



Australian Coral Reef Society Inc

Promoting the scientific study of Australian coral reefs

austcoralreefsoc@gmail.com
www.australiancoralreefsociety.org

14th August 2019

Peter Ridd's questionable claims

Statement by the Australian Coral Reef Society on Great Barrier Reef water quality claims

As the world's oldest dedicated coral reef science and conservation group, the Australian Coral Reef Society is deeply concerned that members of the Queensland public are being misinformed about the role of water quality in supporting a healthy Great Barrier Reef.

Supported by the sugar cane industry, Dr Peter Ridd has been making several claims about coral reef science during lectures and in media interviews and articles.

Several of Dr Ridd's claims are not true, while others could be characterised as strawmen arguments that ignore much greater challenges faced by the Great Barrier Reef.

As the reef is facing fundamental challenges from rapidly warming oceans, it is important that governments take action to support a rapid reduction in greenhouse gas emissions while taking all available steps to reduce the amount of sediments, nutrients and pesticides that reach the reef lagoon.

The society believes that the public and stakeholders should be informed by the best available science, such as the detailed analysis available in the most recent 2017 Scientific Consensus Statement.

The society was founded in 1922 and currently has more than 250 members, including many of the world's leading coral reef scientists.

Below, the society provides an analysis of claims made by Dr Ridd in articles published by the NewsMail in Bundaberg and repeated online by other outlets.

Peter Ridd has a list of what he calls eleven questionable claims that reef scientists make. He provides an explanation to discredit these claims. His recent article for NewsMail is a strange mix of claims that are either NOT made by marine scientists working on the GBR (Claim 4 Crown of thorns seastar plagues are unnatural, Claim 5 Pesticides from farms are killing the reef, Claim 6 Pharmaceuticals from human waste is a risk to the reef [there's some risk to corals but very low] and claim 10 Coral does not recover from mass mortality events such as cyclones and bleaching), or explanations about these claims that are not correct (Claim 5, Claim 7 The water quality of reefs is degraded, Claim 8 Coral cover has declined, Claim 9 Coral growth rates have slowed, Claim 10). In addition, Ridd suggests (for some time now) that no science is to be believed because he doesn't believe in the scientific process.

He hopes that by falsifying claims made by the coral reef scientists in scientific publications, he can enhance his own credibility by disproving these falsehoods. In this way, attention is drawn away from the actual problem discussed by the science.



Australian Coral Reef Society Inc

Promoting the scientific study of Australian coral reefs

austcoralreefsoc@gmail.com
www.australiancoralreefsociety.org

An example of something scientists don't say is Claim four –“crown of thorns (COT) starfish outbreaks are unnatural”.

Dr Ridd says: Crown of Thorns Starfish are a native species and are as Australian as kangaroos and koalas. They are not a feral animal like cane toads or rabbits. Geological evidence indicates they have occasionally reached plague proportions for thousands of years before European settlement

Yes. COTs are native animals and outbreaks have occurred throughout time. No marine scientist will tell you otherwise. The problem though, is that outbreaks may have become more frequent and more severe in recent decades, so we need to try to understand why and how to stop their intensifying trajectories.

Throughout his claims, Dr Ridd ignores inshore reefs, as if they are not an important component of the World Heritage Area and the Great Barrier Reef Marine Park. This is convenient for his argument that there are no water quality problems for the Great Barrier Reef, discounting the hundreds of published papers investigating and reporting on these problems. He also incorrectly suggests areas like the Whitsundays are not important parts of the GBR, despite the huge tourism industry in such areas.

Another strategy Dr Ridd uses is to overstate a potential problem in his questionable claim, so that the actual level of the problem is considered unimportant. For example, claim 5 that pesticides from farms are killing the reef. A reef scientist would not say that as it would exaggerate the issue, but Dr Ridd then argues that there are almost undetectable amounts in the ocean close to the coast. This is not correct. The inshore pesticide monitoring program has detected many pesticides, including herbicides at all eleven sampling sites. There are high concentrations above water quality guidelines in estuaries and some coastal waters. Herbicides are particularly harmful to seagrasses and symbiont bearing animals such as corals.

