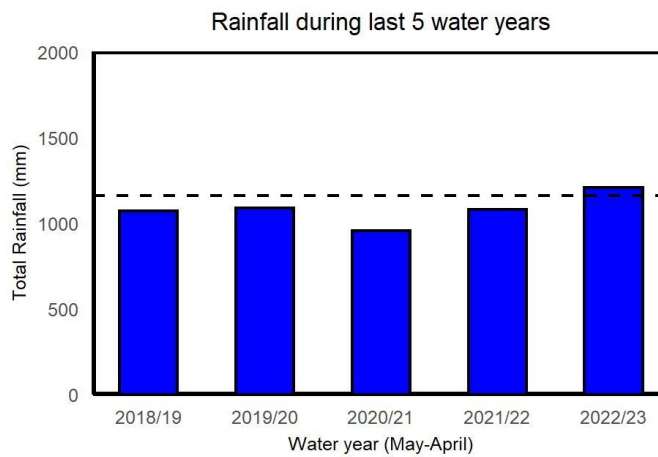


Figure 7. Total rainfall at the Ringarooma BoM weather station during the last five water years. The long-term (1899-2023) mean total rainfall (1,158 mm) is shown as the black horizontal dashed line.

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

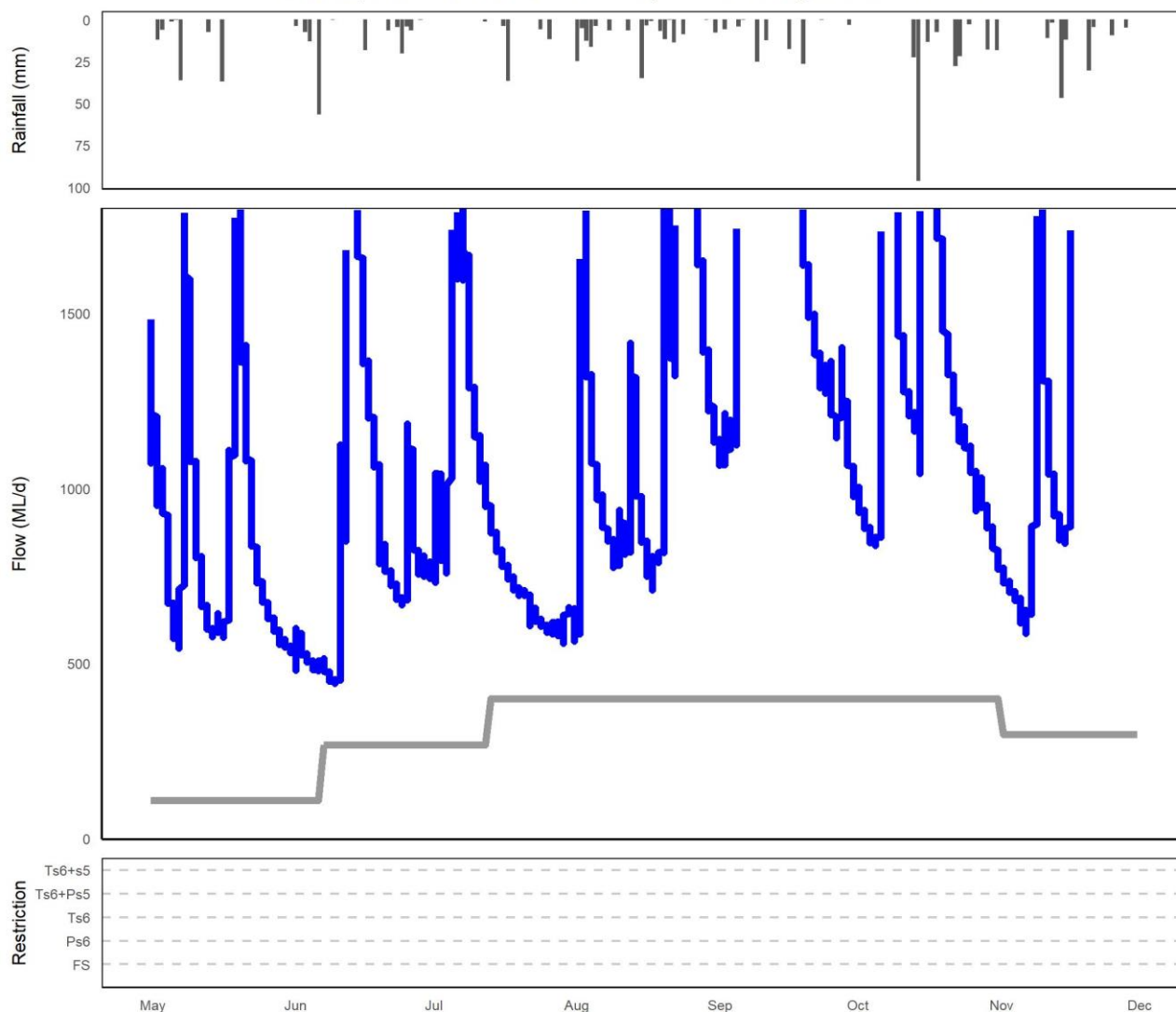


Figure 8. Summary of rainfall, low flows and restrictions in the Ringarooma catchment during winter (May-November) 2022.
 Top plot: total daily rainfall (Ringarooma BoM site).
 Middle plot: instantaneous flow (<1000 ML/d) Ringarooma River at the Moorina station (compliance flow site).
 Bottom plot: days 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 (May - November 2022).

Restriction Type	Days at restriction level in 2021/22	Days at restriction level in 2022/23
Flow Sharing	0	0
Partial Surety 6	0	0
Total Surety 6	0	0
Total Surety 6 + Partial Surety 5	0	0
Total Surety 6 + Total Surety 5	8	0

