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.

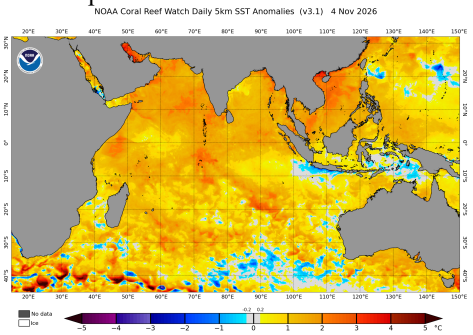
MID-MONTH UPDATE ISSUE DATE: 8 OCTOBER 2026.

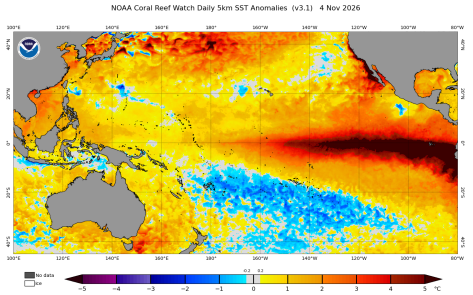
This is an Operational Tool. It is an intelligence product to aid in informed decision making, and should not be used in any other way.

A REQUEST

If anyone uses this model operationally, can they please send their results to the author: Rick McRae

Current daily SSTA charts (NOAA Coral Reef Watch)
Click maps to see at full size on NOAA site.





Recent NASA GRACE Soil Moisture Map (https://nasagrace.unl.edu/). [Click on image to enlarge.]
Recent NASA GRACE Soil Moisture Map

LEVEL 1 CANBERRA DIPOLE

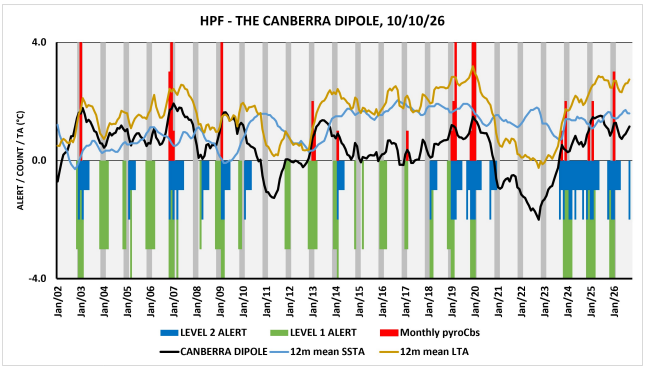
Current Alert Status:

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.]

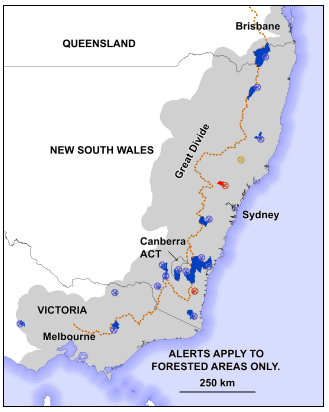
ANALYSIS: Cooler weather has reduced fire risks, and the drought load has reduced in many - but not all - areas.
Seas offshore from SE Australia remain persistently hot (elevated SSTAs). If these were to dissipate, and given that a strong El Nino event has formed, then careful monitoring of the HPF would be essential.

Current Alert Status:

NO ALERT

LEVEL 2 RIVER DRYING EVENTS

ANALYSIS: Recent rainfalls have removed most of what could have a concerning trend towards drier flows.
All flows in the north are elevated, so the early fire season in Queensland and NE NSW seems unlikely to be prone to BUFEs.



[Click image to enlarge.]

A key driver of recent events may be the significant warming of sea-surface temperatures across the Indian Ocean (see map above). This raises dew point temperatures of air flows into Australia.

LEVEL 3 BLOW-UP FIRE OUTLOOK

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.

