

# FLOOD WARNING SYSTEM

## for the

# NERANG RIVER

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



*Binna Burra ALERT Station*

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*(Last updated September 2019)*

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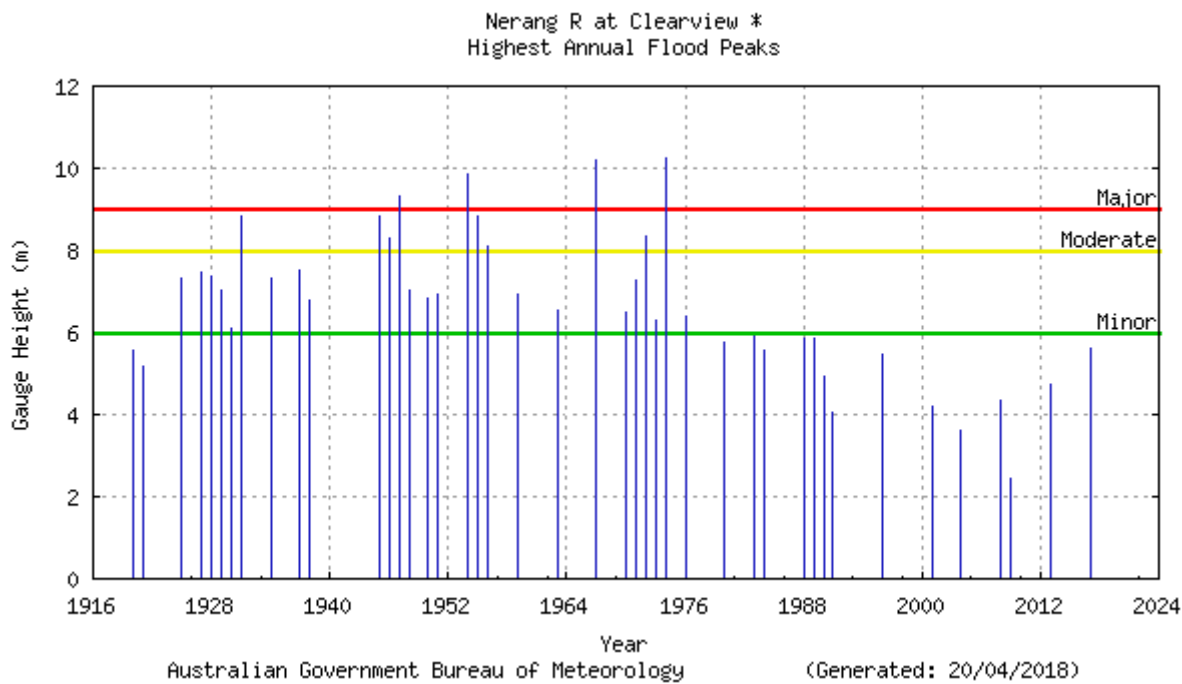
## **Flood Risk**

The Nerang River catchment is located in the south east corner of Queensland and covers an area of 400 square kilometres. From its headwaters in the McPherson Ranges, the Nerang River flows in a north easterly direction, through the Numinbah Valley, before entering Hinze Dam where it is joined by the Little Nerang. Downstream from the dam, it passes through Nerang before turning easterly towards the coast and Surfers Paradise, and finally entering the Southport Broadwater. Depending on the flood situation, the Hinze Dam storage can reduce the severity of downstream flooding, although a re-occurrence of rainfalls similar to, or higher than, those in 1974 would still cause flooding.

Both Mudgeeraba Creek and its major tributary Bonogin Creek drain a relatively large catchment extending southwards towards Springbrook and enter the Nerang River only a few kilometres upstream of its mouth. Mudgeeraba Creek is also subject to flash flooding.

## **Previous Flooding**

Since records began in 1920, there have been six floods which have caused moderate to major flooding. Four of these, 1931, 1947, 1954 and 1974, were the result of cyclonic activity. The 1967 event resulted from a moist tropical low pressure system and the first event in 1974 was the result of thunderstorm activity associated with a trough extending through the area.



## Flood Forecasting

The Bureau of Meteorology operates a flood warning system for the Nerang River based on a rainfall and river height observations network shown on the map. The network consists of a number of volunteer rainfall and river height observers who forward observations by telephone when the initial flood height has been exceeded at their station, as well as automatic rainfall and river height stations which regularly send data via radio telemetry to a base station located in Council offices and the Bureau's Flood Warning Centre in Brisbane. The system provides early warning of heavy rainfalls and river rises throughout the catchment and enables more accurate and timely flood warning and forecasts.

The Bureau's Flood Warning Centre issues Flood Warnings and River Height Bulletins for the Nerang River during flood events. Quantitative flood forecasts are issued when moderate flood levels are likely to be exceeded.

## Local Information

The Gold Coast City Council is able to provide further information on flooding in your area of the Nerang River catchment.

