
Correspondence

NZAS comments on recent water quality publicity*

Dear NZAS member,

We have been made aware by several members of concern and discussion in the scientific community regarding a recent interview on *The Country*, in which Doug Edmeades (soil scientist), and Jacqueline Rowarth (agricultural economist, EPA Chief Scientist) expressed their views about Mike Joy (freshwater ecologist) and his statements concerning water quality [1]. This was a follow up to a column by Edmeades, entitled 'Is Mike Joy a biased scientist?' [2].

The NZAS Council has considered this matter at length and would like to comment as follows:

Professional scientists can and do disagree about the completeness and quality of data, conclusions that can be drawn from that data, as well as the implications that might arise from these conclusions. This is how science works. For the most part, this happens behind the scenes, but it sometimes occurs in public. It is normal practise, for instance, for journalists to seek critical comment from other scientists when newsworthy results are first published.

Calling into question the integrity and professionalism of scientific colleagues, however, is not normal. Ideally, science is a contest of ideas, not reputations, even if it doesn't always live up to this ideal. A public accusation (or accusation by implication) of a lack of professionalism or integrity, of one scientist by another, is unusual and can be serious. Many of the world's scientific bodies have codes of professional conduct that allow for formal means of complaint to deal with such matters.

The Royal Society Te Aparangi's Code of Professional Standards and Ethics reflects the seriousness of this. For example, its code states that members of the society must endeavour to obtain and present facts and interpretations in an objective and open manner; strive to enhance the reputation of their profession; avoid falsely, vexatiously or maliciously attempting to impugn the reputations of colleagues or otherwise compromising or denigrating them in order to achieve commercial, professional or personal advantages; and accept that researchers working on different approaches to a problem may reach different but supportable conclusions within the context of their own research.

We would encourage all our members to reflect on both the letter and the spirit of the Royal Society's code, and the way in which public dialogue of this nature presents scientists and our work to the public.

Sincerely,

Craig Stevens

President of the NZ Association of Scientists

[1] http://www.nzherald.co.nz/the-country/news/article.cfm?c_id=16&objectid=11841935

[2] <http://www.stuff.co.nz/business/farming/opinion/91398389/doug-edmeades-is-mike-joy-a-biased-scientist>

*This message was emailed to members 6 May 2017. It was not released as a media statement. [Editor]

Is Mike Joy Biased: A response from Dr D C Edmeades to the New Zealand Association of Scientists

The President of the New Zealand Association of Scientists, Dr Craig Stevens, has kindly offered me the right of reply, to explain my recent public statements in which I have suggested that Dr Mike Joy (ecologist Massey University) is biased.

Some background is essential.

I write a fortnightly column for one of the farming magazines, 'NZ Farmer'. I have been doing so for over two years. This activity is *pro bono* and it offers a wonderful opportunity to 'do my bit' to bridge the gap between science and the public – in my case agricultural science and the farmer. I am aware that the New Zealand Association of Scientists, the New Zealand Royal Society and the Prime Minister's Chief Science Advisor are all very enthusiastic about enhancing this interaction.

When selecting topics for the column I am cognizant of the need to stay within the boundary of my expertise – soil fertility, pasture nutrition, fertilisers and general agriculture. But because I work one-on-one with farmers I am often challenged to consider issues outside of my immediate expertise, which impact upon farming. One such issue is the effects of farming on water quality.

I found myself drawn into the public debate on water quality when Dr Jacqueline Rowarth (then Professor in Agribusiness at Waikato University) was personally vilified in the farming press for comments she made about the water quality of the Waikato River based on an OECD report. I obtained a copy of the OECD data-base, which confirmed that what she had said was correct. As recorded in my fortnightly column in September 2016:

Professor Jacqueline Rowarth of Waikato University, citing data from the OECD, made the comment that the nitrate levels in the Waikato are considerably lower than many other rivers in the world, adding that this applies also to phosphorous and e-coli.

Dr Alison Dewes, a Waikato based vet and self-described agro-ecologist, said Rowarth was, "... almost twisting the science," and "when people are saying stuff like that they do need to be called on it." Professor Russell Death from Massey University said Rowarth's assertions were wrong.

