

Great Barrier Reef truth may be inconvenient but it is out there

By Professor Peter Ridd, *The Australian*, 2 January 2020

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We have no data of [Great Barrier Reef coral growth rates](#) for the past 15 years. Has growth collapsed as the Australian Institute of Marine Science claims?

Is the Great Barrier Reef being affected by climate change, the acidification of the ocean, and the pesticides, sediment and fertiliser from farms? One way to tell is to measure the coral growth rates. Our science institutions claim that coral growth rates collapsed between 1990 and 2005 due to stress from human pollution. Remarkably, despite having data of coral growth rates for the last few centuries, there is no data for the last 15 years. We don't know how the GBR has fared since 2005.

Corals have yearly growth rings similar to tree rings. By drilling cores from large corals, scientists can measure the growth rates over the life of the coral.

The yearly rings are roughly 10 millimetres thick so a coral many metres across can be hundreds of years old. In a landmark study, AIMS took cores from more than 300 corals on the GBR and concluded that for the past 300 years coral growth was stable, but in 1990 there was an unprecedented and dramatic collapse of 15 per cent.

With Thomas Stieglitz and Eduardo da Silva, I reanalysed the AIMS data and, in our opinion, AIMS made two significant mistakes.

The first was incorrect measurement of the near-surface coral growth rings on most of the corals that were giving data from 1990 to 2005. After years of argument AIMS has begrudgingly agreed that it made this mistake. The other problem is that it used much smaller and younger corals for the 1990-2005 data compared with the mostly very large and old corals of the pre-1990 data — it changed its methodology and this is what caused the apparent drop at 1990. When we corrected this problem, the fall in growth rate disappeared.

AIMS continues to dispute this second error and still claims there was a worrying reduction in growth rate from 1990 to 2005. This disputed work is quoted in influential government documents such as last year's reef outlook report. I am not cherry-picking a minor problem. It is a fundamental problem with a keystone piece of GBR science.

We thus have a situation that arguably the most important data that tells us about the health of the GBR is highly questionable from 1990 to 2005.

What is far worse is that we have no data since 2005.

The science institutions have not only failed to investigate probable major errors in their work, they have also failed to update measurement of this fundamental parameter while claiming, in increasingly shrill tones, that the GBR is in peril.

But ironically, this failure provides a fantastic opportunity. The coral challenge.

For the past 15 years we don't know what growth rates have been. It is easy to fill in the missing data, and check the previous data, by taking more cores from the reef. AIMS has effectively stated that coral growth is falling at 1 per cent a year.

According to the AIMS curve, growth should now be 30 per cent lower than it was in 1990 — which would be a disastrous fall. I predict it has stayed the same. Either way, it would be nice to know what has happened — is the reef really in danger or not?

But a second and almost equally valuable outcome of measuring the missing data is that it will be an acid test of the trustworthiness of our major science institutions. AIMS has dug in its heels and denied it made a major methodological mistake. Let's do the experiment and see if it is right, or untrustworthy.

Same for me. If this measurement is done, and done properly, and it shows there has been a major reduction in coral growth rates, I will accept I was wrong and that there is a disaster happening on the reef.

The coral challenge is a measurement that will have to be done sooner or later. The longer it is neglected the worse it will look to the public. Farmers accused of killing the reef are especially interested.

We need to make sure these new measurements are done properly and without any questions about reliability. They must be supervised by a group of scientists that are acceptable to both sides of the agricultural debate on the reef to ensure the methodology and its execution are impeccable.

Peter Ridd is an independent scientist who was unlawfully dismissed from James Cook University in Townsville.