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

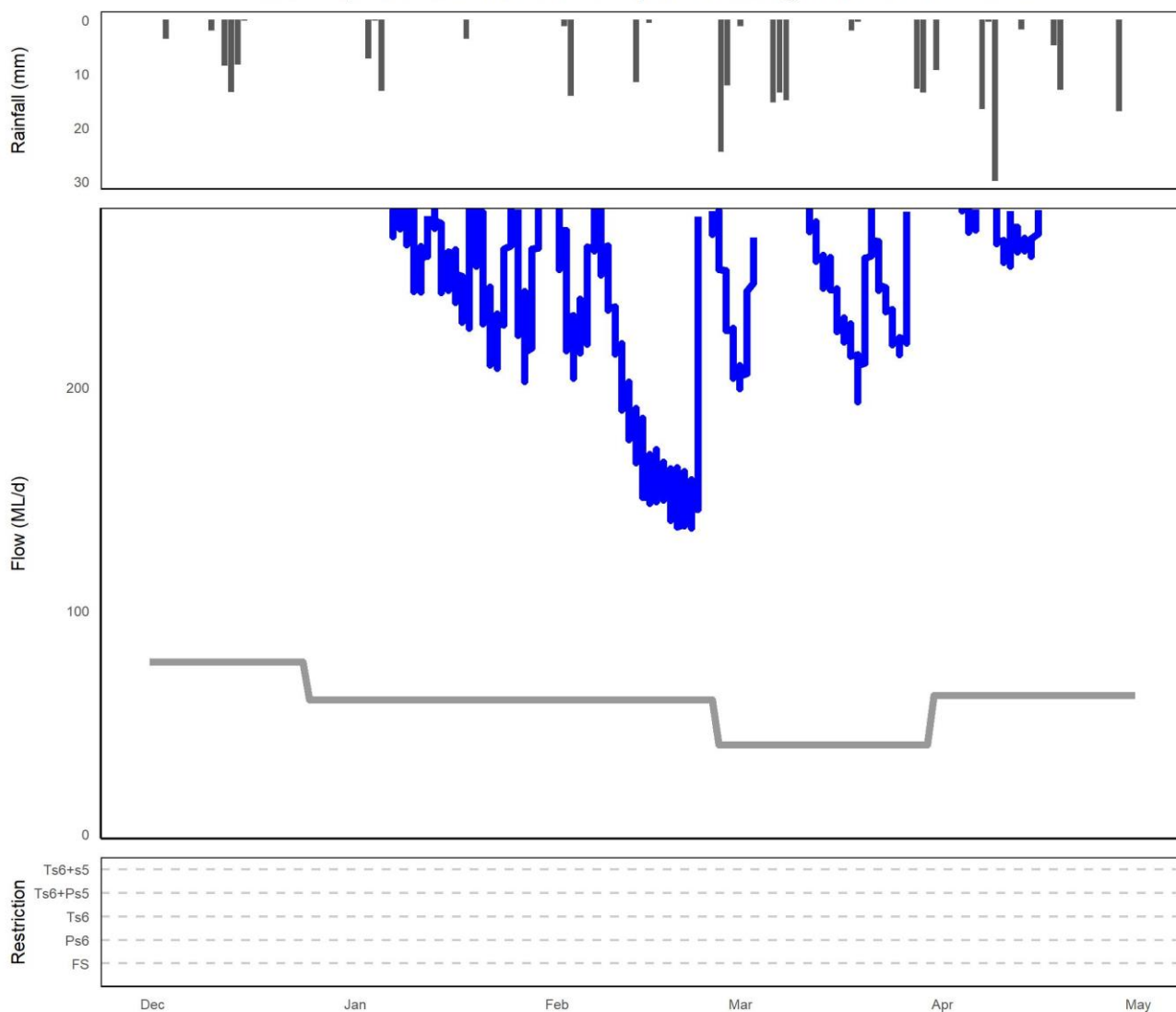


Figure 9. Summary of rainfall, low flows and restrictions in the Ringarooma catchment during summer 2022/23 (Dec-April).
 Top plot: total daily rainfall (Ringarooma BoM site).
 Middle plot: instantaneous flow (<300 ML/d) Ringarooma River at the Moorina station (compliance flow site).