I was curious, what does the OECD data say? A good summary comes from the Morgan Foundation; "The OECD data is interesting in that it shows the three New Zealand rivers covered (Waikato, Waitaki and Clutha) have very low levels of nitrate and relatively low levels of total phosphorous, compared to major rivers in other developed countries. Indeed the Waitaki and Clutha rivers have the lowest and second lowest nitrate levels of any of the 98 rivers reported on. The Waikato has the fourth lowest level of nitrates."

Given that Rowarth faithfully reflected the OECD data, why the outcry? Who needs to be called on what? Why the nastiness?

At about the same time (September 2017) the Havelock North water quality issue emerged and Jamie McKay, the host of a popular national radio show, interviewed Professor Rowarth and Dr Mike Joy (Massey University) about this issue. I wrote a further column in September reporting on the interview:

The host of "The Country Show", Jamie MacKay, promoted it as "The Great Water Quality Debate". He introduced the two protagonists using political nomenclature: Professor Jacqueline Rowarth, (Waikato University) in the blue corner and Dr Mike Joy (Massey University) in the red corner. It was and still is (soundcloud/nzherald/the-country-jamie-mackay/water-debate) riveting listening.

The discussion started with the Havelock North drinking water fiasco. The initial question was: Is dairying to blame? Rowarth was considered and measured. The matter is still under investigation but here are some possibilities, other than dairying, as to the possible cause. Joy responded somewhat defensively with a clarification – he said that intensive farming was the cause, not dairying. Rather a moot point I would have thought, a trick used most frequently by politicians.

He then painted a picture; feed-pads, mob-stocked, big slushy pools of urine and faeces, easy obvious pathway for that material, not just one or two sheep but hundreds and hundred and thousands of cows, so I think on the balance of probability that would have to be right up there. (The implication was that the cows are the obvious source of the contamination in the Havelock North aquifer)

In contrast to Rowarth's rational approach, Joy was being emotional. Rather than the blue and red branding offered by MacKay I think the correct categories are science versus alarmism.

There were other examples of this contrast. Joy's suggestion that there have been "many outbreaks in intensively farmed areas" was reduced by Rowarth to two instances of water-borne outbreaks of campylobacter, one in Havelock North in 1998 and the other in Darfield in 2011.

Prior to Christmas 2016 'Plan Change One' – the plan to restore the water quality of the Waikato River – was notified (made public). It created considerable concern among farmers. I attended various farmer meetings and came to the view that farmers needed help in terms of understanding the science behind the Plan. They simply did not have the technical language and knowledge to come to terms with the Plan.

The relevant CRIs – NIWA and AgResearch – were involved in the development of the Plan and the Regional Council was promoting it; it was clear to me that they were unlikely to empathize with the farmers plight and so decided that I needed to get myself up to speed to assist them. During the holidays (2016/17) I read the relevant reports and with the help of several local water-quality scientist came to my own understanding of the subject.

My earlier knowledge was reinforced; there are four major contaminants in water: nitrogen, phosphorus, pathogens and

sediments and catchments differ in terms of which of these contaminants is most limiting water quality. Also it became clear that there are many sources of these contaminants: background and urban sources together with the various categories of land use; dairying, drystock, cropping and intensive market gardening (see www.pmcasa.org.nz/wp-content/uploads/PMSCA-Freshwater-report.pdf)

In the New Year (2017) I wrote, what turned into a series of columns, on this subject trying to explain the science in layman terms. Based on the feedback, they were well received. In particular people commented on the clarity and balance I brought to the issue

In March 2017 I was in mid Canterbury visiting farmer clients and the ‘plight’ of the Selwyn River was discussed – it was ‘dry’. I was reassured that this happens from time to time depending on the amount of the rainfall in the foothills. It was explained to me that it is an ephemeral stream (see <https://www.ecan.govt.nz/get-involved/news-and-events/2017/selwyn-river-flow-explained/>). I was subsequently amazed to see an item on TV showing Dr Joy in the Selwyn River essentially conveying the story that intensive dairy and irrigation was the cause.

I recorded my thoughts in a column dated April 2017:

It might have made “good” TV but it was, from my perspective at least, bad science. I’m referring to those pictures of Dr Mike Joy, a fresh water ecologist from Massey University, standing in the dry bed of Selwyn River lamenting about the poor state of New Zealand’s rivers.

