



Reef 2050 Plan

The Hon Sussan Ley MP
Chair, Great Barrier Reef Ministerial Forum
Minister for the Environment

The Hon Leeanne Enoch MP
Minister for Environment and Great Barrier Reef
Minister for Science and Minister for the Arts

The Hon Karen Andrews MP
Minister for Industry, Science and Technology

The Hon Anastacia Palaszczuk MP
Premier of Queensland

Dear Ministers,

At its most recent meeting (Tuesday 13 August), your Independent Expert Panel (IEP) asked that I write to you to express the members' unanimous support for the science that underpins the evidence of the extent and probable causes of damage to the Great Barrier Reef (GBR).

This advice to you was triggered by the roadshow of Dr Ridd and the associated industry response to new regulations aimed at improving water quality in the GBR area. We do not have a particular view on the regulations, which is outside our remit, but we chose not to sit by and watch the science being disputed and sometimes misrepresented.

Our support for the science and the rigorous processes that underpin science is unequivocal.

It is our advice to you that the science we have seen and discussed during our fifteen meetings has been conducted according to the most rigorous and widely accepted processes employed by professional scientists.

The genuine scientific process involves publishing the results of work in peer reviewed journals openly available to any interested readers.

Critics of peer review usually imply that the two or three 'experts' reviewing manuscripts presented for publication can be wrong, or biased in favour of a particular outcome. Of course, that is possible. An essential part of the peer review process, however, is the intense scrutiny of publications and reports by numerous experts before and after publication. That scrutiny can extend beyond publications, to data sets, computer code and software.

The scientific process is essential for ensuring the transparency, communication, veracity and replicability of science: 1. because it allows the work (publications and reports) to be subject to evaluation against scientific standards by multiple (possibly hundreds and sometime thousands) of experts in the field; 2. because there is implicit validation of the work when other scientists use it to help formulate their hypotheses that are the bases of their own experimental designs. Flaws can be revealed, and it is part of the process of science to expose any such flaws and to put that, too, into the public domain for a similar level of scrutiny.

Science advances by developing evidence to disprove previous ideas or notions about how the world works. What we know in any field is therefore the accumulated evidence that survives intense scrutiny and has not been disproven.

The findings and conclusions in individual papers and reports are subject to even further scrutiny before being adopted in evidence-based policy, programs or regulation.

Our advice to you, therefore, is that the science as we currently know it is robust and the conclusions appropriate.

We commend to you the science and the scientific evidence that underpins our present understanding of the condition of the GBR. It clearly demonstrates that the northern two thirds of the GBR was severely bleached in 2016 and 2017. There are signs of recovery in some areas. There is strong evidence that the recruitment of coral spawn into the bleached areas has decreased by as much as 89%. There is evidence that water quality is important in that surviving coral or newly growing coral have a better chance of continued survival in cleaner water.

The greatest risk to the GBR, as we have advised before, is global warming and consequential climate change caused substantially by human activity – greenhouse gas emissions through activities such as burning fossil fuels, clearing vegetation and making concrete.

We also advised before that until global action limits future increases in temperature we have to do what we can to improve resilience of the GBR. This includes actions to improve water quality.

The 2017 Scientific Consensus Statement for the GBR identified that poor water quality, including nutrients, sediments and pesticides flowing to the sea, is a major threat. The Consensus Statement was the result of a review of hundreds of peer reviewed published papers and technical reports based on scientific studies using a variety of approaches including sediment cores, coral cores, modelling and monitoring. The Consensus Statement was produced by a multidisciplinary group of 48 scientists with expertise in the GBR, coordinated by James Cook University with oversight from the Reef Water Quality Independent Science Panel.

The IEP has confidence in the rigorous process that led to the Science Consensus Statement.

Conclusion

We believe that given the direction that quality science points, suitable policy and focussed regulation are both essential if we are to give the GBR a decent chance of survival in anything like its historically recognisable form.

We will learn more, and we will get more knowledge. But we have more than enough to know that without action to address climate change and to improve water quality the risk to the GBR is substantial. It is our view that the matter requires urgent attention and that policy development should not be distracted from the goal. The evidence is strong, the science robust, the conclusions drawn from the science are sound.

Serious effort is needed to address the state of the GBR, and the effort is needed now to ensure that future generations will have a GBR to enjoy.

Yours sincerely,



Em Professor Ian Chubb AC FAA FTSE

19 August 2019

CC Senator the Hon Simon Birmingham
The Hon Warren Entsch MP
The Hon Kate Jones MP
The Hon Dr Anthony Lynham MP
The Hon Mark Furner MP

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For information

There is a strategy to delay suitable policy responses to particular issues that was clearly articulated by the tobacco industry many years ago. While it existed in different forms over many earlier decades the tobacco industry summarised the approach in an internal memo now on the public record. They describe how: *Doubt is our product since it is the best means of competing with the 'body of fact' that exists in the minds of the general public. It is also the means of establishing a controversy.*

More recently, the CEO of Cambridge Analytica makes it clear that the tactic continues: *It sounds a dreadful thing to say, but these are things that don't necessarily need to be true as long as they're believed.*

We have seen the sowing of doubt play out over the years: tobacco use, lead in petrol, anti-vaccination, climate change are examples. And now possibly the GBR. In all cases, scientific evidence is, or was, disputed, only sometimes for obvious reasons – usually money. It is a reason why research on important matters of public interest should be funded by the public - again after a rigorous process of review and within a sound ethical framework.

The tactic of sowing doubt works, because there can be reluctance to change policy or regulation in the face of doubt. But absolute certainty is rare. It does not mean that what we know is wrong.

Science works by steadily accumulating evidence from which deductions can be drawn and modified if ideas and the conclusions are disproven by further work. When the accumulated evidence converges on a particular conclusion, a consensus is reached - by scientists working independently, both individually and in teams.

It is up to people or scientists with another view to provide evidence established by rigorous application of the same scientific process and have it subjected to the same level of scrutiny by experts.

When the sowing of doubt doesn't work out, the next step in the now time-honoured tactic is to invoke the notion of a conspiracy of the world's scientists all working together to stop the outsider getting their results published, or accepted. While it might be impossible for a rational person to imagine that there is any possible way for the hundreds of scientists of the world who work on, say, the coral reefs or climate change, to agree in secret to draw the same conclusions regardless of their observations, it does have currency in some quarters. It doesn't have to be true *as long as they're believed.*

The sowing of doubt is such a common tactic used to delay, confuse, obfuscate and frighten that it even has its own field of study: Agnotology is the study of culturally-induced ignorance or doubt, particularly the publication of inaccurate or misleading scientific data.