MEDIA RELEASE
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Reef and Rainforest Research Centre - Cairns, Australia
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Keeping an eye on Big Wet runoff

Every year, major rainfalls in Far North Queensland turn the Barron River and other major watercourses a bright shade of ochre as they pick up mud and silt on their way to the ocean – but this year, scientists and farmers are keeping a closer eye on the sediment-filled waters and their effects on the Great Barrier Reef.

Suspended sediment in floodwaters, sometimes with high levels of nitrogen, pesticides and other introduced elements can have serious effects on the health of coral and other marine life such as seagrass.

The Tropical Water Quality Hub of the Australian Government's National Environmental Science Programme includes several projects focused on studying the interaction between floodwaters, agricultural catchments and the Great Barrier Reef.

Dr Aaron Davis from James Cook University heads up 'Project 25', a unique collaboration between scientists and cane farmers to monitor the content of river water along the course of the Russel-Mulgrave catchment south of Cairns.

Dr Davis says the big floods after a long dry season will give Project 25 its best insight yet into the content of the catchment's runoff.

"These are interesting floods because they're what's referred to as 'first flush' events, so there's a lot of stuff that's accumulated or been applied throughout the catchment in the dry season that is being moved by this water all at once, so we'll definitely be looking closely at these results, because they'll give us the clearest picture of what's in the water.

"What you'll see in the runoff really depends on what kind of activity is occurring in that catchment – in a catchment with more bananas or grazing you'd typically expect to find more elevated suspended sediment, while in cane catchments you'll probably that shift toward fertilizers nutrients and pesticides.

“The aim of the project is to provide more locally relevant water quality data to farmers in a region, which can assist decision-making and help guide practice change among the growers in these catchments to reduce potential runoff impacts.”

Cane farmer Stephen Calcagno is one of the biggest growers involved in Project 25 and said he was looking forward to seeing the results of the monitoring.

“We are always looking at ways of being able to reduce how much fertilizer and pesticides end up in the rivers because not only does that represent wasted spending for us, it’s also going out to the Great Barrier Reef and causing problems there.

“We want to keep the Reef in good nick as much as anyone else and we’re definitely keen to see how these measurements turn out so we can see what’s working in reducing that runoff.”

Dr Rebecca Bartley at CSIRO is running another Tropical Water Quality Hub project in the Burdekin region to test ways of reducing erosion in agricultural catchments.

“I previously ran a 12-year study on erosion in the Burdekin and the results were very interesting – it highlighted that if we want to see an improvement in the water quality leaving the catchments and reaching the Reef, we need to be treating the dominant erosion source. This may seem pretty obvious, but in the past, we actually didn’t know what the dominant sediment source was, so we tried a bit of everything. In the Burdekin, sediment tracing has now confirmed that gullies are a major source of sediment.”

“In our Tropical Water Quality Hub project we are trialling different gully remediation techniques. These include stock management with fencing, revegetation of gully banks with native vegetation and installing what we call ‘stick sausages’, which are bundles of sticks wrapped up with chicken wire designed to slow the water down and get sediment to settle out.”

“We have a number of paired sites where we will treat one gully, and leave the other gully in its current condition. We then measure the water quality leaving these sites. This will give us a much clearer idea of what type of remediation approaches work, and how much we can expect them to reduce erosion and improve water quality.”

“This research has actually never really been done before – everyone has had these assumptions about which techniques work, but until now we haven’t had any quantitative data. Once we know which techniques work, we hope that there will be much greater up-take of remediation across the catchment.”

The Tropical Water Quality Hub is managed by the Reef and Rainforest Research Centre, based in Cairns.

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