

## HIGHFIRE RISK PROJECT

# BLOW-UP FIRE EVENT (BUFE) POTENTIAL SOUTH-EAST AUSTRALIA

## --The Hierarchical Predictive Framework--

Level 1: ; Level 2: 

This page shows current Alerts  
for Blow-Up Fire Event  
potential.

**ISSUE DATE:**  
**2 OCTOBER**  
**2025.**

This is an Operational Tool.  
It is an intelligence product to  
aid in informed decision  
making, and should not be  
used in any other way.

## A REQUEST

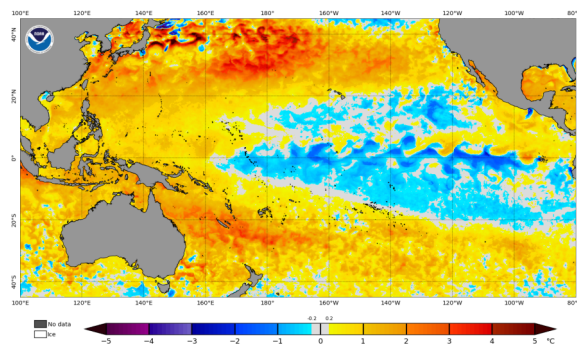
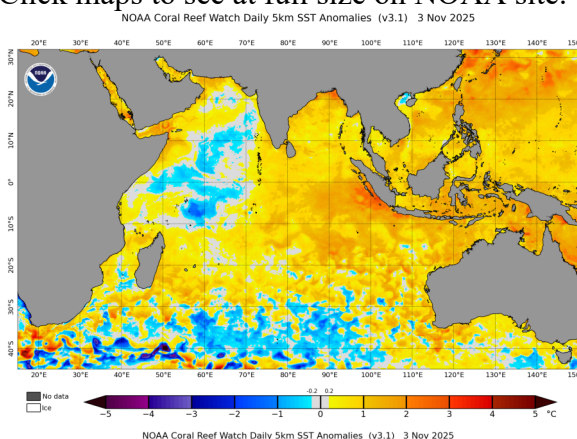
If anyone uses this model  
operationally, can they please  
send their results to the author:  
[Rick McRae](#)



**UNSW**  
CANBERRA

Current daily SSTA charts  
(NOAA Coral Reef Watch)

Click maps to see at full size on NOAA site.



**LEVEL 1**  
**CANBERRA**  
**DIPOLE**

Current Alert Status:

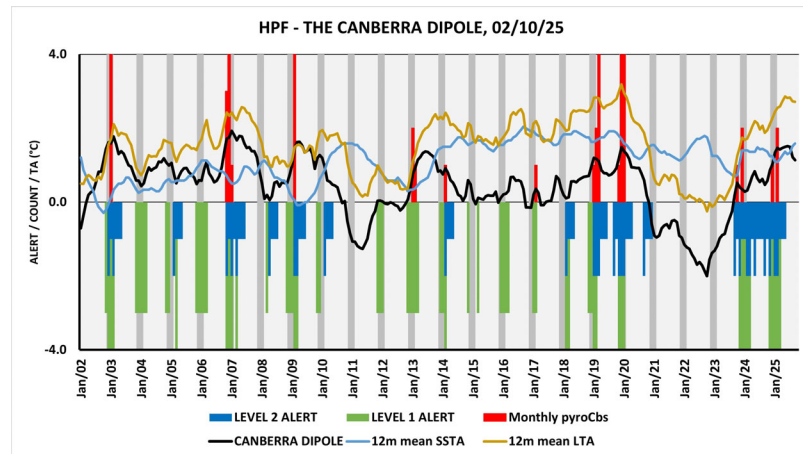


**NO ALERT.**

This reflects interactions between land and sea that influence synoptic patterns conducive to wildfires (or rain).

Data:

- Sea Surface Temperature Anomalies (SSTAs) - [NOAA Coral Reef Watch](#);
- Land Temperature Anomalies (LTAs) & River flows - [Bureau of Meteorology](#);
- PyroCbs - [Australian pyroCb Register](#).



[Click on image to enlarge.]

ANALYSIS: No alert is in place.  
Elevated fire danger is less likely.

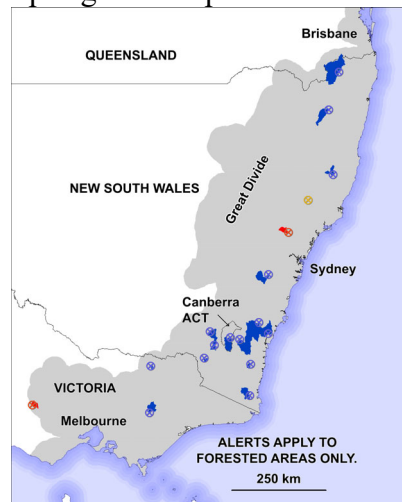
Current Alert Status:



**NO ALERT.**

## LEVEL 2 RIVER DRYING EVENTS

ANALYSIS: Many river flows are elevated, however a number are trending downwards. There is no alert, but the Spring rainfall patterns will be critical.



