

# FLOOD WARNING SYSTEM for the BRISBANE RIVER BELOW WIVENHOE DAM TO BRISBANE CITY

This brochure describes the flood warning system operated by the Australian Government, Bureau of Meteorology for the Brisbane River below Wivenhoe Dam to Brisbane City. 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.



*Brisbane City, Wednesday afternoon on the 12th of January 2011, before the Thursday morning peak.*

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

*(Last updated September 2019)*

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## **Flood Risk**

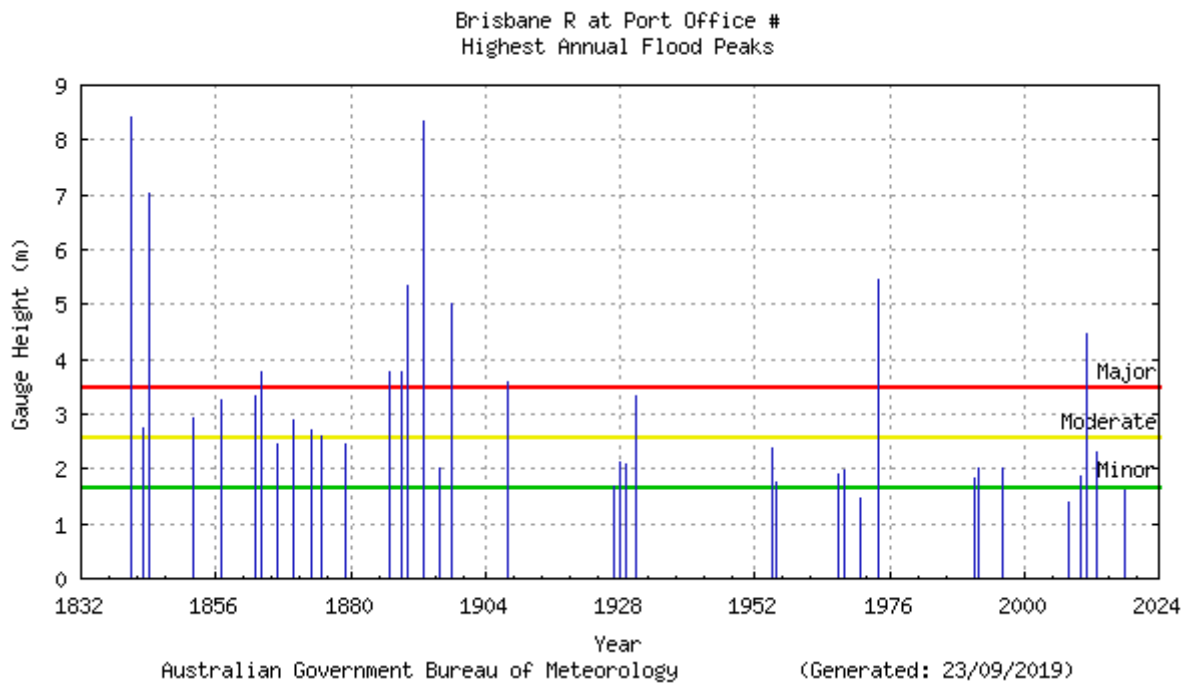
The Brisbane River catchment covers an area of approximately 15,000 square kilometres of which about half is below Wivenhoe Dam. The Lockyer-Laidley Valley drains into the Brisbane River just downstream of Wivenhoe Dam near Lowood. The second major tributary, the Bremer River, flows into the Brisbane River at Moggill. Heavy rains in these areas can cause severe flooding of rural districts in the Lockyer and Bremer Valleys and along the Brisbane River. Severe flooding of the Cities of Ipswich (refer to brochure for the Bremer River) and Brisbane has occurred on several occasions. Although Wivenhoe Dam significantly reduces the frequency of flooding in Brisbane City, major flooding can still occur.

Flooding in the Brisbane City area can also be caused by local creeks including Oxley, Norman and Bulimba Creeks on the southside, and Moggill and Enoggera Creeks in the northern and western suburbs. During intense rainfalls, the suburban creeks rise very quickly and can cause significant flooding of streets and houses.