Dr Ridd insists that coral cover has not declined on the GBR. In reality, the Australian Institute of Marine Science has been running one of the best and most extensive long-term monitoring programs in the world, and conclusively demonstrated declines of coral cover, with over 50% loss between 1985 and 2012. Most recently, huge coral mortality from the 2016 and 2017 mass coral bleaching events are also ignored by Dr Ridd. The reef science literature for the last 20 years has overwhelming agreement that coral reefs are facing devastating loss in coral cover. Dr. Ridd says that coral growth rates have not declined but in fact increased last century. Growth rates did increase last century, but many recent studies have shown that growth rates have dropped by about 20% in the last three decades.

As mentioned above, Questionable Claim 10, that coral doesn't recover from mass mortality events such as bleaching or cyclones, is also a non-starter. Assuming that he means 'reefs' when he states that dead coral will not recover, this is also something a marine scientist would NOT say. Reefs can recover from many high mortality events, provided circumstances are right, they can get a supply of coral larvae, and they are not hit by a subsequent mortality event soon after. His statement that after EVERY mass mortality event, recovery has been rapid and strong is simply not true. His follow-up that bleaching events are perfectly natural and likened to bushfires is also false. Mass bleaching events are directly linked to ocean warming and were not recorded before 1979, at which point sea temperatures started to exceed minimum thresholds for bleaching temperatures. Recent work has also shown that reef recovery rates are becoming slower over time and bleaching events more frequent, rendering reefs in a constant state of catch up.



Australian Coral Reef Society Inc

Promoting the scientific study of Australian coral reefs

austcoralreefsoc@gmail.com
www.australiancoralreefsociety.org

After rejecting the scientific process and questioning the validity of all science and therefore reef science, Ridd ends his piece by declaring that reef science in Australia needs to have more vigorous quality audits. He gives no examples of reef science that he feels is actually flawed. We need to consider the hundreds and hundreds of publications on the science of the GBR which come from experts from around Australia and overseas from a large number of universities and institutions. These works have been published in very high impact journals. For example, many of the most important papers from the 2016 and 17 bleaching events were published in the two most highly ranked (most prestigious) journals of science - Nature and Science. These works are always reviewed by editors and then experts in the field, who are the leading scientists in these fields in the world.

Dr Ridd suggests that we should have panels to check reef science (just in case journals like Science and Nature get it wrong) but control already happens on many levels. Every four to five years a detailed Scientific Consensus Statement is created by a large team of scientists and policy makers. In this process, a panel of experts get together to go over all the recent work and develop the consensus statement after much review and discussion.

Additionally, there is a state government lead process called the Independent Science Panel that assesses all the data and recent work on water quality.

At a federal level, there is the Independent Expert Panel run by the former Chief Scientist Ian Chubb. This panel covers all GBR work rather than just water quality.

Thus, there are many layers of review and assessment and collaboration already on top of the peer review undertaken by the journals for the published work. Dr Ridd has previously been on some of these panels, yet conveniently omits them. What can he possibly hope to achieve by setting up yet another panel, other than steering funding away from crucial ongoing research?

In short, as representatives of the Australian Coral Reef Society, we disagree with Dr Ridd's statements about questionable claims. We acknowledge and highlight that science is always under development and new generations of scientists with new tools will review and finetune findings of their predecessors. However, it is an unfortunate fact that the GBR is currently in a bad state, mainly caused by climate change, land use and outbreaks of crown of thorns seastars. The link between former causes and human activities is not disputed by any reasonable scientist, and that human influence also at least contributes to the latter problem is also widely accepted.

President: Dr Anna Scott
Vice-President: Dr Sarah Hamlyton
Hon Secretary: Ms Carrie Sims
Hon Treasurer: Dr Stephanie Duce

02 6659 8123
02 4221 3589
07 3365 9753
07 4781 5476

anna.scott@scu.edu.au
shamylto@uow.edu.au
austcoralreefsoc@gmail.com
stephanie.duce@jcu.edu.au



Australian Coral Reef Society Inc

Promoting the scientific study of Australian coral reefs

austcoralreefsoc@gmail.com
www.australiancoralreefsociety.org

President: Dr Anna Scott
Vice-President: Dr Sarah Hamlyton
Hon Secretary: Ms Carrie Sims
Hon Treasurer: Dr Stephanie Duce

02 6659 8123
02 4221 3589
07 3365 9753
07 4781 5476

anna.scott@scu.edu.au
shamylto@uow.edu.au
austcoralreefsoc@gmail.com
stephanie.duce@jcu.edu.au