## LEVEL 3 BLOW-UP

It is recommended that FBANs and other technical specialists learn more about BUFEs. Operations at Level 3 require use of the BUFO2 model to assess the potential for a BUFE during an on-going fire. This requires a series of data feeds specified in the model. It is suggested that FBANs should skill-up on

using the BUFO2 model.

[Click here for the BUFO2 worksheet.](#)

# FIRE OUTLOOK

[Click here for a PowerPoint presentation on BUFO2, from a workshop at the AFAC21 Conference.](#)

Could anyone using the spreadsheet during the HPF trail please copy their results to us.

Page prepared by:  
Adjunct Professor Rick  
McRae  
UNSW Canberra  
School of Science  
Bushfire Research Group  
r.mcrae@unsw.edu.au



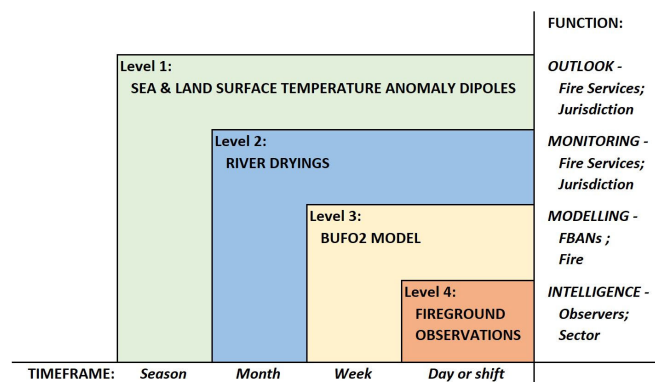
UNSW  
CANBERRA



UNSW  
Bushfire

## BASIS

This work is based on both analyses of data from Black Summer and operational work. The structure of the four-tier Hierarchical Prediction System is designed to progress into smaller-scales of timeframe and function, shifting from seasonal outlook to incident operations:



HPF is described in a [peer-reviewed paper](#) in the October 2023 edition of the Australian Journal of Emergency Management. A follow-up [paper](#) reports on HPF performance in

the following year.

## LEVEL 2 SOURCE DATA

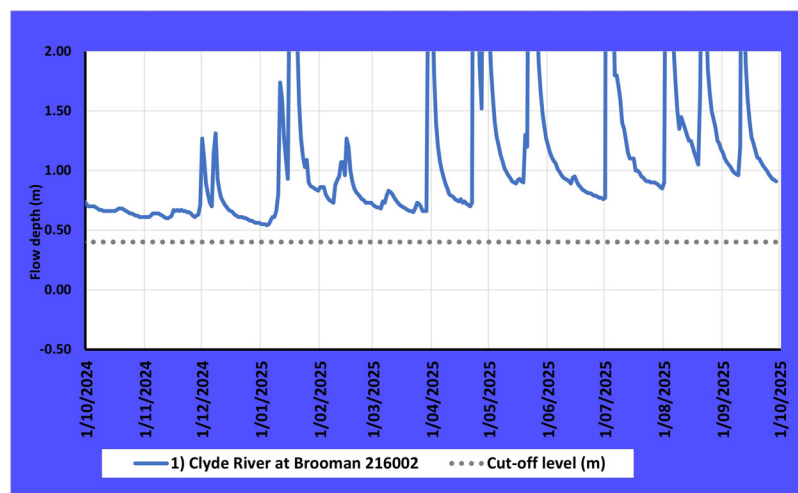
The table and map below describe the stream flow reference sites used.