## **Previous Flooding**

Flood records for Brisbane extend back as far as the 1840's and indicate that the city has a long history of flooding. The largest flood of the 20th century occurred in January 1974, rising to a

height of 5.45 metres on the Brisbane City Gauge at the river end of Edward Street. The flood caused widespread damage in Brisbane, affecting at least 8,000 properties. The most recent major flood occurred in January 2011, when the river peaked at 4.46 metres. Although lower than 1974, this flood also caused widespread property damage.



## Flood Forecasting

The Bureau of Meteorology, in association with the South East Queensland Water Corporation (SEQWater) and the City Councils of Brisbane and Ipswich (BCC and ICC), operate a flood warning system for the Brisbane River basin using data from the rainfall and river height network shown on the map. The network is made up of manual rainfall and river height observers as well as automated telemetry equipment.

The flood warning system has been upgraded in recent years by the Bureau, SEQWater, Brisbane City Council, Ipswich City Council and Lockyer Valley Regional Council with the installation of many ALERT flood warning stations. These provide early warning of heavy rainfalls and river rises throughout the catchment and enable more accurate and timely response to impending river and creek flooding throughout the Brisbane Valley.

## Local Information

Your local council is responsible for the detailed interpretation of flood warnings into depths and areas of inundation for your local area and the management of flood response activities as a part of its counter disaster responsibilities.

## Brisbane River ALERT System

The Brisbane River ALERT flood warning system was completed in the early to mid 1990's as a co-operative project between the Bureau of Meteorology, the South East Queensland Water Corporation, the Brisbane City Council and the Ipswich City Council. The system comprises a comprehensive network of rainfall and river height field stations located throughout the Brisbane Valley and in the Brisbane and Ipswich metropolitan areas. They report via VHF radio to base station computers located in SEQWater, Brisbane and Ipswich Council offices and the Bureau of Meteorology in Brisbane. The field stations send reports for every one millimetre of rainfall and every 50 millimetre change in river height.

The base station computers located in the SEQWater and Council offices collect the data and have software that displays it in graphical and tabular form. The data is also received by the Bureau's Flood Warning Centre where it is used in hydrologic models to produce river height predictions.

## **Flood Warnings and Bulletins**

In consultation with the SEQWater and the relevant local councils, the Bureau's Flood Warning Centre issues Flood Warnings and River Height Bulletins for the Brisbane River basin regularly during floods. They are sent to radio stations for broadcast, and to the 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 or as part of their news services.

### **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.

<a href="#">Main Directory</a>	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 lower Brisbane River catchment below Wivenhoe Dam to Brisbane City. It contains the flood gauge heights for selected significant floods.

For further information, please refer to similar brochures issued for the Upper Brisbane River above Wivenhoe Dam and for the Bremer River.

<b>Flood Event</b>	<b>Gatton</b>	<b>Laidley</b>	<b>Lowood</b>	<b>Mt Crosby</b>	<b>Ipswich</b>	<b>Moggill</b>	<b>Jindalee</b>	<b>Brisbane City</b>
<b>Feb 1893</b>	16.33	-	26.39	32.00	24.50	24.50	17.90	8.35
<b>Feb 1931</b>	9.14	-	18.49	21.78	15.47	15.40	9.60	3.32
<b>Mar 1955</b>	9.14	-	18.14	20.72	13.82	13.70	7.30	2.36

<b>Jan 1974</b>	14.63	-	22.02	26.74	20.70	19.95	14.10	5.45
<b>May 1996</b>	11.40	8.50	12.38*	14.10	11.31	7.10	4.55	2.10
<b>Feb 1999</b>	8.50	-	10.87*	-	6.85	3.58	2.25	1.41
<b>Feb 2001</b>	9.55	8.50	10.45*	8.55	6.28	-	-	-
<b>Nov 2008</b>	7.60	6.10	-	8.29	10.00	4.37	-	-
<b>Jan 2011</b>	15.38	8.85	22.66*	26.18	19.40	18.17	12.90	4.46
<b>Jan 2013</b>	-	8.95	-	13.41	13.90	7.92	4.98	2.30
<b>Mar 2014</b>	-	-	-	-	5.15	-	-	-
<b>Mar 2017</b>	-	-	-	-	12.35	-	-	-

All heights are in metres on flood gauges.

[\*] Height is from the Lowood automatic station. Please note that some of the above heights have been estimated.

