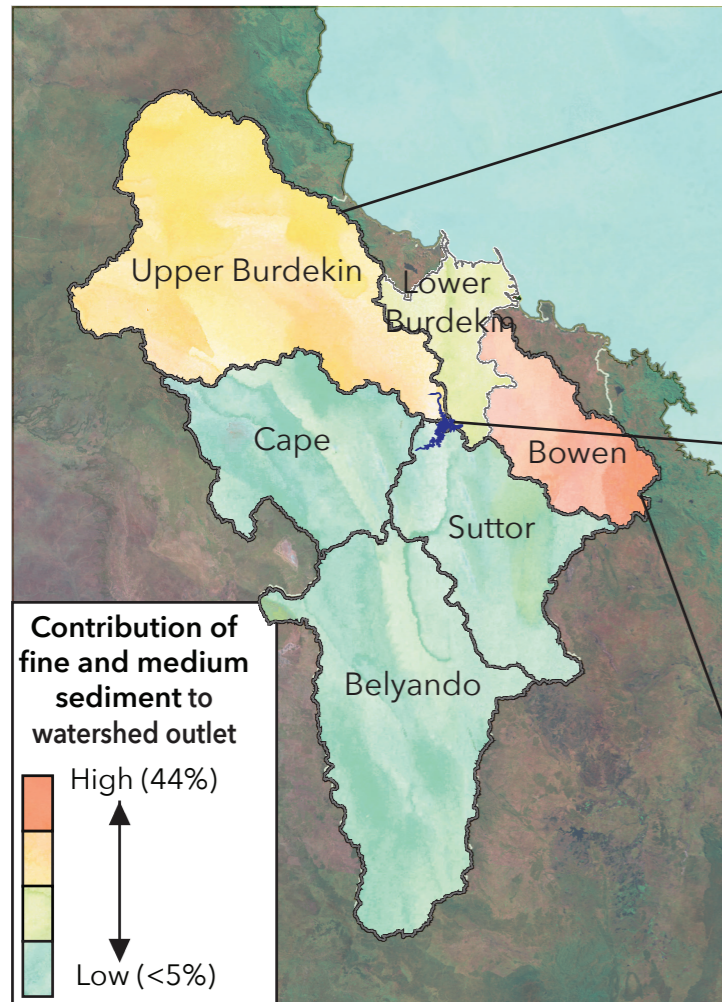


# 4. CATCHMENT SEDIMENT SOURCES

Where does fine sediment come from?

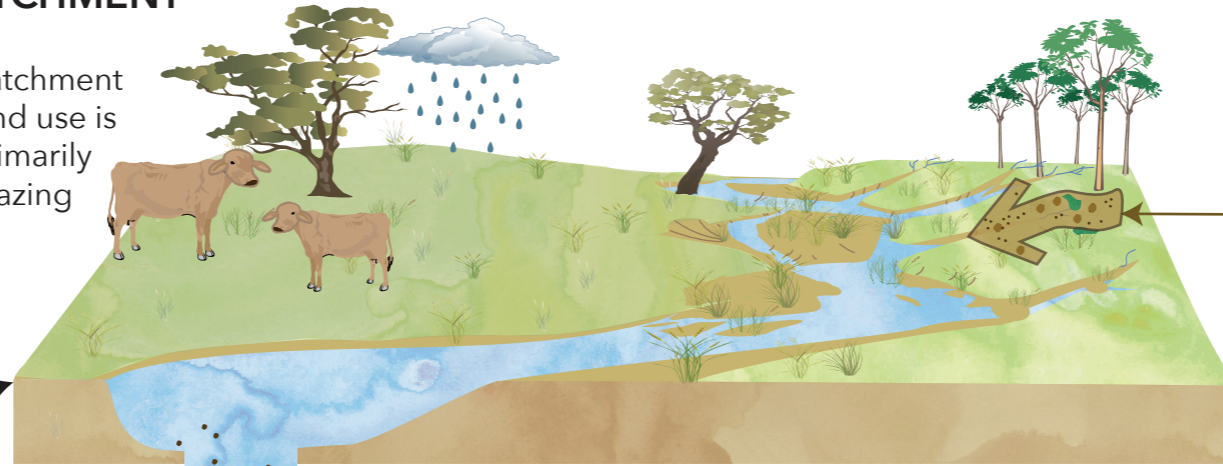
The bulk of fine sediment delivered to the Great Barrier Reef (GBR) from the Burdekin is derived from a small proportion of the basin area. The closer catchments are to the coast, the greater the opportunity for their eroded sediment to reach the GBR.



Map based on 2005-2009 monitoring data, accounting for sediment size and dam trapping

## UPPER BURDEKIN CATCHMENT

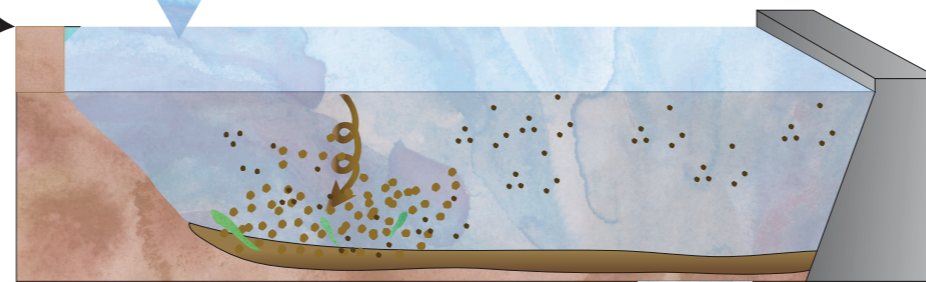
Catchment land use is primarily grazing



Sub-surface erosion moves fine sediment into waterways where it affects water quality within the basin and downstream.

