

# FLOOD WARNING SYSTEM

## for the

# BARRON RIVER

This brochure describes the flood warning system operated by the Australian Government, Bureau of Meteorology for the Barron River. 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.



*Automatic rainfall station at Brinsmead*

**Contained in this document is information about:**

*(Last updated September 2019)*

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## **Flood Risk**

The Barron River has a catchment area of about 2100 square kilometres above Kamerunga at the mouth of the delta and has its headwaters in the area immediately east of Atherton. From this area, the river flows north to Tinaroo Falls Dam which has a catchment area of 550 square kilometres which is only about 25% of the total catchment area. The Barron River continues in a northerly direction through Mareeba before it takes an easterly turn near Bilwon and flows generally eastward to the Barron River delta.

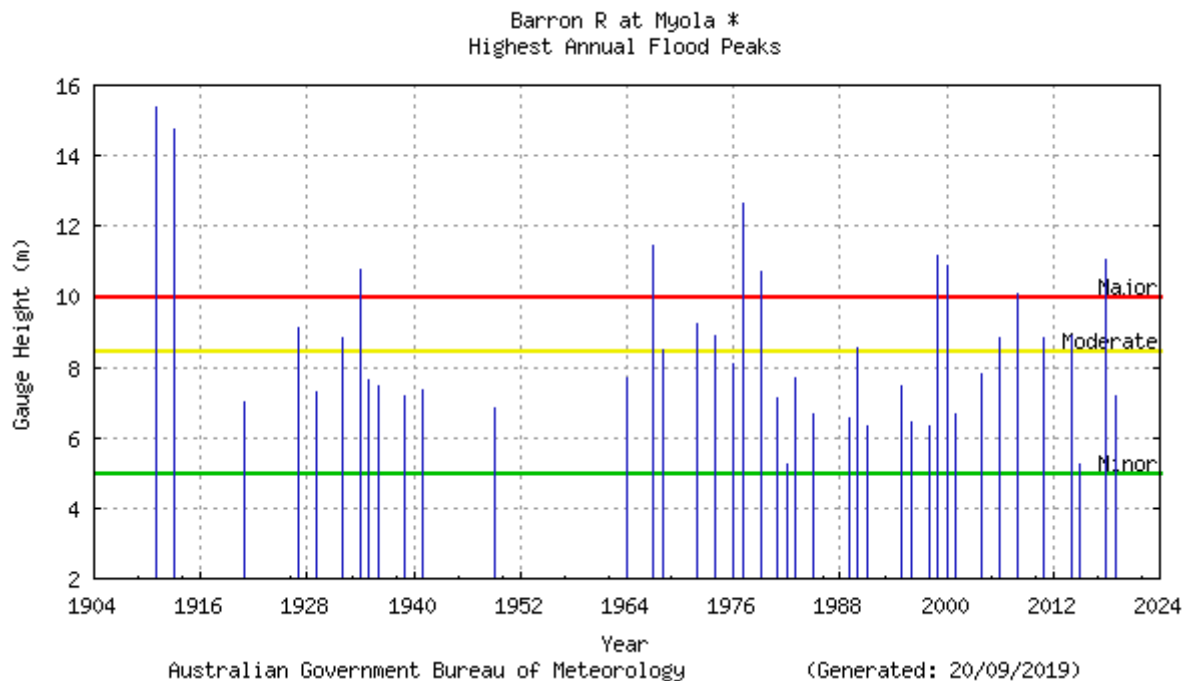
There is a strong rainfall gradient across the catchment with the heaviest rain typically falling along the coastal strip around Cairns and Kuranda. In the western area of the catchment, rainfall totals tend to be significantly less. Heavy localised rainfall along the coastal strip up to Kuranda can cause rapid river rises in the lower Barron River around Kamerunga although larger floods tend to be associated with catchment wide heavy rainfalls.

The Barron River delta area can be subject to major flooding with low lying areas being susceptible. Large areas of agricultural land can be inundated. Residential areas can also be affected. Tides can have a significant impact on the smaller floods near the river mouth but little effect in larger floods.

## Previous Flooding

The Barron River has a quite well recorded flood history with documented evidence of flooding as far back as the early 1900's. Records at the key reference gauge at Myola show that the largest flood occurred in early 1911 and significant floods have occurred in the late 1970's, 1999 and more recently in March 2018.

Tinaroo Falls Dams, constructed in 1958, has little effect on large floods in the Barron River.



## Flood Forecasting

The Cairns Regional Council, in conjunction with the Bureau of Meteorology operates an ALERT flood warning system for the Barron River catchment. The system comprises a network of automatic rainfall and river height stations located throughout the catchment. Data is automatically forwarded via radio telemetry to a base station at the council office in Cairns and the Bureau's Flood Warning centre in Brisbane. The system provides early warning of heavy rainfall and river level rises in the Barron catchment and enables more accurate and timely flood warning.

The Department of Natural Resources, Mines and Energy also operate a number of automatic telemetry stations throughout the catchment which provide data during floods.

The network also consists of a number of volunteer rainfall and river height observers who forward observations by telephone or online when a defined initial flood height has been exceeded at their station.

