



FLOOD WARNING SYSTEM for the MULGRAVE AND RUSSELL RIVERS

This brochure describes the flood warning system operated by the Australian Government, Bureau of Meteorology for the Mulgrave and Russell Rivers. It includes reference information which will be useful for understanding Flood Warnings and River Height Bulletins issued by the Bureau's Flood Warning Centre during periods of high rainfall and flooding.



Downstream from Peets Bridge

Contained in this document is information about:
(Last updated September 2009)

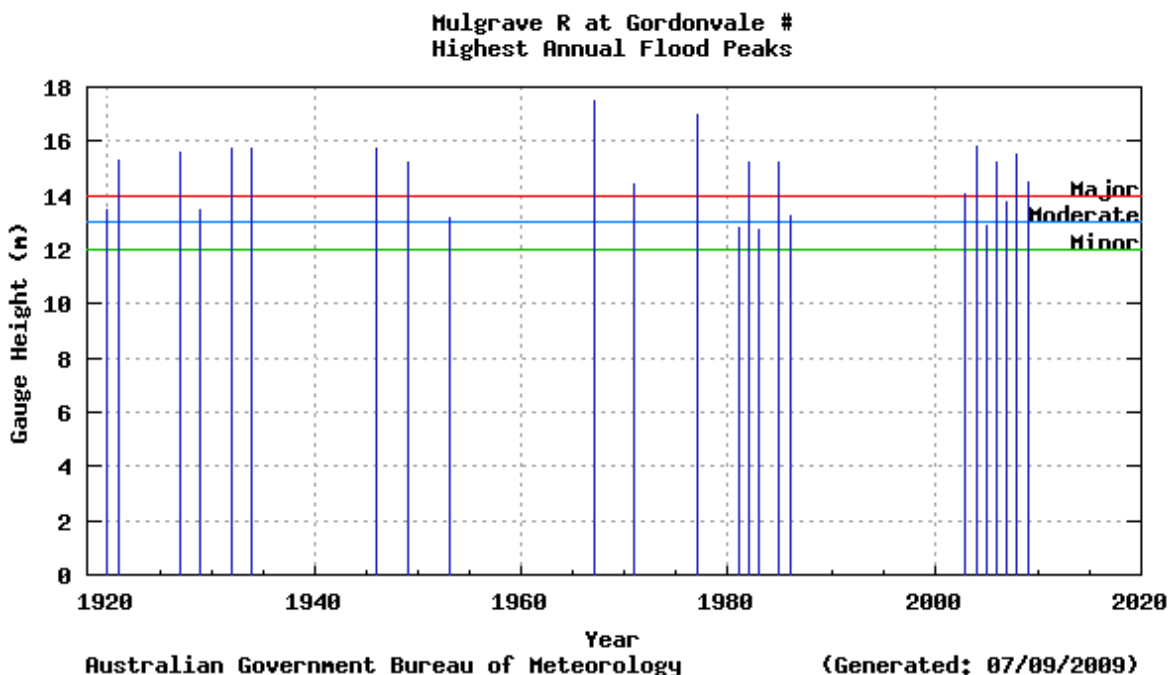
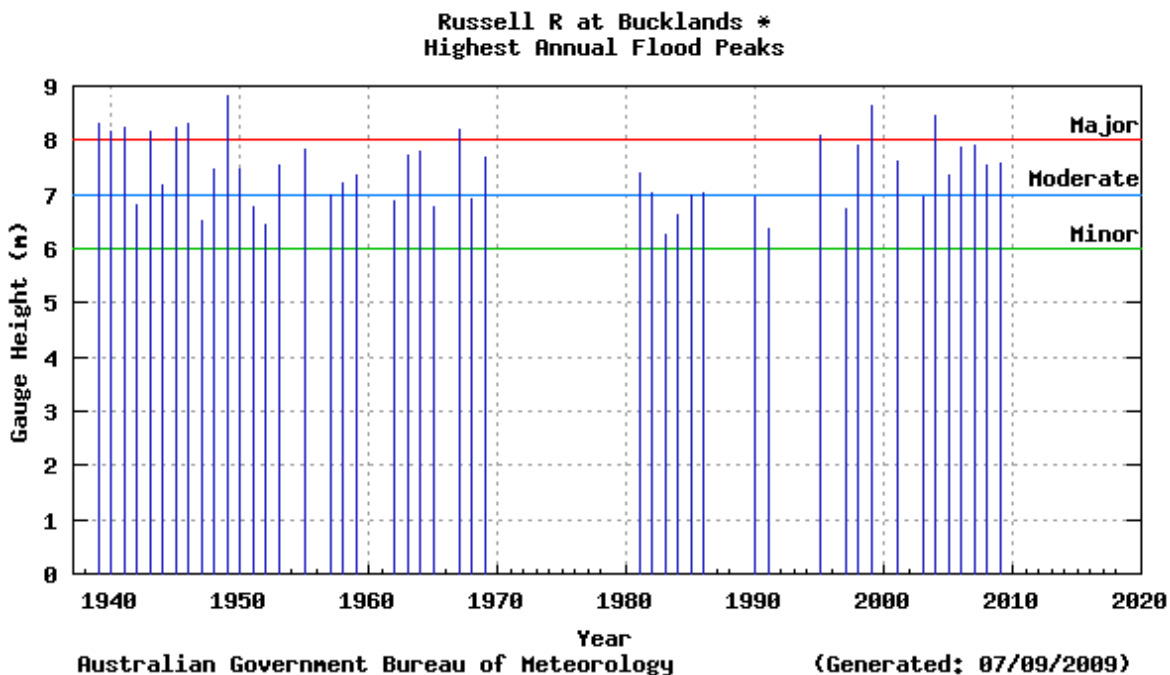
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Flood Risk

