

Comment on Fabricius et al 2018 (F18)

- F18 do not face the reality of the “replication crisis” which we discuss at length in our paper. This is where it is found in replication studies that up to 50% of scientific findings are incorrect. If 50% of biomedical science, psychology and many other areas are wrong, why would we expect that the environmental sciences would be any better when the same flawed quality control processes are used?
- We propose a system of making science even more reliable than it is now. This is a matter that is being addressed by many scientific institutions around the world but the first step is to accept there is a problem.
- F18 argue with many of the examples where we claim the science is wrong and the debate will help us all get closer to the truth. The big worry is all the science that is not subject to adequate scrutiny, debate and argument – and that is most of it.
- Despite F18’s claim, there is not enough effort to check, test and replicate much of the science upon which we base important public policy decisions. The GBR is just one example of this.

1. The authors say your critiques in the Viewpoint article “demonstrate biases, misinterpretation, selective use of data and over-simplification” and that you “ignore previous responses” to the claims you have published.

- We can’t see anywhere where it is proved that we have significantly misrepresented anything, or been indefensibly and unscientifically selective. We’re happy to have such things pointed out.
- Our point was to lay out the evidence that there are definite uncertainties – we have clearly demonstrated that fact.
- Authors of 2 of the papers we addressed have not replied, neither to us personally or in this paper.
- The readers can read the papers and make their own minds up.

2. The authors say that in your Viewpoint article, you ignored or did not account for several responses to your previous critiques that were cited in your Viewpoint article (one example is your Ridd (2011) critique of Death and Fabricius (2010), which was addressed by Death and Fabricius (2011) in their article *Evidence that water quality is an important driver of reef biota is not refuted: response to Ridd et al*)

The articles that you and F18 quote do not adequately respond to the problems that we raise. In some cases they actually confirm the problems. We are working on a much longer publication where all of this detail can be included.

3. The authors say your concept of “policy science” is “misleading” and your claim that industry-funded research has more rigorous quality control is undermined by your own examples of reproducibility issues within the fields of medicine and biomedicine.

F18 have misinterpreted what we mean by policy-science. We argue that when a government is going to make decisions worth billions of dollars based on scientific work, then it should subject that science (we call it policy-science) to more scrutiny than less important science. This is just common sense.

4. I understand the journal will offer you a chance to publish a response to Schaffelke et al - will you be taking them up on this?

If they offer, then yes

Finally, can I ask Professor Ridd for the best way to get an update to your court action against JCU? Are you able to talk to me about this, or can I speak with your lawyer?

I have nothing to say on this at the moment. We are having an excellent and robust scientific discussion with F18 on the matter of science quality control – let us confine ourselves to that.