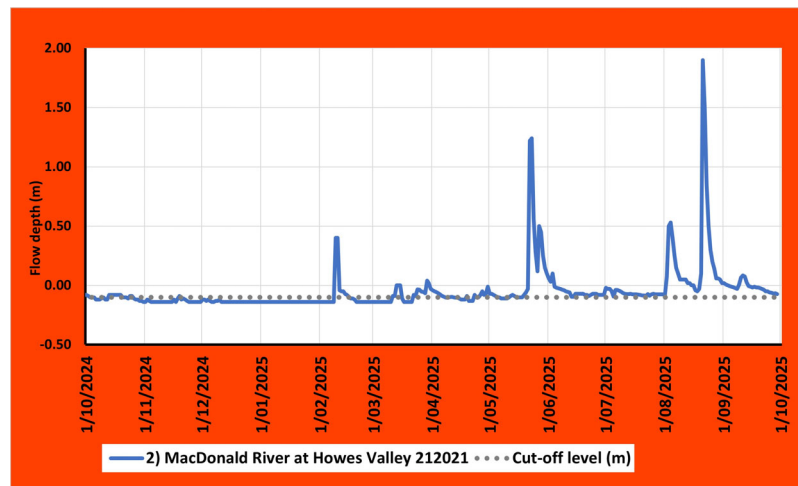
| No. | Site Code | Name                                                 | Latitude | Longitude | Owner           | 1st date on record | Concave level (m) |
|-----|-----------|------------------------------------------------------|----------|-----------|-----------------|--------------------|-------------------|
| 1   | 216002    | Clyde River at Brooman 216002                        | -35.4681 | 150.2394  | NSW DILW        | 8/07/1960          | 0.40              |
| 2   | 212021    | MacDonald River at Howes Valley 212021               | -32.8611 | 150.8611  | NSW DILW        | 9/02/1976          | -0.10             |
| 3   | 41000261  | Goobarragandra River at Mac's Crossing 41000261      | -35.4183 | 148.4357  | NSW DILW        | 13/06/2012         | 0.90              |
| 4   | 225219    | MacAlister River at Glencairn 225219                 | -37.5162 | 146.5665  | Vic DELWP       | 7/04/1967          | 0.30              |
| 5   | 220004    | Towamba R at Towamba 220004                          | -37.0715 | 149.6593  | NSW DILW        | 5/04/1970          | 0.35              |
| 6   | 212260    | Kowmung River at Cedar Ford 212260                   | -33.9481 | 150.2431  | NSW DILW        | 17/05/1968         | 0.30              |
| 7   | 204014    | Mann River at Mitchell 204014                        | -29.6931 | 152.106   | NSW DILW        | 10/05/1972         | 0.20              |
| 8   | 204051    | Clarence River at Paddys Flat 204051                 | -28.7198 | 152.4198  | NSW DILW        | 26/03/1976         | 0.55              |
| 9   | 207015    | Hastings River at Mt Seaview 207015                  | -31.3683 | 152.2425  | NSW DILW        | 31/05/1984         | 0.55              |
| 10  | 208001    | Barrington River at Bob's Crossing 208001            | -32.0284 | 151.4671  | NSW DILW        | 31/01/1944         | 0.58              |
| 11  | 410535    | Murrumbidgee River above Tantangara Reservoir 410535 | -35.7706 | 148.5703  | Snowy Hydro Ltd | 2/05/1960          | 0.45              |
| 12  | 401554    | Tooma River at Pinegrove 401014B                     | -36.1    | 148.26    | Snowy Hydro Ltd | 19/09/1968         | 0.90              |
| 13  | 215208    | Shoalhaven River at Hillview 215208                  | -35.1845 | 149.9536  | NSW DILW        | 6/11/1973          | 0.45              |
| 14  | 410734    | Queanbeyan River at Tinderry 410734                  | -35.6144 | 149.35    | Icon Water      | 2/08/1966          | 0.70              |
| 15  | 403221    | Reedy Creek 403221                                   | -36.3109 | 146.6012  | Vic DELWP       | 11/11/1964         | 0.22              |
| 16  | 218007    | Wadbilliga River at Wadbilliga 218007                | -36.257  | 149.6926  | NSW DILW        | 12/06/1974         | 0.75              |
| 17  | 410731    | Gudgenby River at Tennent 410731                     | -35.5722 | 149.0683  | Icon Water      | 12/11/1964         | 0.45              |
| 18  | 236219    | Hopkins R at Ararat                                  | -37.3158 | 142.9414  | DELW&P          | 30/05/1989         | 0.075             |

- A new site 18 has been added - near Ararat in Victoria to represent dryness north-west of Melbourne.
- These plots are of data from the Bureau of Meteorology (BoM) and WaterNSW (<https://realtimedata.watarnsw.com.au/water.stm>).
- These sites do not reflect risk to life or property, rather they are from streams with long records that are not dammed or otherwise significantly modified, and are intended to reflect underlying hydrological dynamics. Elevated levels or concave drying trends indicate wet landscapes. Near minimum flows or low flows decaying in a convex curve are indicators of a River Drying Event.
- Note that minimum flows are not zero flows - the value reflects the circumstances at the flow measuring station.
- Also note that many catchments burnt out during Black Summer, and this may cause anomalous flow dynamics.
- There are occasional disruptions to data provision, causing gaps in the graphs. These may be removed as datasets are updated.