The Mulgrave and Russell Rivers drain the mountain country dominated by Bellenden Ker and Bartle Frere, Queensland's highest mountains and the highest rainfall area in Australia. Gordonvale is the only urban area threatened by flooding in the Mulgrave, however, considerable areas of sugar and other crops that occupy the floodplain can be at risk. The catchment area extends over about 440 square kilometres south of Cairns, 25 km south to the Mutchero Inlet. Flooding in the Mulgrave River can also cut the Bruce Highway and the main rail link to the south at Gordonvale.

Previous Flooding

The Mulgrave and Russell Rivers have a quite well recorded flood history with documented evidence of flooding beginning in the late 1930's. Records at the key reference gauge at Gordonvale show that the largest flood occurred in early 1967.



Flood Forecasting

The Bureau of Meteorology and Cairns Regional Council operate a flood warning system for the Mulgrave and Russell River catchments based on a rainfall and river height observations network shown on the map. In consultation with the Council, the Bureau issues flood warnings whenever the Mulgrave River at Gordonvale is expected to exceed the minor flood level of 12 metres. The objective is to provide between 3 to 9 hours warning of flood heights exceeding this level. These warnings are generally updated every three hours.

Local Information

The Cairns and Tablelands Regional Councils may be able to provide further information on flooding in the area of the Mulgrave and Russell River catchment.

Mulgrave and Russell ALERT System

A flood warning ALERT network was established jointly by the Bureau of Meteorology, the then Mulgrave Shire Council and the Cairns Port Authority in 1995. Since this time the network has subsequently been expanded by the Cairns Regional Council. Stations in the network are linked by VHF radio to a base station computer in Cairns. The real time data is also transmitted to the Bureau's Flood Warning Centre and used in a hydrologic flood forecast model of the river basin.

The field stations send reports for every one millimetre of rainfall and every 50 millimetre change in river height. The Mulgrave and Russell River network has a total of 6 field stations of which four measure rainfall and river height at Gordonvale, Peets Bridge, The Fisheries and at Clyde Road and two monitor rainfall only at Gillies Lookout and in the Goldsborough Valley.