In consultation with the Cairns Regional Council, the Bureau issues flood warnings whenever the Barron River at Kamerunga is expected to exceed 5 metres or river levels at the Cairns Airport are expected to exceed 2.5 metres. The target lead time is to provide 6 hours warning of flood heights exceeding these levels. Warnings are updated typically every 3 to 6 hours during flood events. River height predictions are issued when moderate flood levels are likely to be exceeded at Kamerunga or Cairns Airport.

## Local Information

The Cairns Regional Council and the Mareeba Shire Council are able to provide further information on flooding in the area of the Barron River catchment.

## Flood Warnings and Bulletins

The Bureau of Meteorology issues Flood Warnings and River Height Bulletins for the Barron River catchment 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/qld/flood> .

### 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

## 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 forecast locations in the Barron River catchment. Note that all heights are in metres on flood gauges.

Flood Event	Mareeba	Myola	Kamerunga Br	Cairns Airport
Mar 1967	8.51	11.03	9.50*	3.10
Mar 1977	11.10	12.18	9.80*	3.80
Feb 1999	10.70	11.14	8.65	3.50
Feb 2000	12.40	10.90	8.30	3.40
Mar 2008	9.93	10.06	7.94	3.08

Mar 2011	6.68	8.84	6.34	2.58
Apr 2014	5.10	8.89	6.64	2.53
Mar 2018	10.35	10.94	8.35	3.13

[\*] These heights are taken at old gauge sites and may not relate to flood levels from existing gauges sites.

Historical flood heights for all stations in the Barron River flood warning network, as shown on the map, are available from the Bureau of Meteorology upon request.

### BARRON RIVER CATCHMENT - ASSESSMENT OF THE FLOOD POTENTIAL

Major flooding requires a large scale rainfall situation over the Barron 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 significant moderate to major flooding and traffic disabilities to develop, particularly in the lower reaches downstream of Myola extending to the Barron River delta area.

Average catchment rainfalls of in excess of 300mm in 24 hours may cause significant major flooding and traffic disabilities to develop, particularly in the lower reaches downstream of Myola extending to the Barron River delta area.

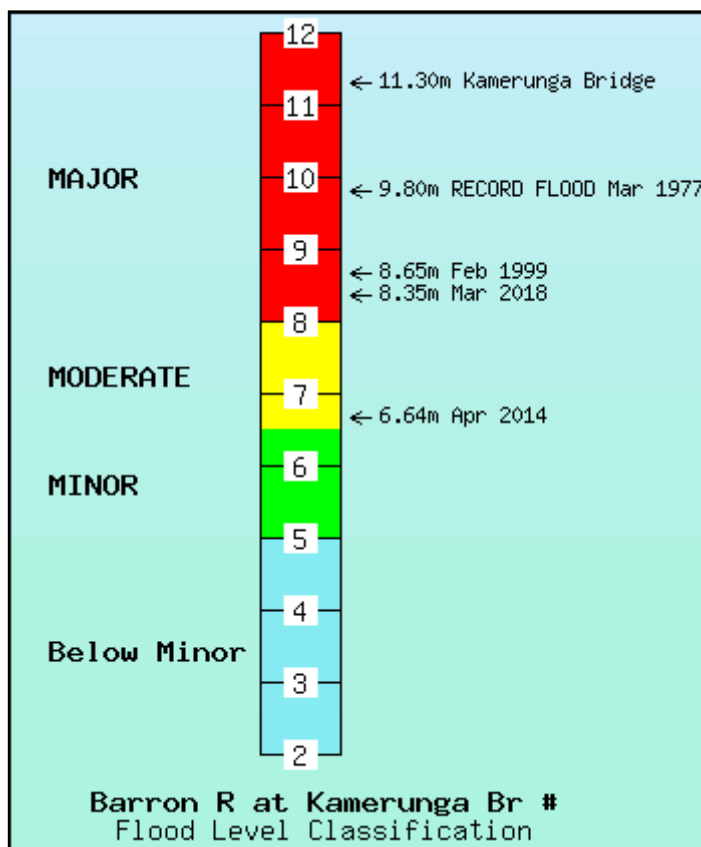
### Flood Classifications

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.

**Minor Flooding :** Causes inconvenience. Low-lying areas next to watercourses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required.

**Moderate Flooding :** In addition to the above, the area of inundation is more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be required. In rural areas removal of stock is required.

**Major Flooding :** In addition to the above, extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas may be required. Utility services may be impacted.



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 Barron River catchment.

River Height Station	First Report Height	Crossing Height	Minor Flood Level	Crops & Grazing	Moderate Flood Level	Towns and Houses	Major Flood Level
Tinaroo Falls Dam	0.5	0.0 (S)	1.0	-	1.5	2.5	2.0
Mareeba	-	4.8 (B)	4.8	-	8.0	-	9.0
Myola	-	5.0 (B)	5.0	-	8.5	-	10.0
Lake Placid	-	-	10.3	-	11.2	-	12.0
Kamerunga Bridge	4.0	11.3 (B)	5.0	6.0	6.5	-	8.0
Cairns Airport	-	-	2.5	-	3.0	-	3.5

All heights are in metres on flood gauges.  
(B) = Bridge (S) = Spillway

The above details are correct 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:

[Flood gauge information](#)

For the latest rainfall and river height conditions please use the following link:

[Latest rainfall and river heights](#)

For the latest rainfall and river height network map please use the following link:

[Network maps](#)

*For further information, contact:*

*The Flood Services Manager, Bureau of Meteorology, GPO Box 413, Brisbane Q 4001*

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