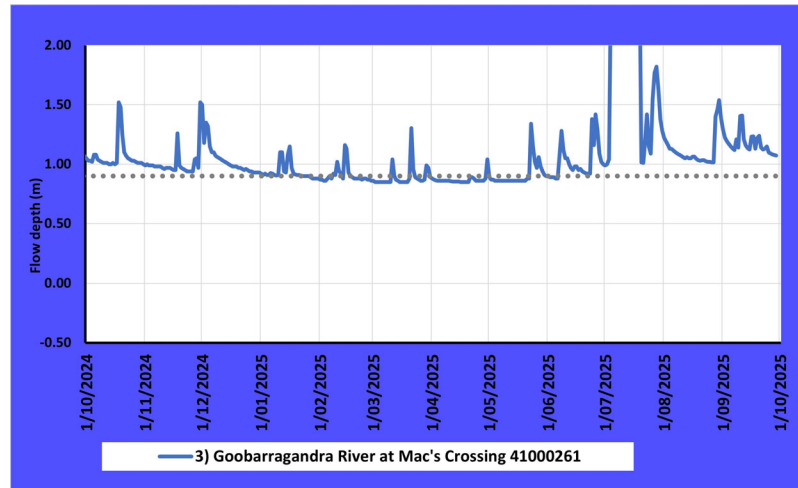
1. Clyde R at  
Brooman (site ID  
216002)  
Min. level = 0.40 m.



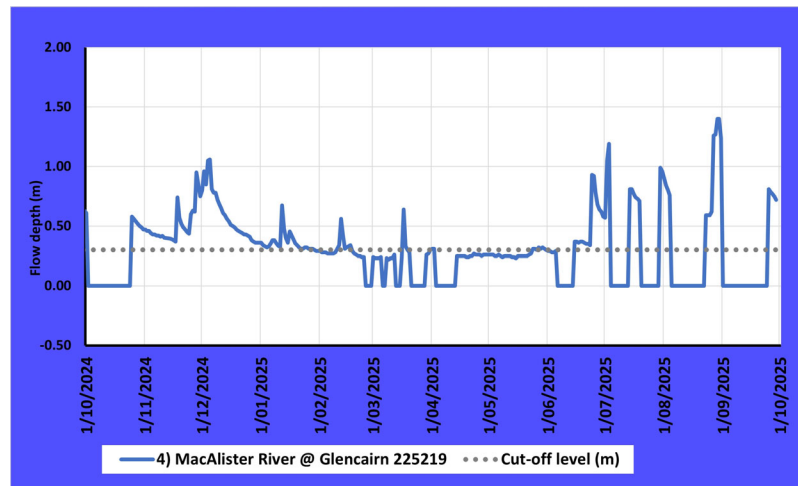
2. Macdonald R at  
Howes Valley (site  
ID 212021)  
Min. level = -0.10  
m.  
This site has  
questionable data -  
the river is notorious  
for silting up after  
major wildfires.



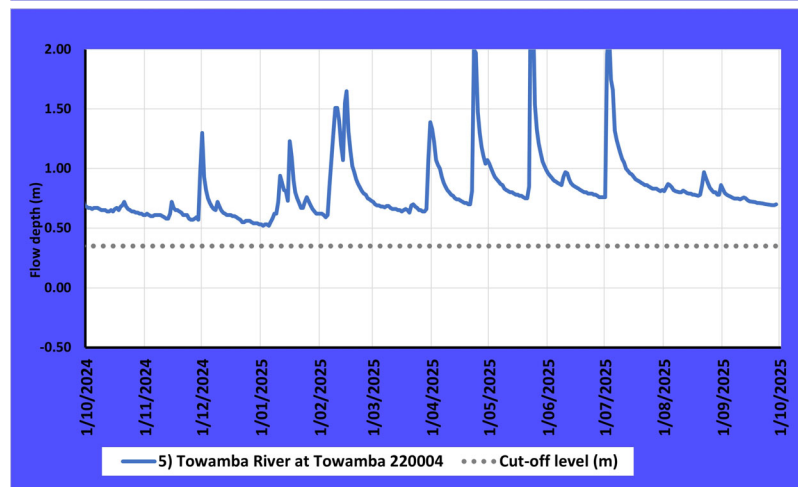
3. Goobarragandra  
R at Macs Crossing  
(site ID 41000261)  
Min. level = 0.90 m.