## Nerang ALERT System

The Nerang River ALERT flood warning system was completed in the early 1990's as a co-operative project between the Bureau of Meteorology and the Gold Coast City Council. The system comprises a network of rainfall and river height field stations located in the Gold Coast hinterland which report via VHF radio to base station computers located in Council offices at the Gold Coast and the Bureau of Meteorology in Brisbane. The field stations send reports for every 1 millimetre of rainfall and every 50 millimetre change in river height.

The base station computers located in the Gold Coast City 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

The Bureau of Meteorology issues Flood Warnings and River Height Bulletins for the Nerang 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 Nerang River catchment - it contains the flood gauge heights of the highest know floods recorded at selected river height locations, together with heights of recent floods.

Flood Event	Little Nerang Dam	Hinze Dam	Clearview	Mudgeeraba	Evandale
Jan 1947	-	-	9.32	-	2.62
Feb 1954	-	-	9.83	-	2.87
Jun 1967	-	-	10.18	-	-
Jan 1974	-	-	10.22	-	2.87
May 1996	1.35	3.24	5.59	3.58	-
Feb 2001	1.91	2.20	4.16	3.56	-
Feb 2008	1.72	1.82	4.0	3.32	-
Jan 2012	1.92	-	-	4.48	-
Jan 2013	2.80	4.36	4.72	9.98	1.52
Mar 2017	3.72	5.78	5.69	5.28	-

All heights are in metres on flood gauges.

[\*] Hinze Dam was commissioned in 1977 and has a significant effect on Nerang River floods. The values indicated are heights above the spillway crest.

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

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

Major flooding requires a large scale rainfall situation over the Nerang River catchment. The following can be used as a rough guide to the likelihood of flooding in the catchment :

Average catchment rainfalls in excess of 65mm in 6 hours, may result in stream rises and the possibility of minor flooding and local traffic disabilities in the Nerang area extending downstream.

Average catchment rainfalls in excess of 100mm in 6 hours, may result in stream rises and the possibility of moderate flooding and local traffic disabilities in the Nerang area extending downstream.

Average catchment rainfalls in excess of 120mm in 6 hours, may result in stream rises and the possibility of major flooding and local traffic disabilities in the Nerang area extending downstream.

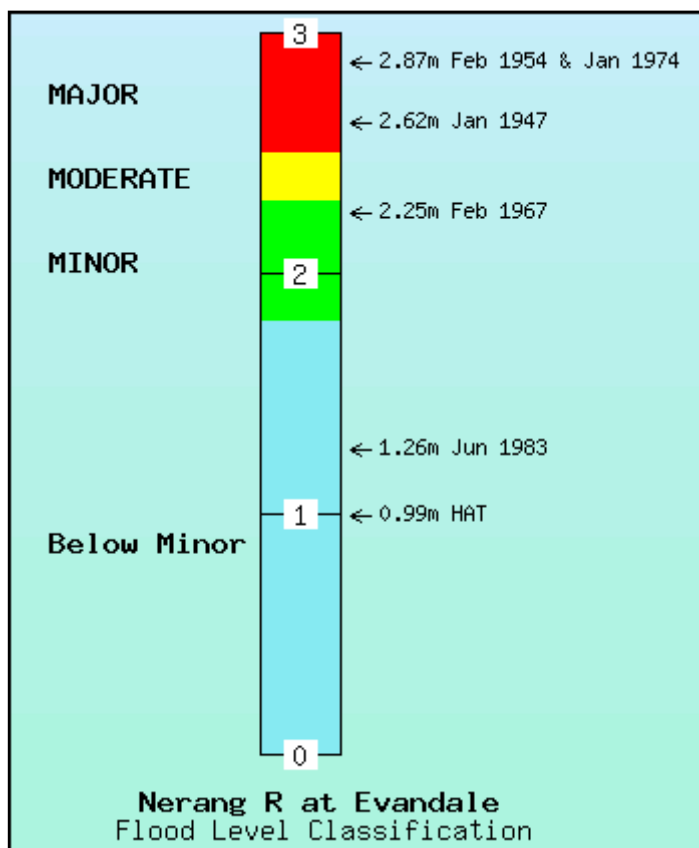
## Flood Classifications

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 Nerang River catchment.

River Height Station	First Report Height	Crossing Height	Minor Flood Level	Crops & Grazing	Moderate Flood Level	Towns and Houses	Major Flood Level
Little Nerang Dam	-	0.00 (S)	1.0*	-	2.0*	-	3.0*
Hinze Dam	-	0.00 (S)	3.6*	-	6.2*	-	7.8*
Clearview	-	-	6.0	-	8.0	-	9.0
Mudgeeraba	-	4.60 (B)	2.5	3.5	3.5	-	4.5
Evandale	1.7	-	1.8	-	2.3	1.8	2.5

All heights are in metres on flood gauges. (\*) Heights over spillway. (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 QLD 4001***

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