

News Release



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**AUSTRALIAN INSTITUTE
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Research shows herbicides a concern to Reef

A comprehensive research program investigating pesticide residue run-off has revealed a suite of herbicides in rivers and creeks and in marine waters within the Great Barrier Reef lagoon.

The runoff of pesticide residues were monitored in the Tully-Murray, Burdekin-Townsville and Mackay Whitsunday Regions over four wet seasons (2005- 2008), with a focus on key land uses within these regions.

The land uses include sugar cane, grazing, horticulture, urban and natural/conservation.

Dr Stephen Lewis from the Australian Centre for Tropical Freshwater Research (ACTFR) at James Cook University said that the results show that a suite of herbicides including diuron, atrazine, ametryn and hexazinone have been commonly detected in waterways draining sugar cane lands.

“Concentrations of diuron and atrazine residues often exceeded Australian freshwater guidelines for species protection. Lower concentrations of diuron were also commonly detected in waters draining urban lands,” he said.

“Tebuthiuron residues have also been detected in rivers draining grazing lands.

“Diuron, atrazine, hexazinone and tebuthiuron residues were also measured in the Great Barrier Reef lagoon directly offshore from these regions within river water flood plumes.

“Some concentrations exceeded either locally-derived marine water quality trigger values for species protection or laboratory-based lowest observable effect levels for marine plants including coral zooxanthellae and seagrass,” Dr Lewis said.

Dr Lewis will present the results of the study at the 2009 Annual Conference of the Marine and Tropical Sciences Research Facility (MTSRF) at Rydges Southbank Hotel in Townsville on April 28.

These results are part of a large MTSRF-funded research program conducted by the Australian Centre for Tropical Freshwater Research at JCU in collaboration with researchers from the Queensland Department of Environment and Resource Management, Australian Institute of Marine Science and University of Queensland (National Research Centre for Environmental Toxicology). The MTSRF has provided over \$1 million in federal funding to this program over four years.

Mr Jon Brodie, principal research officer at JCU’s ACTFR, said that the results from the study have been presented to growers and graziers across the regions over the past three years.

“Research staff have been working with growers, graziers, industry groups, the regional natural resource management bodies of each region and government to establish best management practices for each industry to suit localised catchment conditions,” he said.

These best management practices for sugar and grazing industries have now been developed within each region through the Federal Government’s Water Quality Improvement Plan process.

Mr Brodie said that a considerable number of farmers have already implemented farm management plans and improved management practices to enhance water quality through the Australian Government’s Reef Rescue Program.

“Reef Rescue incentive grants to support the adoption of these improved management practices are currently being rolled out across the Great Barrier Reef catchments,” Mr Brodie said.

The research has been published in the peer-reviewed online scientific journal, *Environmental Pollution*.

The researchers noted that a full assessment of the risk of herbicide runoff to the Great Barrier Reef was complicated by a limited number of ecotoxicological studies on relevant species, and the possibility of additive or enhanced effects by the combination of these herbicides as well as with elevated suspended sediments and nutrients also being transported in river runoff.

“However,” Mr Brodie said, “the results show that herbicide runoff from agricultural lands are of concern to marine ecosystems of the Great Barrier Reef and are sometimes at concentrations which would directly affect seagrass and coral reef species, at least temporarily.”

The Australian Government’s \$40 million MTSRF funds research that aims to help increase the sustainability of use and management of north Queensland’s key environmental assets – the Great Barrier Reef and its catchments, the Wet Tropics rainforests, and the Torres Strait.

The MTSRF conference from April 28 to 30 is free and attendance by the media and general public is encouraged. Please visit the conference website for registration forms and more information: www.rrrc.org.au



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Lewis, S.E., et al., Herbicides: A new threat to the Great Barrier Reef, *Environmental Pollution* (2009), doi:10.1016/j.envpol.2009.03.006