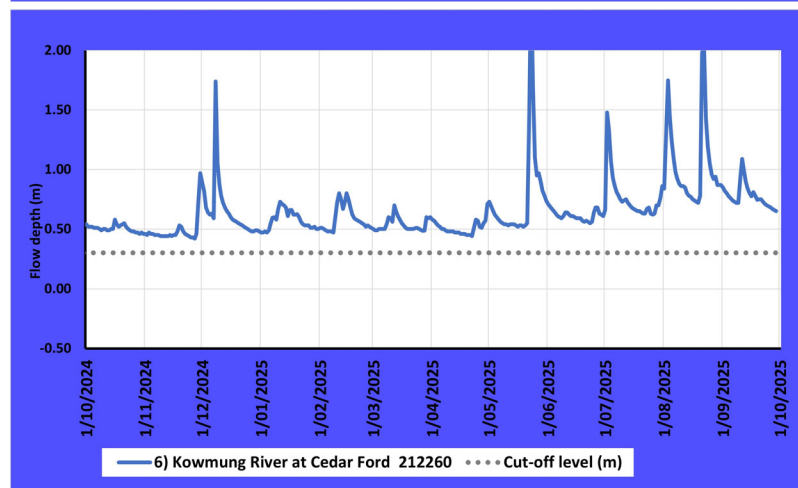
4. Macalister R at  
Glencairn (site ID  
225219)  
Min. level = 0.30 m.



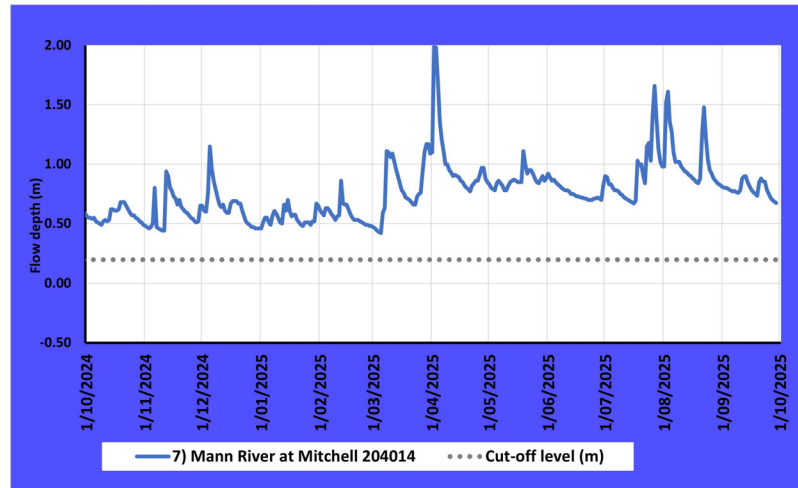
5. Towamba R at  
Towamba (site ID  
220004)  
Min. level = 0.35 m.



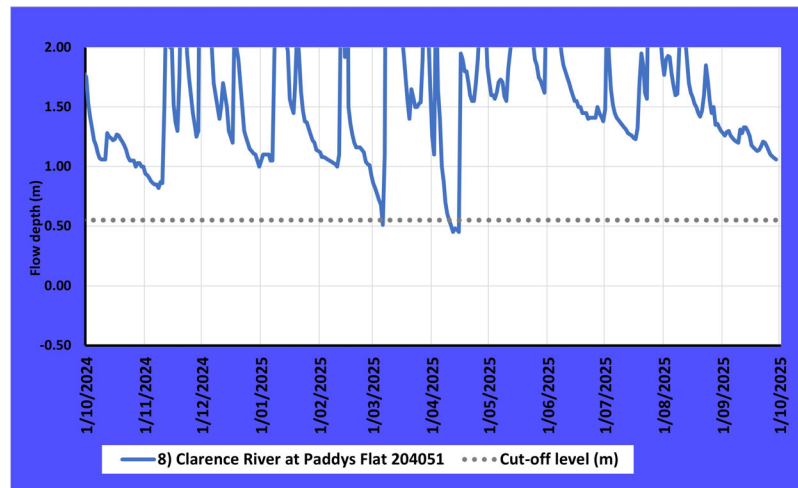
6. Kowmung R at  
Cedar Ford (site ID  
212260)  
Min. level = 0.40 m.



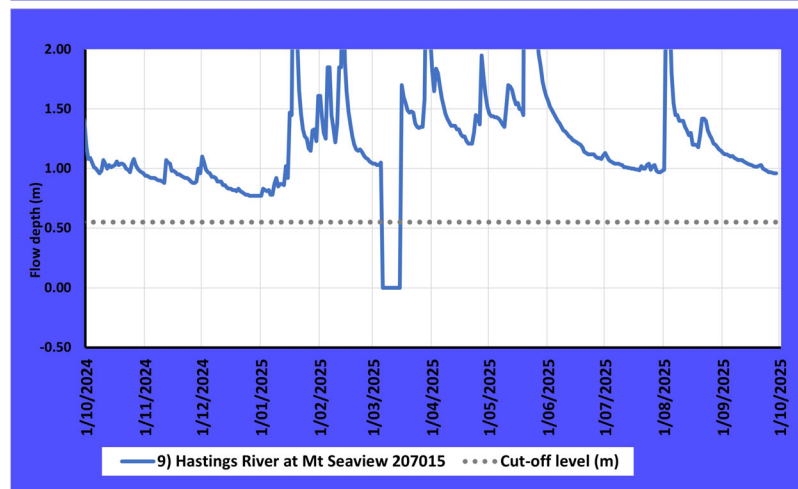
7. Mann R at Mitchell (site ID 204014)  
Min. level = 0.20 m.



