

# Water Quality Event Monitoring



Regional Natural Resource Management in Queensland

ID: WQEM 0625

## Event Summary Load Calculation Yuleba Creek December 2005

### Introduction

This fact sheet presents Event Mean Concentration (EMC) and load estimates for sediment and nutrient samples collected following a storm event (30th November - 3rd December 2005) in the Yuleba Catchment (Figure 1).

### Methodology

Three suspended sediment and nutrient samples were collected manually from Yuleba Creek, Bruce Highway over a six day period (Figure 2). Samples were collected on the Bruce Highway approximately 40km upstream of gauge. Discharge was offset to account for the difference in travel time. Due to the large distance between sampling and flow measurement, EMC and load estimates could only be regarded as indicative. Samples were analysed at Queensland Health Scientific Services (QHSS) for TSS, lab filtered nutrients and organic carbon. To derive pollutant loads for the event, flow weighted average concentrations were multiplied by the flow over the given period. EMC was calculated by dividing the total event load by the event flow volume.



Figure 1. Yuleba Creek sampling location at Bruce Highway.

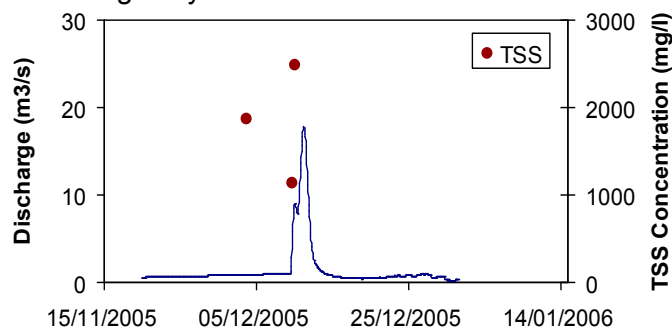


Figure 2. : Discharge and TSS concentration for samples collected from Yuleba Creek, from the 3rd December - 09th December 2005

### Flow Event Description

The runoff in Yuleba Creek was generated from good falls of between 50 – 100mm over the entire catchment (Figure 3).

<b>Catchment:</b>	Balonne
<b>Location:</b>	GS 422343A 26° 50' S 149° 28' E
<b>Catchment Area:</b>	1,475 km <sup>2</sup>
<b>Dominant Land Use:</b>	74% grazing, 19% State Forest, (upstream of gauge) 7% dryland cropping
<b>Event Duration:</b>	20/11/2005 – 31/12/2005

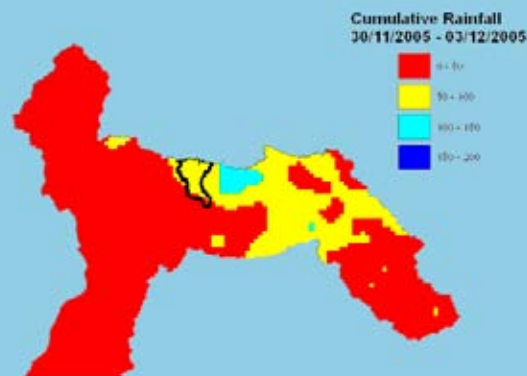


Figure 3. Cumulative rainfall upstream of Yuleba Creek sampling location

## Results

Total suspended solids concentrations (TSS) ranged from 1130 – 2480 mg/L (Figure 2). It should be noted that no samples were collected on the falling stage of the hydrograph which may affect total load and EMC values. Approximately 11,000 tonnes of sediment passed the sample point during the 41 days of runoff (Table 1). The TSS EMC (2225 mg/l) was the highest of five EMC values calculated for surrounding catchments for this rainfall event. The value should be taken with some caution given that only three samples were collected on the rise of the hydrograph. Particulate Phosphorus was 83% of total phosphorus which is similar to that recorded in the Balonne catchment. Particulate Nitrogen was 76% of total nitrogen. Dissolved organic carbon was 31% of total organic carbon.

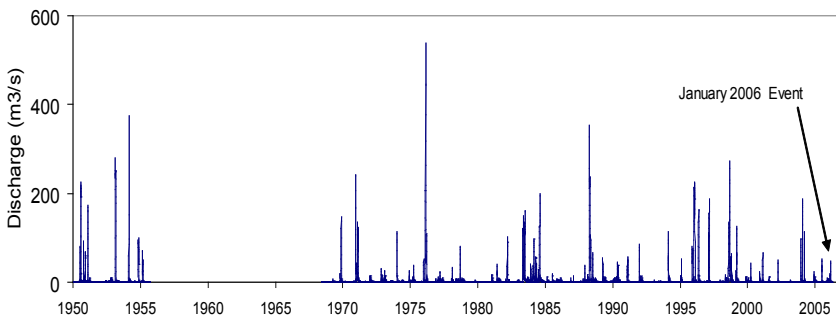


Figure 4. Yuleba Creek, December 2005 event in context to historical mean daily discharge.



Table 1. Estimated load and event mean concentration (EMC) for the December 2005 Event in Yuleba Creek.

Total Event Discharge (ML)	4,996
Number of samples	3
TSS Load (Tonnes)	11,116
TP Load (Tonnes)	3
FRP Load (Tonnes)	0.25
TN Load (Tonnes)	23.28
TKN Load (Tonnes)	21.25
NO <sub>x</sub> Load (Tonnes)	2.03
NH <sub>3</sub> Load (Tonnes)	0.13
TOC LOAD (Tonnes)	176
TSS EMC (mg/L)	2225
TP EMC (mg/L)	0.53
FRP EMC (mg/L)	0.05
TN EMC (mg/L)	4.66
TKN EMC (mg/L)	4.25
NO <sub>x</sub> EMC (mg/L)	0.41
NH <sub>3</sub> EMC (mg/L)	0.03
TOC EMC (mg/L)	35
DOC EMC (mg/L)	7
Maximum Event Discharge (m <sup>3</sup> /s)	18
Period of record (yrs.)	33
Average number of times peak Q exceeded (days/yr)	5
Return Period (partial series)	1 Year

## For Further Information

Contact your regional NAP water quality officer.

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Or visit Water Quality Online, the NAP Water Quality website:

[www.wqonline.info](http://www.wqonline.info)

### To reference this information sheet:

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