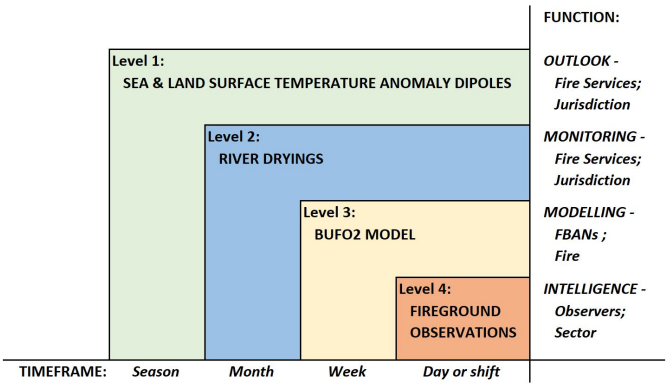
Click here for a PowerPoint presentation on BUFO2, from a workshop at the AFAC21 Conference.

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

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

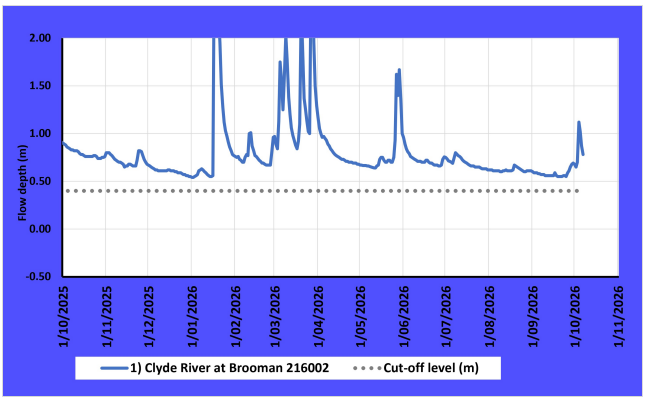
The table and map below describe the stream flow reference sites used.



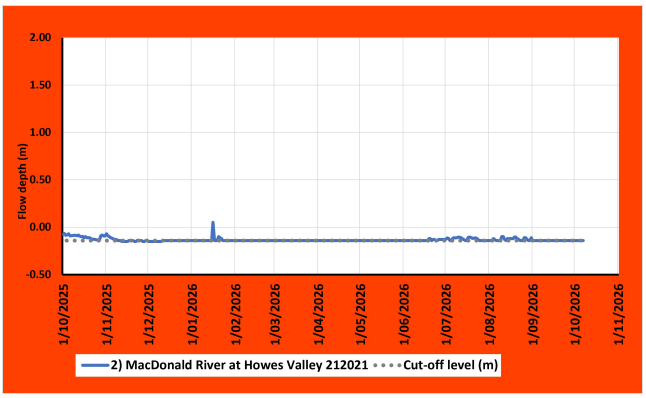
No.	Site Code	Name	Latitude	Longitude	Owner	1st date on record	Concave level (m)
1	216002	Clyde River at Brooman 216002	-35.4681	150.2394	NSW DILW	8/07/1960	0.40
2	212021	MacDonald River at Howes Valley 212021	-32.8611	150.8611	NSW DILW	9/02/1976	-0.10
3	41000261	Goobarragandra River at Mac's Crossing 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.waternsw.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 signficantly 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.

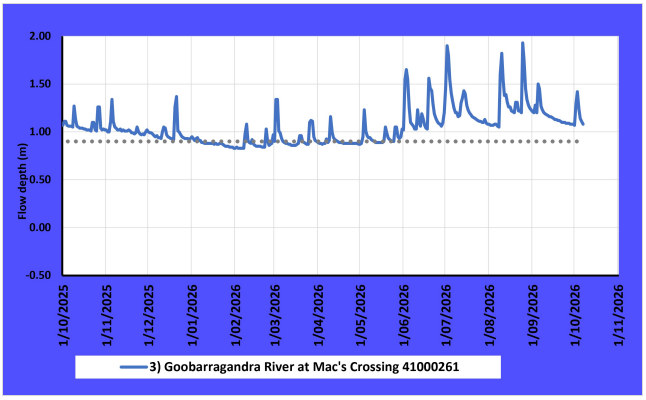
1. Clyde R at Brooman (site ID 216002)
Min. level = 0.40 m.



