FLOOD SYSTEM for the PINE & CABOOLTURE RIVERS

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

Flood Risk

The Pine River catchment drains in a generally easterly direction from the relatively steep D’Aguilar Ranges towards the flat coastal plains of Bramble Bay between Sandgate and Redcliffe. The North Pine River and South Pine River join some 7 km upstream from the mouth, where the combined system forms an extensive coastal estuary. The North Pine Dam located in the middle of the catchment was completed in 1976. The Dam is operated by Seqwater.

The Caboolture River is situated about 40 km north of Brisbane and has a total catchment area of 370 square kilometres. It rises in the D’Aguilar Ranges and flows in an easterly direction towards the coast, passing through Caboolture and entering Deception Bay (the northern part of Moreton Bay) near the township of Beachmere. Its major tributaries include Wararba, Sheep Station, King John and Lagoon Creeks.

The Pine and Caboolture system is susceptible to episodes of flash flooding which can cause significant damage to public and private property throughout the catchment. Continuing increases in
population have accentuated the potential flood risk to life and property, and this trend is unlikely to abate given the current growth in the area.

**Previous Flooding**

Records dating back to 1967 indicate a few major floods that have occurred in the Pine and Caboolture Rivers. Significant flood events with major flooding were reported in 1967, 1972, 1974, 1989, 1991, 2010 and 2011.

![Graph showing highest annual flood peaks](image)

**Flood Forecasting**

The Bureau of Meteorology's Flood Warning Centre issues River Height Bulletins for the Pine and Caboolture River catchments during flood events.

**Local Information**

The Moreton Bay Regional Council is able to provide further information on flooding in your area of the Pine and Caboolture River catchments.

**Flood ALERT System**

Since the mid 1990's, an automated flood monitoring system in the Pine and Caboolture River catchments has been progressively developed by Seqwater and various Councils.

The system is comprised of a network of rainfall and river height field stations located in the catchment which report via VHF radio to a base station computer located in the Moreton Bay Regional Council office at Strathpine and at Seqwater and Bureau offices. 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 Moreton Bay Regional Council office collects the data and has software that displays it in graphical and tabular form.

**River Height Bulletins**

The Bureau of Meteorology issues River Height Bulletins for the Pine and Caboolture River catchment regularly during flash 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. River Height Bulletins are available via:

**Radio**
Radio stations, particularly the local ABC, and local commercial stations, broadcast 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**

**Main Directory**
Phone 1900 955 360

### Interpreting River Height Bulletins

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). River Height Bulletins may 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 river height means is to compare the height given in the Bulletin with the height of previous floods at that location.

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

<table>
<thead>
<tr>
<th>Flood Event</th>
<th>Drapers Crossing</th>
<th>Caboolture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 1972</td>
<td>6.84</td>
<td>9.91*</td>
</tr>
<tr>
<td>Apr 1989</td>
<td>6.18</td>
<td>9.16*</td>
</tr>
<tr>
<td>Dec 1991</td>
<td>6.55</td>
<td>9.54*</td>
</tr>
<tr>
<td>Apr 2009</td>
<td>4.97</td>
<td>7.79</td>
</tr>
<tr>
<td>May 2009</td>
<td>5.97</td>
<td>-</td>
</tr>
<tr>
<td>Oct 2010</td>
<td>6.00</td>
<td>7.69</td>
</tr>
<tr>
<td>Jan 2011</td>
<td>7.32</td>
<td>10.94</td>
</tr>
<tr>
<td>Jan 2012</td>
<td>-</td>
<td>7.24</td>
</tr>
<tr>
<td>Jan 2013</td>
<td>6.76</td>
<td>8.19</td>
</tr>
<tr>
<td>Mar 2017</td>
<td>-</td>
<td>7.99</td>
</tr>
</tbody>
</table>

All heights are in metres on flood gauges. [*] These heights were obtained using surveyed flood marks.

Historical flood heights for all river stations in the Pine and Caboolture River monitoring networks, as shown on the map, are available from the Bureau of Meteorology upon request.
Major flooding requires a large scale rainfall situation over the Pine and Caboolture River catchments. Once the North Pine Dam is at full capacity, overflowing occurs and inundation of the Petrie area begins.

Flood behaviour throughout the remainder of the Pine and Caboolture catchment areas can be extremely rapid (generally less than 6 hours from between rainfall to flooding.

**Flood Classifications**

At each 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. These flood classifications are outlined below:

**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 Pine and Caboolture River catchments.

<table>
<thead>
<tr>
<th>River Height Station</th>
<th>First Report Height</th>
<th>Crossing Height</th>
<th>Minor Flood Level</th>
<th>Crops &amp; Grazing</th>
<th>Moderate Flood Level</th>
<th>Towns and Houses</th>
<th>Major Flood Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drapers Crossing</td>
<td>-</td>
<td>-</td>
<td>7.0</td>
<td>-</td>
<td>7.8</td>
<td>-</td>
<td>9.1</td>
</tr>
<tr>
<td>Caboolture WTP</td>
<td>-</td>
<td>-</td>
<td>7.2</td>
<td>-</td>
<td>8.8</td>
<td>-</td>
<td>9.7</td>
</tr>
</tbody>
</table>

All heights are in metres on flood gauges.

The above details are correct at the time of preparing this document. Up-to-date flood classifications and other details for all 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