Turtle herpes outbreak hints at Great Barrier Reef contamination

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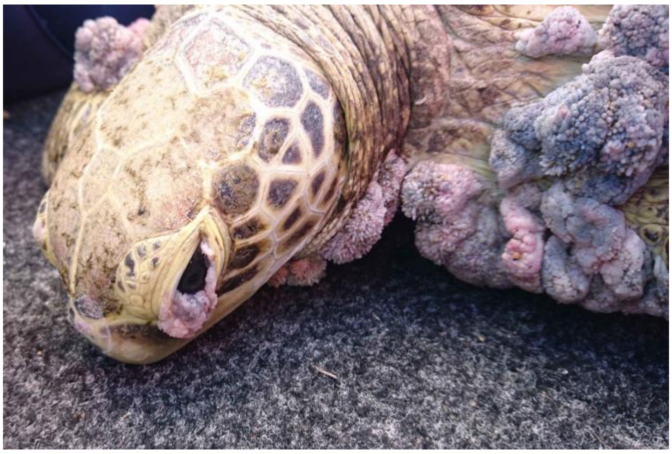

What triggers these herpesvirus-linked growths is under investigation. Photo: Karina Jones, James Cook University

It's a turtle tragedy. Tumours are crippling an increasing number of green sea turtles on Australia's Great Barrier Reef, with pollution being investigated as the prime culprit.

The animals have a turtle-specific herpesvirus that causes fibropapillomatosis – a condition in which disfiguring tumours grow on the eyes, flippers, tail, shell or internal organs.

"The tumours are benign but can grow up to 30 centimetres in size and block the turtles' vision, says Karina Jones of James Cook University in Townsville, Australia. "This means they can't find food or see predators or boats."

Turtles with tumours are also more vulnerable to other infections, she says. "Severely affected turtles are quite skinny and have other pathogens affecting them – that's why they die."

The unpublished results of surveys by Jones's team this year show that herpesvirus is most prevalent within a narrow stretch of Cockle Bay at Magnetic Island, a popular tourist destination in the middle of the reef. Roughly half the turtles in this hotspot have fibropapillomatosis, compared with less than 10 per cent of turtles sampled across the rest of Cockle Bay.

The cause remains unclear, but environmental contaminants are at the top of the suspect list. "We see these tumours in turtles in very localised hotspots around the world where there is heavy human activity," says Jones.

Turtles in healthy marine environments can still carry the virus, but it often lies dormant with no symptoms, she says. "We think there must be some external trigger that causes the tumour development," she says.

Photo: Karina Jones, James CookUniversity

Fibropapillomatosis has also become increasingly common in turtles in Florida and Hawaii, particularly near onshore farming areas, which may be the source of pollution. Over the last 20 years, Doug Mader of the Turtle Hospital in Marathon, Florida, says he has gone from treating six to eight turtles per month to the same number per week.

Mader agrees that human pollution is probably to blame. "It is thought that pollution may weaken their immune systems, thus rendering them more susceptible to disease," he says.

The next step is to try to pin down the contaminants that are responsible, if any, says Jones. Her team is looking for clues in historical water quality data, and is also planning to test water samples for a range of chemicals, including heavy metals and fertiliser and pesticide components.

"The field is very challenging because there are so many questions to ask," she says. "But it's always good to ask the big questions."