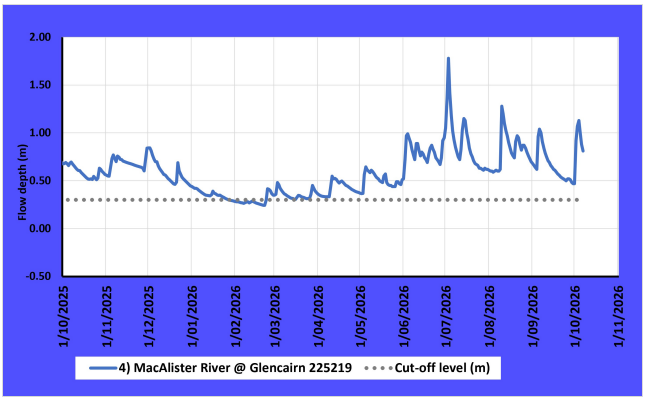
2. Macdonald R at Howes Valley (site ID 212021)
Min. level = -0.10 m.
This site has questionable data - the river is notorious for silting up after major wildfires.



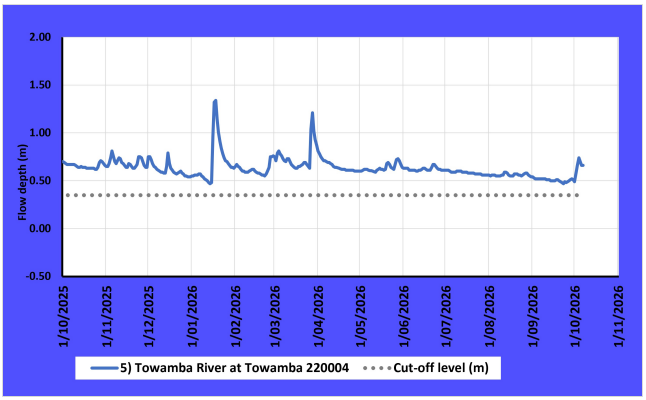
3. Goobarragandra R at Macs Crossing (site ID 41000261)
Min. level = 0.90 m.



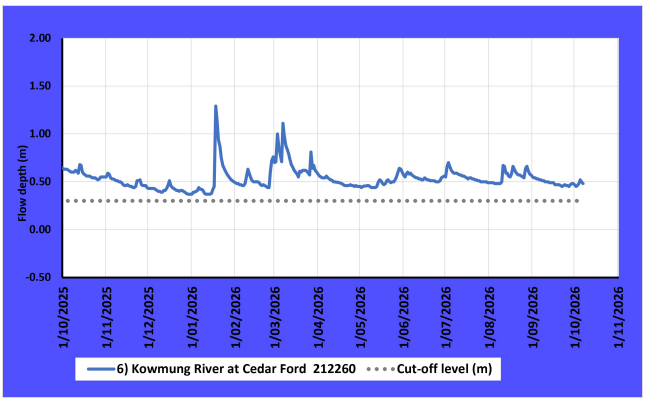
4. Macalister R at Glencairn (site ID 225219)
Min. level = 0.30 m.



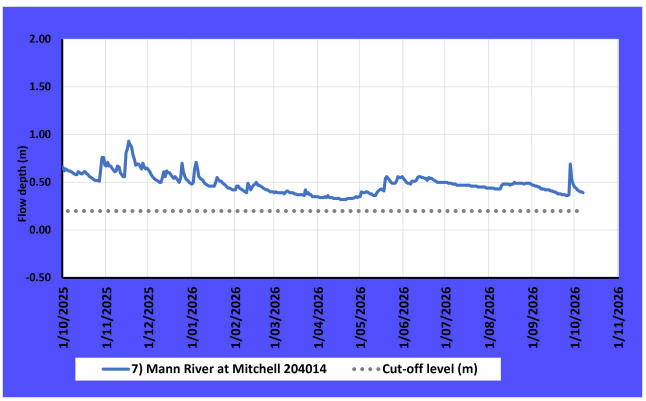
5. Towamba R at Towamba (site ID 220004)
Min. level = 0.35 m.