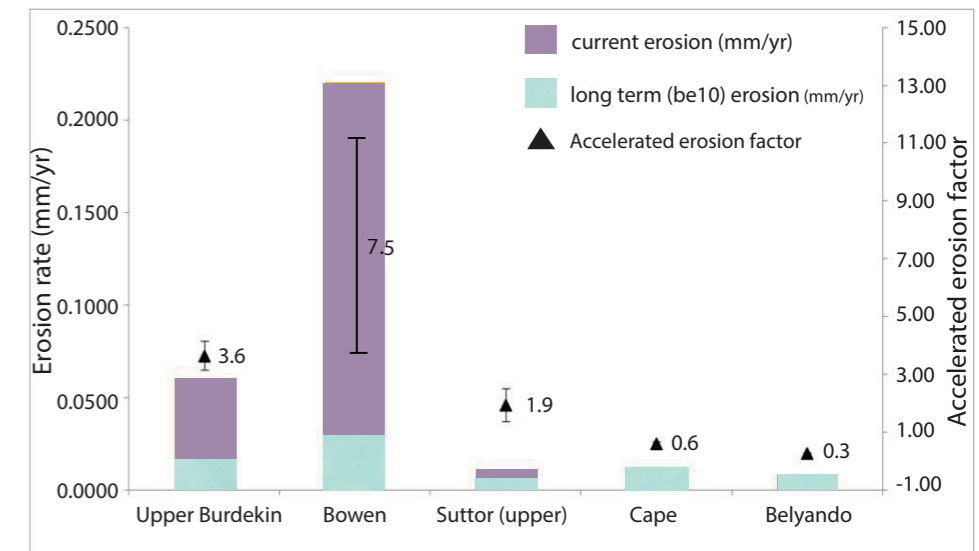
## BURDEKIN FALLS DAM

Water from the Upper Burdekin flows into the Burdekin Falls Dam where much of the sediment is trapped, reducing its contribution to overall loads.



The dam traps most coarse sediment, about half of the medium sediment and about a third of the fine sediment, as well as a proportion of particulate nutrients.

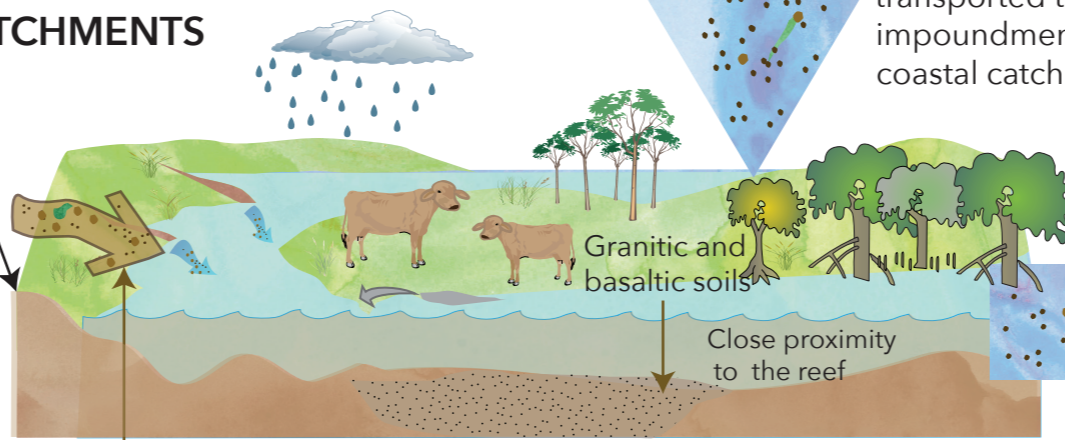
## Have erosion rates changed over time?



Croke et al (2015), Bainbridge et al (2014), Bartley et al (In Review)

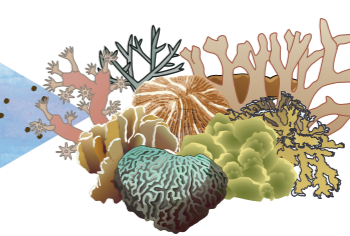
Geochemical tracing suggests that the Upper Burdekin and Bowen sub-catchments have the highest rates of erosion relative to pre-European rates at 3.6 and 7.5 times, respectively. Both sub-catchments export ~2 million tonnes of sediment annually.

## COASTAL CATCHMENTS



The fine fraction becomes the dominant particle size transported through the impoundment and out to coastal catchments.

Sub-soils exposed to erosion in hillslope scalds, rills, gullies and streambanks are the major source of fine sediment in waterways.



Fine sediment from the Bowen and Upper Burdekin dominate as the flood plume disperses from the river mouth out onto the GBR.

**Sediment categories:**

- Fine - 0 - 16  $\mu\text{m}$
- Medium - 16 - 63  $\mu\text{m}$
- Coarse - 63 - 2000  $\mu\text{m}$
- Particulate nutrients