

Dear Sarah

Thank you indeed for the opportunity to make a submission, as per your email of 26 September (below).

I hereby provide, for your Committee's consideration, a formal submission to the "*Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef*"

### **In Summary**

- .The recently introduced regulations in Queensland were recommended (May 2016) by the Water Science Task Force, which I chaired.**
- .A wide range of experienced and knowledgeable experts were involved in the Task Force in developing a consensus perspective and definitive recommendations.**
- .These regulations built upon the best available science at that time, and which has been verified and supported in recent years in subsequent reports by eminent professionals.**
- .Through the work of the Task Force, extensive consultation with potentially impacted farming groups was undertaken across Queensland, over many months.**
- .Reef water quality is substantially influenced by farming practice, but the hitherto voluntary sign up by cane farmers to Best Management Practice (BMP) has been poor.**
- .Considerable notice (3 years) was provided as advance warning that regulations would be needed if improvements weren't forthcoming.**

- **Cane farmer led experiments have clearly demonstrated the economic benefits (to the farmer) of introducing BMP, with the subsidiary benefit of improved reef water quality through reduced nutrient run off.**
- **Similarly, pilot behaviour change programs with cane farmers have helped lead to significant take up of BMP.**
- **BMP accredited farmers will not be subjected to regulatory intervention. (With only 11% of cane farmers currently BMP accredited the focus will be elsewhere.)**

This submission is based on the work I undertook for the Queensland government, while Chief Scientist in that State, in heading up a Task Force around Water Science in the Great Barrier Reef.

Our findings, by way of our full Final Report, can be found at: [https://www.qld.gov.au/data/assets/pdf\\_file/0027/109539/gbrwst-finalreport-2016.pdf](https://www.qld.gov.au/data/assets/pdf_file/0027/109539/gbrwst-finalreport-2016.pdf)  
and our corresponding Executive Summary at: [https://www.qld.gov.au/data/assets/pdf\\_file/0019/109540/gbrwst-finalreport-es-2016.pdf](https://www.qld.gov.au/data/assets/pdf_file/0019/109540/gbrwst-finalreport-es-2016.pdf)

In addition, my input derives from my having maintained an ongoing interest and engagement with water quality in the Great Barrier Reef in the time since our Task Force Report was submitted (May 2016), inter alia as a member of the Great Barrier Reef Foundation's Partnership Management Committee for its Reef Trust Partnership with the Commonwealth's Department of the Environment and Energy.

I believe that the studies our Task Force undertook and the significant consultations we carried out over an 18 month period, the conclusions we drew and the recommendations we made are very relevant to the Terms of Reference of the Senate Inquiry, specifically item (c) in your email dated 26 September. And, in particular, to questions that have arisen of

late around the quality of the science, which in part provided the foundation for the recently introduced regulations.

Now, these science quality questions have, in my view, been very well addressed by former Australian Chief Scientist, Professor Ian Chubb AC in his capacity as Chair of the GBR's Independent Expert Committee (IEP) in his letter of 19th August 2019 to Minister Ley, et al., concluding "... *that the science as we currently know it is robust and the conclusions appropriate.*" However, let me try also to address this topic.

In questioning the 'science' - always important to do, as scientific knowledge and modelling capability continue to evolve - I would start by saying the following....

Science - like most 'business' - is all about the people.

Anecdotally, I have had a quote on my office wall for many years which says "The people with the best people win."

As such, I would submit that the Task Force membership - and at the time we put a lot of effort in putting this together - listed at the end of our Report, and engaged pro bono, was highly capable - experienced, knowledgeable and well connected.

Details can be found on page 88 of our Final Report (as per the above mentioned link).

I would also make mention of the distinguished Review Group (also listed in the Report, as linked, p89) we had working with us, overseeing process, content and recommendations.

Further, I would emphasise that our Report was influenced through many consultations we had up and down the coast, over many months, and involving a diversity of players from the agricultural industry.

We also produced a Draft Report that was widely circulated, and presented/discussed in a good number of forums, and

feedback on which most usefully informed our further deliberations and Final Report.

So, back specifically to the quality of the science underpinning our work, noting that our recommendations were made based on the best science available at the time. Subsequent to our Report's publication I might bring to your attention three further pieces of important review that add credence to our conclusions and recommendations.

1. Firstly, the Water Quality Scientific Consensus Statement 2017 – a peer reviewed report prepared by 48 scientists and experts. This was published after our Taskforce Report, with more up to date information available, but providing similar recommendations.... <https://www.reefplan.qld.gov.au/science-and-research/the-scientific-consensus-statement>

2. Secondly, the revised targets published in the Reef 2050 Water Quality Improvement Plan 2017 included reduction targets for nutrients and sediments in the Burnett-Mary catchments.

3. The proposed regulation is also supported in the recent submission provided by the Reef 2050 Independent Expert Panel to the Parliamentary Committee examining the bill.

I extract here for your convenience the summary of their submission extracted from the first page of their submission.

*The IEP:*

*1. recognises the important role of regulations as part of the mix needed to accelerate progress towards achievement of the Reef 2050 Water Quality Improvement Plan (Australian and Queensland governments 2018) targets and commends the Queensland Government for progressing this approach.*

*2. acknowledges that the content of the proposed regulations has been based on best available knowledge, including*

*comprehensive consideration of the underpinning evidence, conclusions and recommendations included in the 2017 Scientific Consensus Statement (Waterhouse et al. 2017).*

*3. offers a number of observations related to effective delivery and implementation of the proposed Regulations, including the need for targeting and prioritisation, consideration of other options in addition to management practice change, integration of factors related to climate variability and the importance of effective and efficient data capture, management, evaluation and sharing.*

The full submission is at

... <https://www.parliament.qld.gov.au/documents/committees/ITDEC/2019/16EnvProGBRPM/submissions/127.pdf>.

