



PM announces \$60m Great Barrier Reef fund

—OPINION—

Opinion: Great Barrier Reef science needs checking by independent authority

Peter Ridd, The Courier-Mail

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LATE last year Dr Piers Larcombe and I [published an article](#) in the *Marine Pollution Journal* examining nine scientific papers about the Great Barrier Reef.

These papers had been cited 5791 times between them and formed the basis for spending billions of dollars on the reef – including an extra \$60 million announced this week by the Federal Government – yet they had major deficiencies.

We called for the establishment of an Institute for Science-Policy Quality Control, and while we've had [support](#), we've also been [criticised](#) by the scientific establishment, including the Royal Society in Queensland.

The “Replication Crisis”, well-reported in peer reviewed articles, shows that when scientific papers are checked, around 50 per cent of recently published science is wrong.

The public should be alarmed at this statistic, but should be even more alarmed when the scientific establishment tries to placate us with claims that all is well. There are plenty of examples of very bad GBR “science”, which we detail in our paper, and which have been ignored in the debate thus far.



📷 “There are plenty of examples of very bad GBR ‘science.’ Above, Silover Sonic Dive Supervisor Tami Summers on Agincourt Reef which Trip Adviser selected as No.3 of the Top Ten 'must do's' in Australia.

One scientific paper claimed the GBR was 28 per cent of the way to ecological extinction by measuring the reduction of the marine resource (fish and corals etc).

However it defined a reef that was not absolutely pristine, but exhibiting “no reduction in the marine resource”, as 25 per cent of the journey to ecological extinction.

In other words because nowhere on the reef is absolutely pristine (because people have fished there), then all of it is defined as being 25 per cent of the journey to extinction, even though it is unmeasurably different from pristine. This is patently unreasonable.

Another paper claimed that the coral growth rates on the GBR have declined by 15 per cent, however two major errors were made and when these were finally corrected, it turned out that growth rates have, if anything, increased slightly.

In fact, reef growth rates may well be 10 per cent higher than in the 1940s, as would be expected because the climate has warmed slightly, and corals generally grow faster in hot water.

It is claimed that fertiliser from agriculture has caused a doubling of the phytoplankton in the central zone of the GBR, compared with the unpolluted far north.

The high phytoplankton is claimed to be responsible for Crown of Thorns starfish outbreaks and is the reason why sugar cane farmers have been told to reduce fertiliser application, potentially damaging their viability.



📷 Above, PM Malcolm Turnbull at the Australian Institute of Marine Science on Monday, announcing \$60 million for the GBR. Photo: AAP/Michael Chambers

A reanalysis of the data indicates that comparable parts of the central region do not have higher phytoplankton than the far north.

This is to be expected because the reef water quality is utterly dominated by flushing of water from the Pacific Ocean, not from the rivers. Indeed, as much water moves into the GBR from the Pacific in eight hours as comes from all the rivers on the coast in a whole year.

But there is much more work that is plain wrong.

Reefs that supposedly have no coral, actually have great coral; reefs that are supposedly smothered by sediment actually have phenomenal coral cover; whole regions of the reef that would supposedly never recover after a major cyclone now have three times as much coral as they did six years ago. And let us not forget that 5000 years ago, about the time the Egyptian pyramids were built, the GBR was a degree hotter than it is today and yet it thrived.

And then there are the remarkable statements such as “before the 1980s mass coral bleaching never occurred”.

Well, actually, the first instance of bleaching was discovered on the very first scientific expedition sent to the GBR from England in 1929.



📷 This “science” is affecting every major industry in North Queensland, and the bad publicity about the reef is scaring away tourists. Above, aerial view of Heart Reef, Hamilton Island Air.

The likely reason that we see more bleaching now than in the '70s or '60s is that there are hundreds of times more scientists looking. Science institutions only started on the reef in the late '60s.

It took until the '80s for them to discover mass coral spawning, which is when every coral on the GBR releases its eggs in one night, causing spectacular slicks on the surface which can be seen from space. But nobody would claim that spawning never occurred before the '80s.

So mass coral spawning is a wonder of nature, but mass coral bleaching is because you drove your car to work causing climate change.

Any wonder why people are starting to distrust scientists?

There is no way that all the science of the GBR is wrong but if it is like other areas of science, such as biomedical science, then we can bet that about half is wrong – we just don't know which half.

But this “science” is affecting every major industry in North Queensland, and the bad publicity about the reef is scaring away tourists.

It is about time the science establishment, the Chief Scientists, the Royal Society, and the directors of science institutions, grasp the nettle rather than pretend all is well.

Peter Ridd is a professor from the Marine Geophysical Laboratory, James Cook University



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