Flood Warnings and Bulletins

The Bureau of Meteorology issues Flood Warnings and River Height Bulletins for both the Mulgrave and Russell River catchments regularly during floods. They are sent to radio stations for broadcast, and to local Councils, emergency services and a large number of other agencies involved in managing flood response activities.

Flood Warnings and River Height Bulletins are available via :

Radio

Radio stations, particularly the local ABC, and local commercial stations, broadcast Flood Warnings and River Height Bulletins soon after issue.

Local response organisations

These include the Councils, Police, and State Emergency Services in the local area.

Internet/World Wide Web

Flood Warnings, River Height Bulletins and other weather related data is available on the Bureau's Web page at <http://www.bom.gov.au> . The Queensland Flood Warning Centre website is <http://www.bom.gov.au/hydro/flood/qld>

Telephone Weather

Flood Warnings are available through a recorded voice retrieval system, along with a wide range of other weather related and climate information.

Main Directory	Phone	1900 955 360
Flood Warnings	Phone	1300 659 219

Telephone Weather Services Call Charges:

1900 numbers: 77c per minute incl. GST; 1300 numbers: Low call cost - around 27.5c incl. GST.
(More from international, satellite, mobile or public phones)

Interpreting Flood Warnings and River Height Bulletins

Flood Warnings and River Height Bulletins contain observed river heights for a selection of the river height monitoring locations. The time at which the river reading has been taken is given together with its tendency (e.g. rising, falling, steady or at its peak). The Flood Warnings may also contain predictions in the form of minor, moderate or major flooding for a period in the future. River Height Bulletins also give the height above or below the road bridge or causeway for each river station located near a road crossing.

One of the simplest ways of understanding what the actual or predicted river height means is to compare the height given in the Warning or Bulletin with the height of previous floods at that location.

The table below summarises the flood history of the Mulgrave and Russell River catchments - it contains the flood gauge heights of the more significant recent floods.

River height station	Mar 1939	Mar 1949	Feb 1977	Mar 1999	Mar 2004	Feb 2007	Mar 2008	Jan 2009
Buckland's	8.32	8.80	-	8.63	8.45	7.89	7.55	7.57
The Boulders	3.12	2.72	5.18	6.69	6.61	5.13	4.41	-
Clyde Road	-	-	-	-	-	-	-	1.27
The Fisheries	-	-	10.35	-	6.55	5.11	5.62	5.65
Peets Bridge	-	-	10.70	10.10	8.94	7.12	8.30	7.75
Gordonvale	-	15.70	17.00	-	15.84	13.79	15.49	14.50

All heights are in metres on flood gauges.

[*] These heights are taken manually and from flood marks and may not relate to flood levels from existing gauges sites.

Historical flood heights for all river stations in the Mulgrave and Russell Floodwarning network, as shown on the map, are available from the Bureau of Meteorology upon request.

MULGRAVE AND RUSSELL RIVER CATCHMENT - ASSESSMENT OF THE FLOOD POTENTIAL

Major flooding requires a large scale rainfall situation over the Mulgrave and Russell River catchment. The following can be used as a rough guide to the likelihood of flooding in the catchment, but refer to the Flood Warnings for predictions during a flood event.

Average catchment rainfalls of in excess of 200mm in 24 hours may cause minor to moderate flooding and traffic disabilities to develop, particularly in the lower reaches downstream of Gordonvale extending to the Mulgrave River delta area.

Average catchment rainfalls of in excess of 300mm in 24 hours may cause significant moderate to major flooding and traffic disabilities to develop. As floodwaters travel downstream to the lower Mulgrave River delta which includes the floodplains encompassed by the four creeks; Middle, Simmonds, Mackey and Wrights Creeks increases occur constantly until the river drains at the outlet.