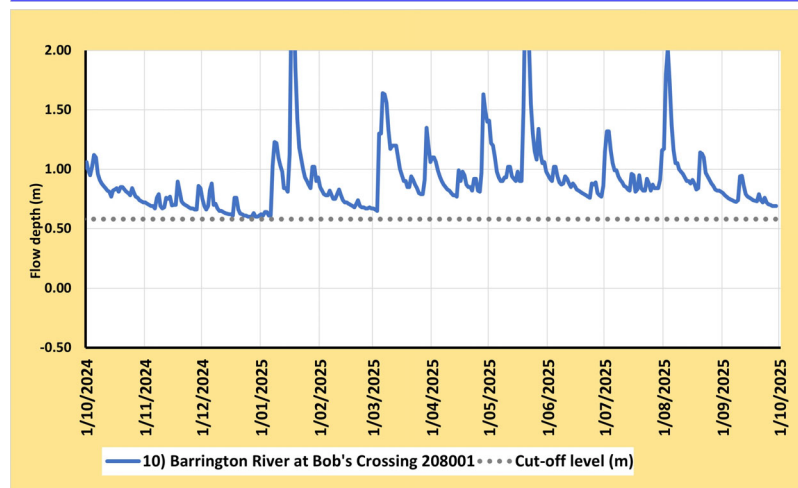
8. Clarence R at Paddys Flat (site ID 204051)  
Min. level = 0.55 m.



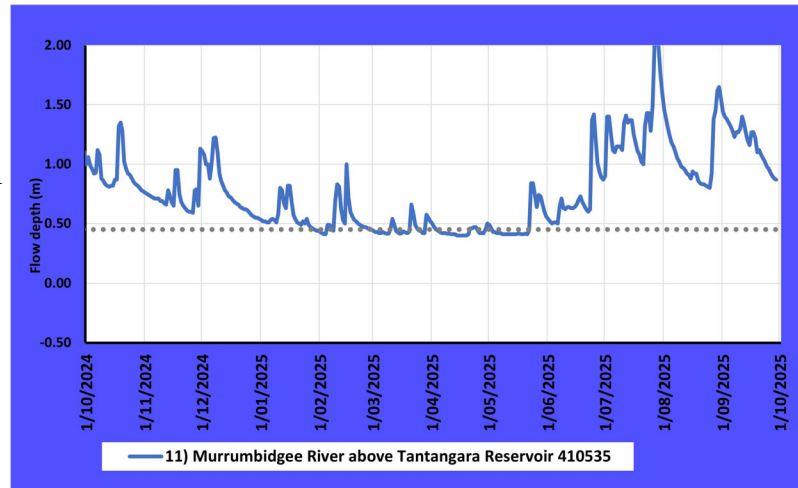
9. Hastings R at Mt Seaview (site ID 207015)  
Min. level = 0.55 m.



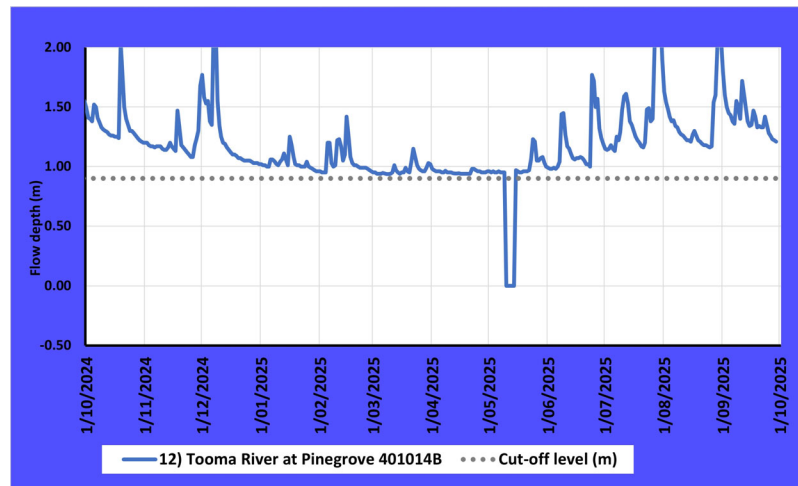
10. Barrington R at Bobs Crossing (site ID 208001)  
Min. level = 0.58 m.