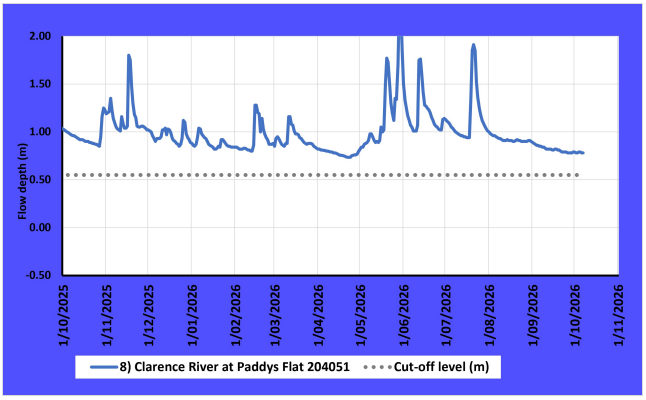
6. Kowmung R at Cedar Ford (site ID 212260)
Min. level = 0.40 m.



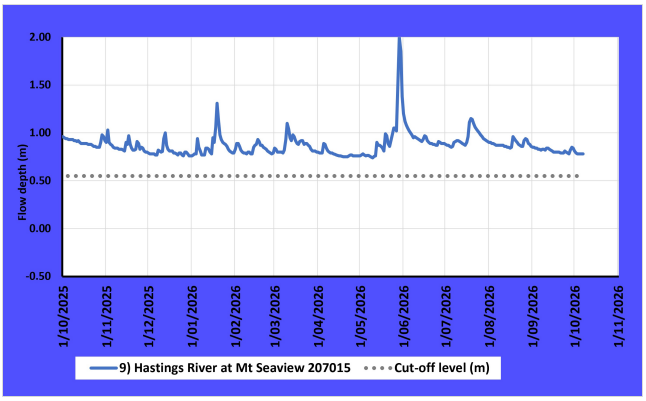
7. Mann R at Mitchell (site ID 204014)
Min. level = 0.20 m.



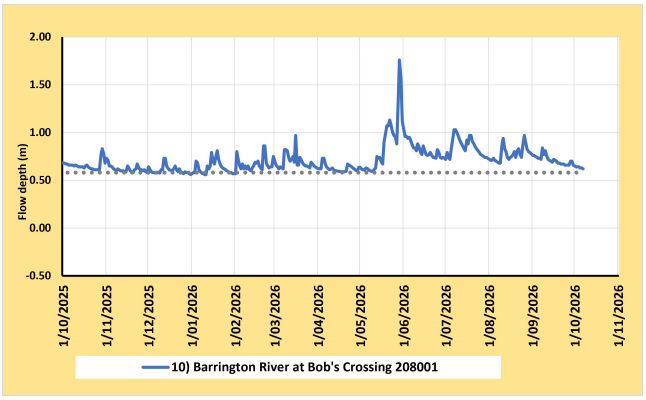
8. Clarence R at Paddys Flat (site ID 204051)
Min. level = 0.55 m.



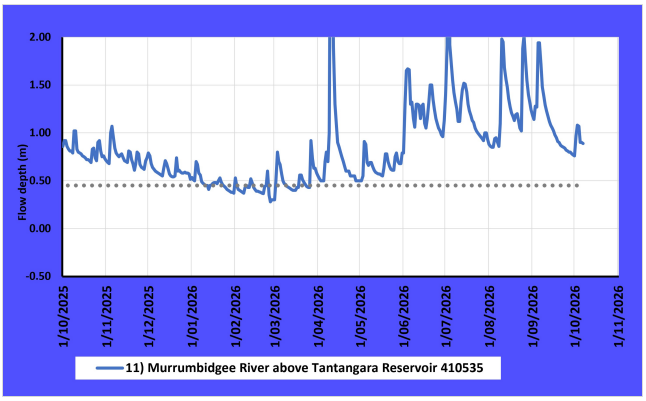
9. Hastings R at Mt Seaview (site ID 207015
Min. level = 0.55 m.