I would also emphasise that this Independent Expert Panel - chaired by Professor Chubb - is indeed comprised of 'experts' (in my view, and personal knowledge of the majority of them), and are listed at ....

<https://www.environment.gov.au/marine/gbr/reef2050/advisory-bodies>

So, as became necessary, our Water Science Taskforce indeed recommended regulating, including extending regulations in all catchments - noting that obviously time and opportunity were given for farmers to appropriately modify their best practice. (It is now 3 years since our Report was submitted.)

The Taskforce also recommended that any regulations should be clear, tailored to individual needs, easily measured and developed consultatively.

We further identified that there are priority areas where stronger action may be needed and recommended refining the targets to establish 35 basin scale targets so that it was clear what needed to be achieved in each basin. I understand this work

has now been done and is included in the Reef 2050 Water Quality Improvement Plan and may be informative for you.

Finally, some other points I feel might be relevant to your deliberations....

(i) Progress towards the 2025 targets is too slow. Results reported in the recently-released Reef Water Quality Report Card back this up – only 0.3% improvement in DIN (i.e. dissolved inorganic nitrogen) and 0.5% improvement in sediment over the last period. This isn't good enough when we need to enhance the Reef's resilience to climate change and warming induced events through best achievable water quality.

(ii) The vast majority of farmers are not meeting best practice standards. For example, my understanding is that only 11% of cane farmers are accredited under SmartCane BMP covering less than 25% of cane lands; and about half have not participated in any program.

Here it should be noted that the basis for the requirements re fertiliser application in SmartCane BMP, as well as being the basis of the minimum standards in the regulations, is the fertilising methodology that Sugar Research Australia developed known as 'Six Easy Steps'. Essentially, this is a series of steps involving testing soil and using a formula to calculate the amount of N a block will need to meet a certain yield potential (called the district yield potential).

And look at what can be achieved in helping farmers alter their farming practices... eg see the impact in the Wet Tropics (approximately 1000 of the total 3500 cane farmers) - from 56 in 2016 to currently 312 farmers - ie a 450% improvement in BMP takeup over the past three years, in part resulting from the Canegrowers-led 'Canechanger Project' with Behaviour Innovation Pty Ltd (BI). This is more than twice the take up in other regions put together (Burdekin, Mackay Whitsundays,

Southern Qld). (Declaring my interest through my involvement with BI as a Board member and also, as previously noted, with the GBR Foundation Reef Trust Partnership's Program Management Committee and their funding of the next stage of Canechanger.)

In essence, BMP is functional 'proof' that a cane farmer is "doing the right thing by the Reef". In recognition of this, under the newly-introduced legislation cane farmers who are accredited in BMP are not targeted for government audit, inspection and enforcement. For this reason, BMP is a crucial piece of the reef water quality puzzle, and it is also the most powerful platform to engage the entire industry in ongoing practice change. It was designed by the industry for industry, endorsed by government, and delivered by Cane growers.

(iv) I would note that it is also my understanding - from the Decision Regulatory Impact Statement, [https://www.qld.gov.au/data/assets/pdf\\_file/0028/94636/broadening-enhancing-reef-protection-decision-ris.pdf](https://www.qld.gov.au/data/assets/pdf_file/0028/94636/broadening-enhancing-reef-protection-decision-ris.pdf) - that the relevant bill allows for the regulations to be transitioned over 3 years. For example, growers in the Burnett Mary region are given a further 3 years to meet the nutrient management plan approach, ie 6 years on from when our Task Force Report was formally tabled. For the Wet Tropics, Mackay Whitsunday and Burdekin regions this is a further 2 years, ie 5 years in total.

(v) Our modelling also suggested the economic benefits of modifying farming practices, ie reduced inputs for the same yield. This was reinforced by the 'experimental' work undertaken and reported as the RP20 Burdekin Nutrient Trials project, with very active cane farmer engagement, and which I found genuinely value adding ....

<https://sugarresearch.com.au/wp-content/uploads/2017/06/Nitrogen-Results-17-F.pdf>

I believe these trials have now developed into an ongoing project (RP161) for nutrient management planning across the

Burdekin, Isis (in the Burnett Mary) and in the Herbert. As a fully voluntary project, evidently growers are saving money of different amounts depending on how much they were over-fertilising in the first place, the important point to emphasise being that growers can fertilise at the recommended industry standard without adversely affecting their productivity or profitability.

For verification here, I would strongly encourage Committee members to view this short (4 minute) video, with cane farmers themselves, who have been involved in these projects, talking about the real difference it has all made. If I may be so bold ... obligatory viewing!

<https://youtu.be/6qW96WeJhfY>

(vi) Finally, returning to my earlier point around the critical importance of having the best people involved, through years of directly working with them, I have been impressed by the quality of the team in the Qld Environment Dept responsible for these processes, specifically Elisa Nichols who heads up their Office of the GBR and Jamie Merrick, the DG. And also with the Qld Environment & Science Minister, Leeanne Enoch - one of the best Ministers I have ever worked with (over 4 decades and 2 continents): intelligent, knowledgeable, hardworking, committed and a person who listens well, and takes appropriate action.

In closing, thank you for your consideration, and best wishes in the task ahead.

Sincerely yours

Geoff

Dr GGGarrett AO FTSE  
*Formerly Chief Executive, CSIRO (2001-2008); and  
Queensland Chief Scientist (2011-2016)*