These pictures and his words perpetuate what appears to be his considered opinion, that, when it comes to water quantity and quality, all roads lead to any combination of nitrogen, dairying and irrigation – intensification of dairying full stop.

From my reading and understanding of the science of water quality, noting that this is not my specialty, it seems to me that Dr Joy’s opinions on this subject are biased. I know some water quality experts who agree with this assessment.

The Royal Society of New Zealand, the body that sets the tone and standards for the conduct of science in New Zealand, has a Code of Professional Standards and Ethics.

Section 2.1 deals with “Integrity and Professionalism”. It states that a member must:

- a. endeavour to obtain and present facts and interpretations in an objective and open manner; and*
- b. strive to be fair and unbiased in all aspects of their research and in their application of their knowledge in science, technology, or the humanities;*

I am not for a moment suggesting that Dr Joy lacks integrity or professionalism. I am raising the more awkward and difficult question: Given his scientific credentials, do the views he has expressed over a number of years in respect to water quality meet the standard set out by the Royal Society of New Zealand?

As I understand these matters there are 4 contaminants; nitrogen (N), phosphorus (P), pathogens and sediments and that all catchments are different in terms of which of these

contaminants is the ‘rate limiting step’ in terms of water quality. Dr Joys speaks only of one, nitrogen.

As I understand these matters there are sources of these contaminants, other than dairying: natural background sources, urban wastewater, cropping and dry stock operations.

As I understand these matters the likely reason for the low water flow in the Selwyn River at present has nothing to do with irrigation. It is due to the drought conditions over the last 3 years in the headwaters of this type of ephemeral stream.

Thus from this perspective Dr Joy’s approach to the science of water quality appears biased: one pollutant, one source and one solution.

There are several relevant points about this column that need emphasis. First, the pre-press version was sent to the newspaper’s (Fairfax) lawyers. They suggested minor changes, which were made. Also my working title for the column was ‘Balance is Important.’ The sub-editor inserted the published title: ‘Is Mike Joy a biased scientist?’ Another feature of the column was that I made it clear that this was not my primary area of expertise (as required under the Code 2.1 (11)), and that my comments were from my reading and understanding of the science.

Jamie McKay did a follow-up to his earlier ‘Great Water Quality Debate’ and interviewed Dr Rowarth and myself. During this interview he asked – is Dr Joy biased? I agreed with this assessment.

On the 6 May 2017 the President of NZAS, Dr Craig Stevens sent an email to all members. It began:

We have been made aware by several members of concern and discussion in the scientific community regarding a recent interview on The Country, in which Doug Edmeades (soil scientist), and Jacqueline Rowarth (agricultural economist, EPA Chief Scientist) expressed their views about Mike Joy (freshwater ecologist) and his statements concerning water quality [1]. This was a follow up to a column by Edmeades, entitled “Is Mike Joy a biased scientist? [2]. The NZAS Council has considered this matter at length and would like to comment as follows: The key comment from my perspective was:

Calling into question the integrity and professionalism of scientific colleagues, however, is not normal. Ideally, science is a contest of ideas, not reputations, even if it doesn’t always live up to this ideal. A public accusation (or accusation by implication) of a lack of professionalism or integrity, of one scientist by another, is unusual and can be serious. Many of the world’s scientific bodies have codes of professional conduct that allow for formal means of complaint to deal with such matters.

I was not initially concerned about this development – I thought it was an email to members reminding them of their obligations to the Royal Society’s Code of Professional Standards and Ethics. I was sure that I was operating well within these requirements and in any case the email did not make any specific allegations of misconduct.

My mood changed when I received a call from a Radio NZ reporter asking for my response to what I assumed to be the

email. I did not enquire as to how they had received the email from NZAS. I realised that this, otherwise benign email, had been sent to at least one media outlet.* I told the reporter that I could not comment because I did not know what the issues were – there were no specifics. I then rang Dr Craig Stevens to ask him what was going on. I was none the wiser. I put my thoughts into an email to him dated 9 May 2017. Over night I had listened to an interview between Radio NZ and Dr Joy.