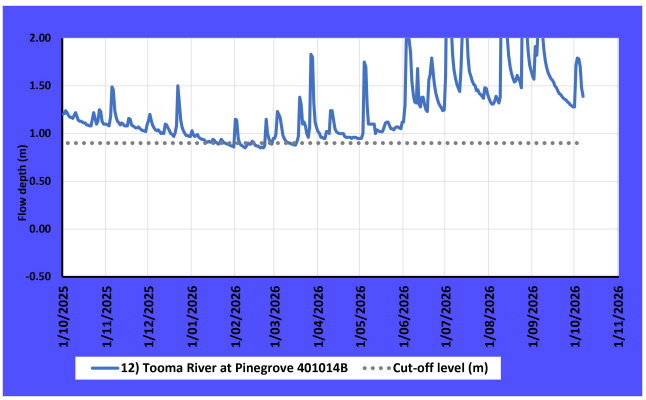
10. Barrington R at Bobs Crossing (site ID 208001)
Min. level = 0.58 m.



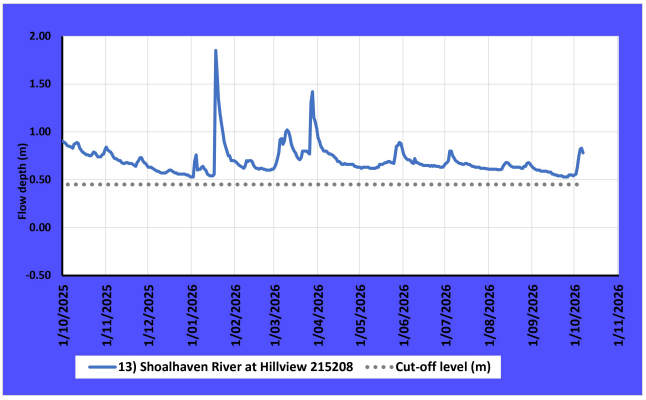
11. Murrumbidgee R above Tantangara Reservoir (site ID 410535)
Min. level = 0.45 m.



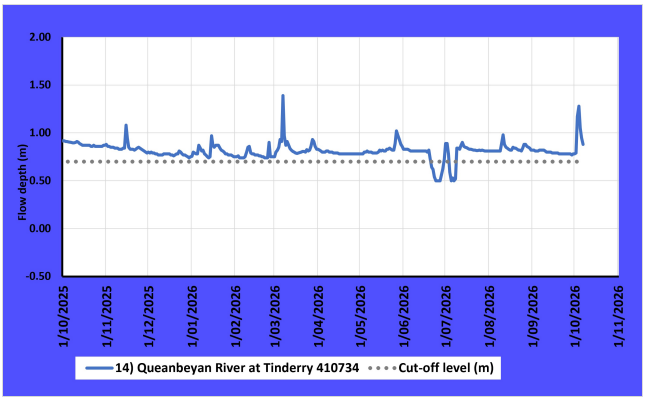
12. Tooma River at Pinegrove (site ID 401014B)
Min. level = 0.88m.