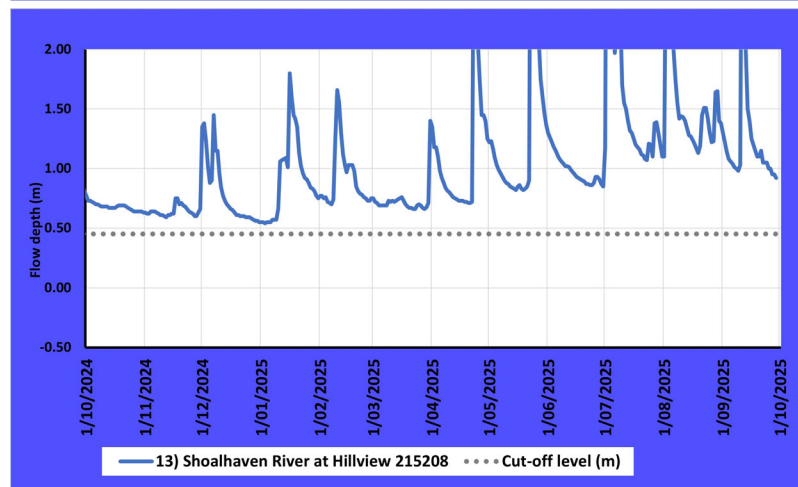
11. Murrumbidgee R  
above Tantangara  
Reservoir (site ID  
410535)  
Min. level = 0.45 m.



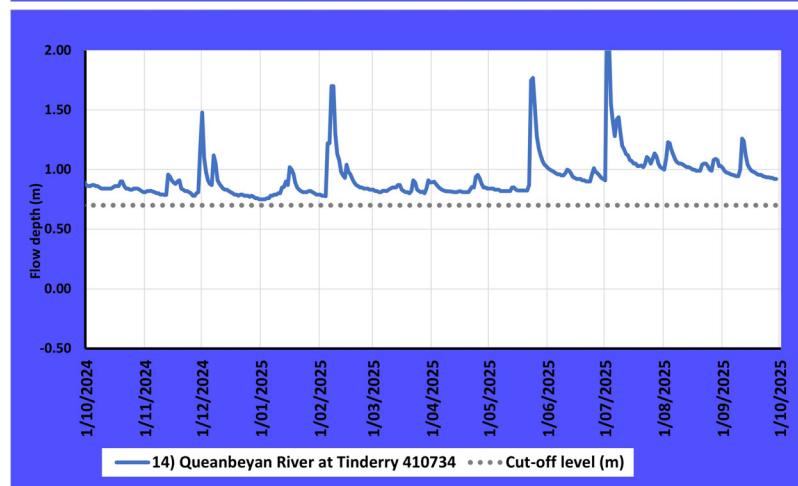
12. Tooma River at  
Pinegrove (site ID  
401014B)  
Min. level = 0.88m.



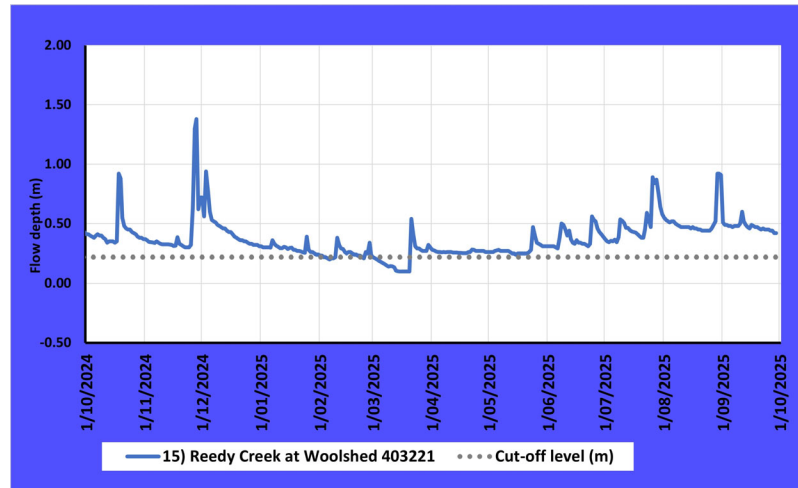
13. Shoalhaven R at  
Hillview (site ID  
215208)  
Min. level = 0.45 m.