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

<p><b>BRISBANE RIVER CATCHMENT - ASSESSMENT OF THE FLOOD POTENTIAL</b></p> <p>Major flooding requires a large scale rainfall situation over the Brisbane River catchment. The following can be used as a rough guide to the likelihood of flooding in the catchment :</p> <p>Brisbane River:</p> <p>Average catchment rainfalls in excess of 200-300mm in 48 hours, may result in stream rises and the possibility of moderate to major flooding and local traffic disabilities throughout the Brisbane River catchment.</p> <p>Brisbane Metropolitan Creeks:</p> <p>Average catchment rainfalls in excess of 35mm in 3 hours, may result in stream rises and the possibility of minor flooding and local traffic disabilities in the Enoggera, Breakfast, Moggill, Norman and Bulimba Creeks and Kedron Brook. Whilst average catchment rainfalls in excess of 100mm in 3 hours may result in stream rises and the possibility of major flooding and local traffic disabilities.</p> <p>However, in the Oxley Creek catchment average catchment rainfalls in excess of 100mm in 6-12 hours may result in stream rises and the possibility of major flooding and local traffic disabilities.</p>
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## Flood Classifications

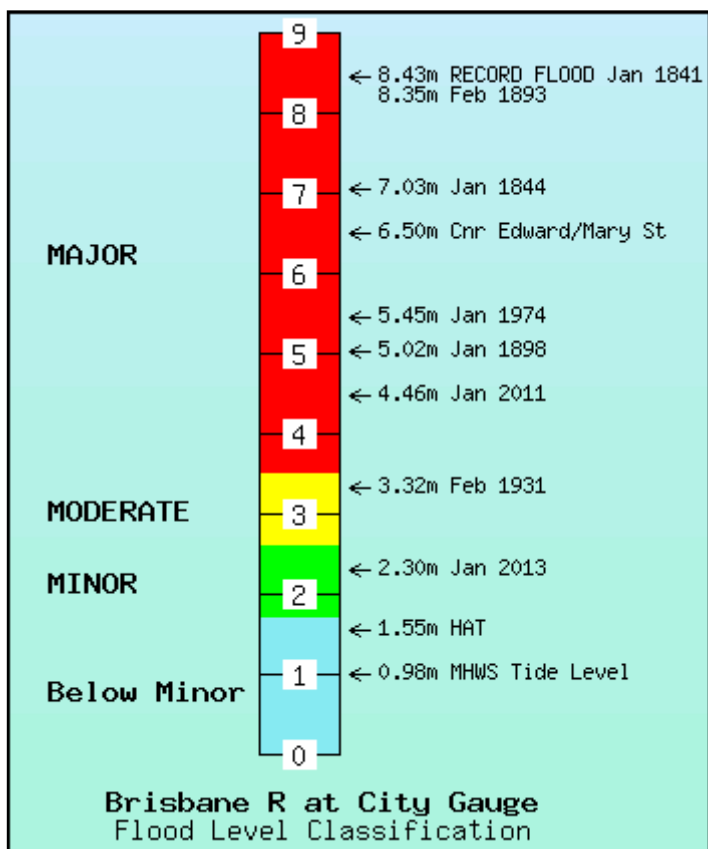
At each flood warning river height station, the severity of flooding is described as minor, moderate or major according to the effects caused in the local area or in nearby downstream areas. Terms used in Flood Warnings are based on the following definitions.

**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 lower Brisbane River catchment below Wivenhoe Dam to Brisbane City.

River Height Station	First Report Height	Crossing Height	Minor Flood Level	Crops & Grazing	Moderate Flood Level	Towns and Houses	Major Flood Level
Gatton	3.0	3.90 (B)	7.0	13.0	10.0	18.3	15.0
Laidley	5.0	8.50 (B)	5.0	8.5	6.0	9.0	7.0
Lowood	4.0	6.70 (B)	8.0	18.0	15.0	21.0	20.0
Mt Crosby	10.0	12.35 (B)	11.0	13.0	13.0	-	21.0
Ipswich	4.0	24.88 (B)	7.0	7.0	9.0	7.4	11.7
Moggill	-	-	10.0	-	13.0	-	15.5
Jindalee	-	-	6.0	-	8.0	-	10.0
Brisbane City	-	-	1.7	-	2.6	-	3.5

All heights are in metres on flood gauges.

(B) = Bridge

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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