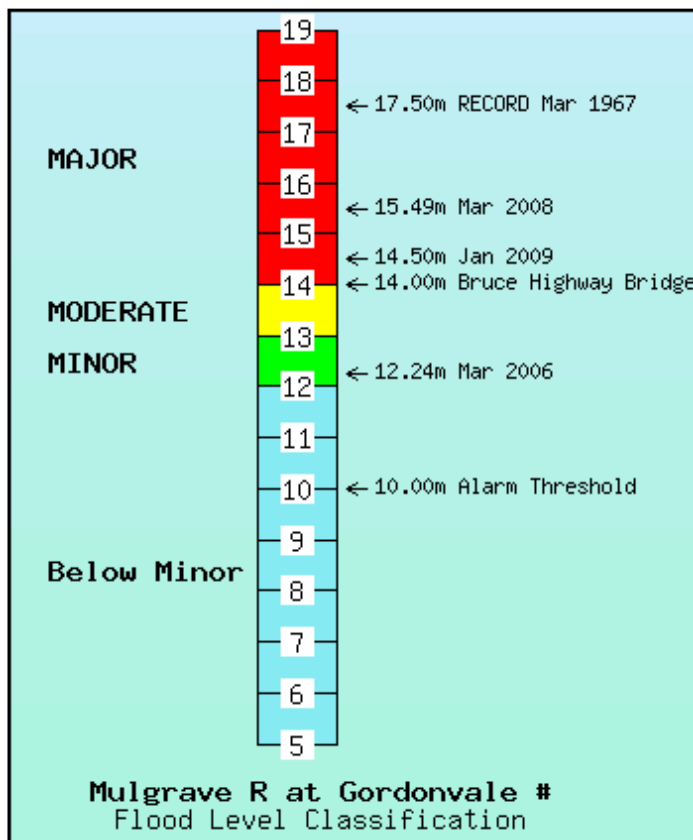
Flood Classifications

At each flood warning river height station, the severity of flooding is described as minor, moderate or major according to the effects caused in the local area or in nearby downstream areas. Terms used in Flood Warnings are based on the following definitions.

Major Flooding : This causes inundation of large areas, isolating towns and cities. Major disruptions occur to road and rail links. Evacuation of many houses and business premises may be required. In rural areas widespread flooding of farmland is likely.

Moderate Flooding : This causes the inundation of low lying areas requiring the removal of stock and/or the evacuation of some houses. Main traffic bridges may be closed by floodwaters.

Minor Flooding : This causes inconvenience such as closing of minor roads and the submergence of low level bridges and makes the removal of pumps located adjacent to the river necessary.



At each flood warning river height station, the severity of flooding is described as minor, moderate or major according to the effects caused in the local area or in nearby downstream areas. Terms used in Flood Warnings are based on the following definitions.

Each river height station has a pre-determined flood classification which details heights on gauges at which minor, moderate and major flooding commences. Other flood heights may also be defined which indicate at what height the local road crossing or town becomes affected by floodwaters.

The table below shows the flood classifications for selected river height stations in the Mulgrave and Russell River catchment.

River Height Station	First Report Height	Crossing Height	Minor Flood Level	Crops & Grazing	Moderate Flood Level	Towns and Houses	Major Flood Level
Buckland's	-	-	6.0	-	7.0	-	8.0
The Boulders	-	-	4.5	-	5.0	-	6.0
Clyde Road	-	0.00 (B)	-	-	-	-	-
The Fisheries	-	1.85 (B)	2.5	-	5.0	-	7.0
Peets Bridge	-	5.00 (B)	5.0	-	7.0	-	8.0
Gordonvale	-	14.04 (O)	12.0	-	13.0	-	14.0

All heights are in metres on flood gauges.
(B) = Bridge (O) = Old Bridge

The above details are current at the time of preparing this document. Up-to-date flood classifications and other details for all flood warning stations in the network are at:

<http://www.bom.gov.au/hydro/flood/qld/networks/index.shtml>

Catchment Map - Mulgrave and Russell River flood warning network

Click here to view map as: [PNG](#) [PDF](#) (275K bytes)

For further information, contact:

The Regional Director, Bureau of Meteorology, GPO Box 413, Brisbane Q 4001

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