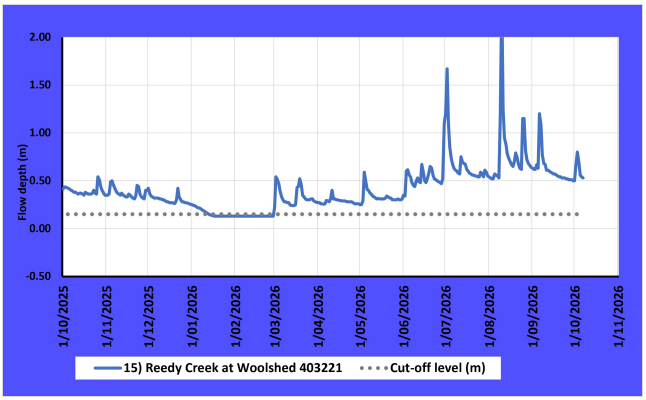
13. Shoalhaven R at Hillview (site ID 215208)
Min. level = 0.45 m.



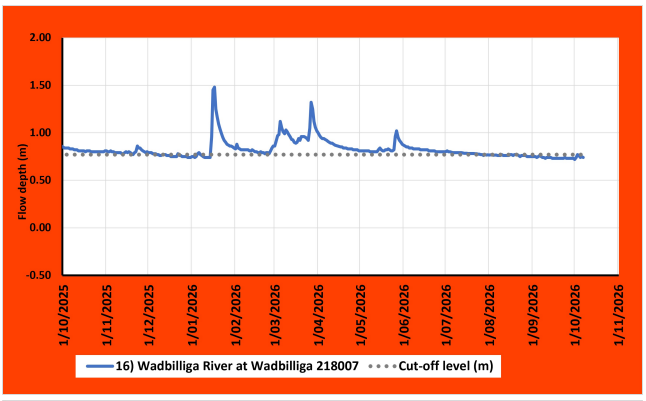
14. Queanbeyan R at Tinderry (site ID 410734)
Min. level = 0.70 m.



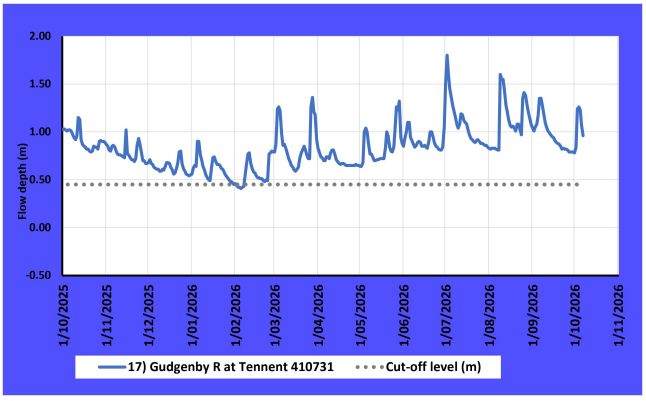
15. Reedy Creek (site ID 403221)
Min. level = 0.22 m.



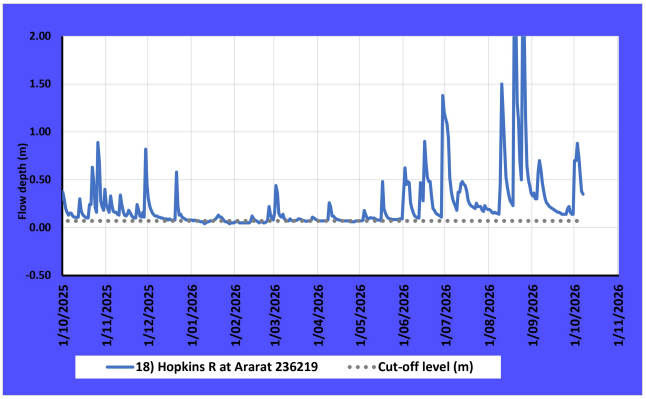
16. Wadbilliga R at Wadbilliga (site ID 218007)
Min. level = 0.75 m.



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

Note that when these are archived, the real-time SSTA maps are for the print date not the issue date.

- Mid 9/26
- Mid 8/26
- Early 7/26
- Early 6/26
- Early 5/26
- Early 4/26
- Early 3/26
- Late 1/26 update
- Mid 1/26 update
- Mid 12/25
- End 11/25
- Early 11/25
- Early 10/25
- 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

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