 Bottom plot: days when restrictions were in place.

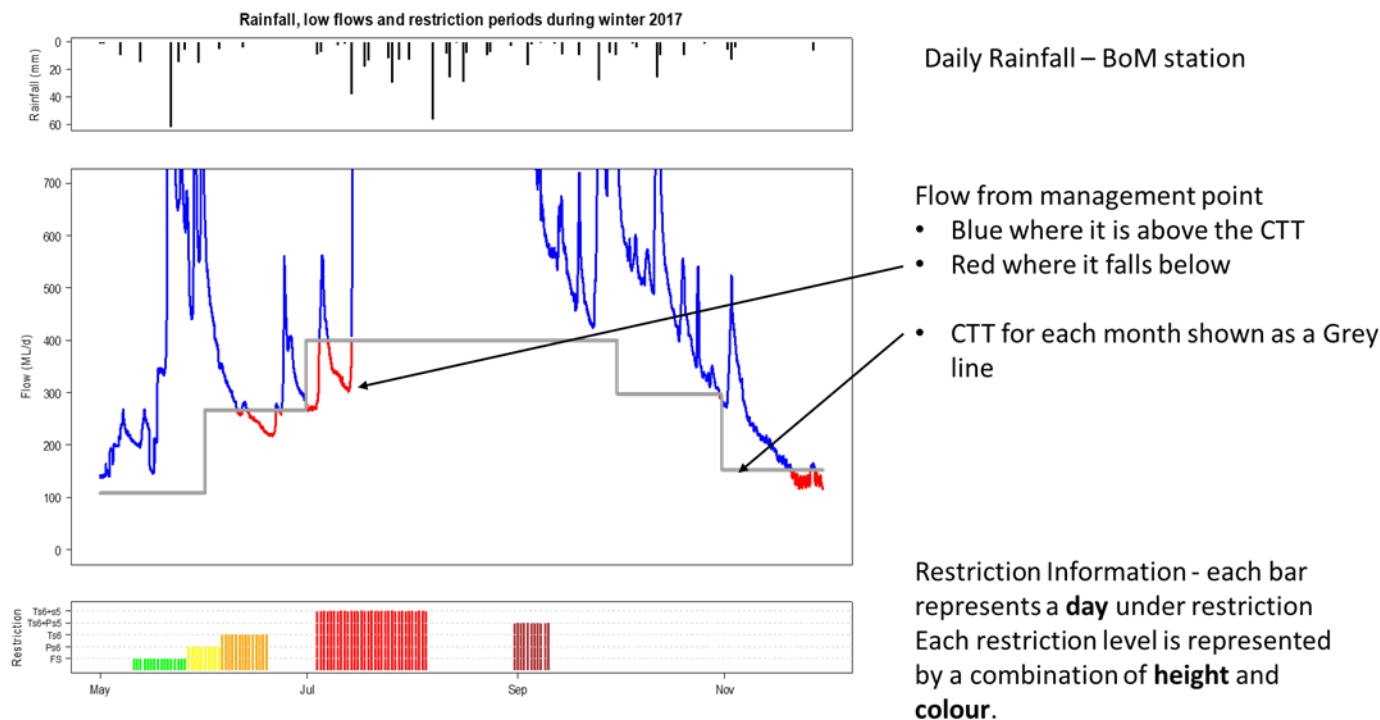
NOTE: Refer to the last page for a 'legend' and description on how to interpret these plots

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

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

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