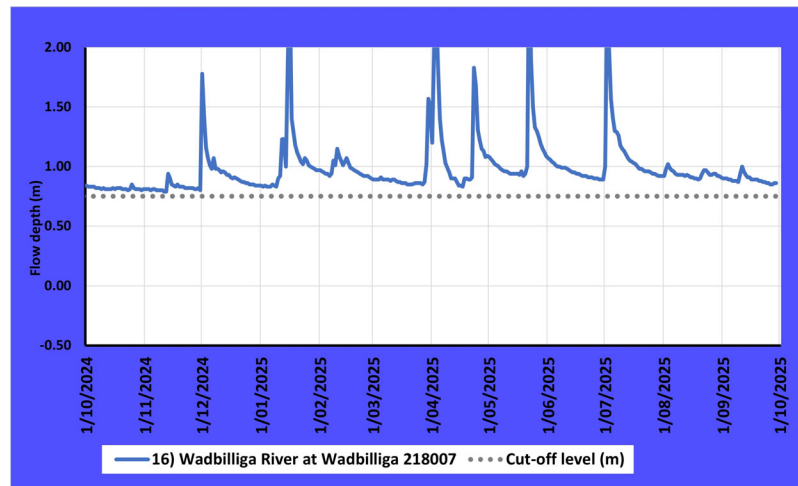
14. Queanbeyan R  
at Tinderry (site ID  
410734)  
Min. level = 0.70 m.



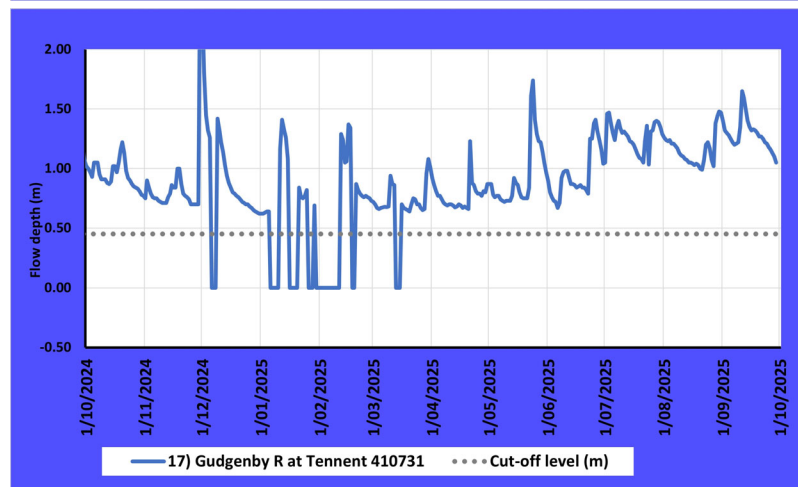
15. Reedy Creek  
(site ID 403221)  
Min. level = 0.22 m.



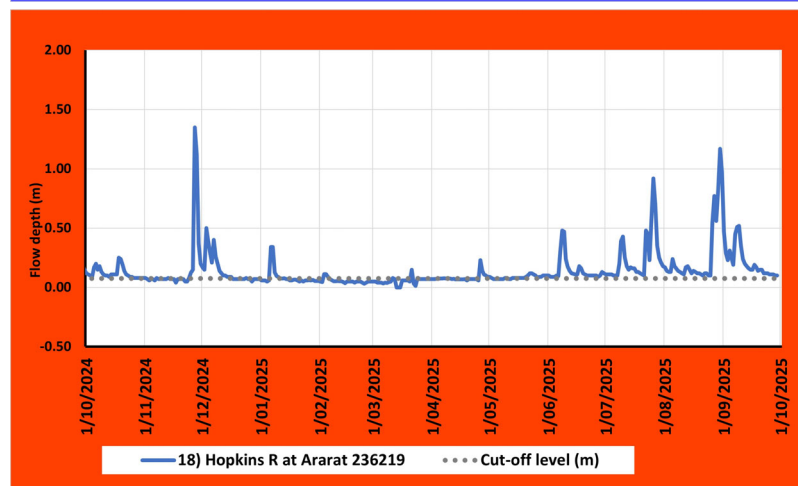
16. Wadbilliga R at  
Wadbilliga (site ID  
218007)  
Min. level = 0.75 m.



17. Gudgenby R at  
Mt Tennent (site ID  
410731)  
Min. level = 0.45 m.



18. Hopkins R at  
Ararat (site ID  
236219)  
Min. level = 0.075  
m.



## ARCHIVE

 [Early 09/25](#)  
 [Mid 08/25](#)  
 [Early 07/25](#)  
 [Early 06/25](#)  
 [Early 05/25](#)  
 [Mid 04/25](#)  
 [Early 04/25](#)  
 [Early 03/25](#)  
 [Late 01/25](#)  
 [Late 12/24](#)  
 [Early 11/24](#)  
 [Early 10/24](#)  
 [Late 08/24](#)  
 [Early 08/24](#)  
 [Early 07/24](#)  
 [Early 06/24](#)  
 [Early 05/24](#)  
 [Mid 04/24](#)  
 [Mid 03/24](#)  
 [End 02/24](#)  
 [Mid 02/24](#)  
 [End 01/24](#)  
 [Early 01/24](#)  
 [End 12/23](#)  
 [Early 12/23](#)  
 [End 10/23](#)  
 [End of 09/23](#)  
--- End of list ---