I have just listened to the RadioNZ item re Dr Mike Joy. It seems to me that, despite my comments to you and to RadioNZ last evening, my worst fears have been realised.

The concern I expressed last evening was that your email to all NZAS Members did not make it clear what the issues were 'on the table'. It contained no specifics - indeed it required no response from either myself or Dr Rowarth.

It is now clear to me, that you and I assume your executive, (by way of your email to all members and your statements on RadioNZ) are suggesting that Dr Rowarth and myself acted contrary to the spirit of the Code of Professional Standards by dealing in 'personalities not facts' or expressed differently, 'playing the man not the ball'. Without putting this specific issue to either Dr Rowarth or myself you have conducted your own kangaroo court and found us guilty. This is of course contrary to the principles of natural justice.

I believe I have the right of reply:

Your email of 6 May states: "Calling into question the integrity and professionalism of a scientific colleague, however is not normal." Normal or otherwise, I specifically did no such thing. Quoting from my column I said: "I am not for the moment suggesting that Dr Joy lacks integrity of professionalism". I then ask the question: "... do his (Dr Joy's) views which he has expressed for a number of years in respect to water quality meet the standard set out by the Royal Society? My answer, based on the evidence I discussed was no. If further evidence is required I suggest that you compare and contrast the approach adopted by Sir Peter Gluckman in his recent report on water quality see www.pmsca.org.nz/wp-content/uploads/PMSCA-Freshwater-report.pdf with that adopted by Dr Joy.

Thus I was dealing with section 2.1 b of the Code: "strive to be fair and unbiased in all aspects of their research AND in their application of their knowledge etc. "

Dr Joy now suggests that he does discuss the other contaminants (i.e. other than nitrate) in his lectures. This is of course irrelevant because I was commented on his public statements. How could I or the public possibly know what he says in his lectures!

Dr Joy now suggests that I am biased. His evidence is that I work in the agricultural sector. This is true but it is not evidence of bias per se. By the way I am more than happy to have my motivation and potential biases discussed – science and scientists must be open to scrutiny.

It seems to me that the NZAS has got the wrong end of the stick on this issue.

*Water quality is a matter of great public concern at present and rightly so. Farmers in particular are having to make major changes to their farming operation, sometimes at considerable cost. They need to be accurately informed and science and scientists have a major role to play in informing the public on the facts and issues. This should be done as the Code requires in a fair and unbiased manner. It is my view that Dr Joy is not assisting in this regard. And it is not just a matter of bias:**

Dr Joy was factually incorrect in asserting that the source of the problem with water quality in Havelock North was intensive farming (www.dia.govt.nz/Government-Enquiry-Into-Havelock-North-Drinking-Water)

Dr Joy was factually incorrect to assert that the Selwyn River was running dry because of irrigation and intensive dairying (various observers, pers comm).

The NZAS has an important role as a moderator in supporting the Code. I would have hoped that in this context it would have supported the efforts of those scientists who, despite the risks, attempt to honour that Code.

I look forward to your response.

Subsequently I rang Dr Stevens to ensure he had received my email and to ascertain whether there was to be any follow up. I was informed that he would be taking the matter to the NZAS Executive. I enquired whether my email to him of 9 May would be tabled. I was given no assurance either way but I assume that the invitation, giving rise to this article is a consequence.

Reflections

What can be learnt from this episode?

First and foremost when a body like the NZAS receives a complaint it needs to be made in writing and it must be specific. In turn the specific allegation (s) must be put to the person (s) concerned and they must be given time to respond. Once this response is received and considered the NZAS can then decide what action if any is necessary. This action must then be conveyed to the person (s) concerned noting that once again the person (s) must be given time to respond.

In this case *apparently* a complaint was made and the Association without referring it to the person (s) concerned, put out an email/press release *alleging* misconduct by two members, Drs Rowarth and Edmeades. This is not natural justice and could expose the NZAS to legal difficulties and or public embarrassment and ridicule.

Dr D C Edmeades

26 June 2017

*See Editor's footnote on page 46

*Note that by the time of writing this column the official report on the Havelock North water issue was public (May 2017) and the cause was not dairy farming as asserted by Dr Joy. Similarly significant rainfall had occurred in the headwaters of the Selwyn River catchment and the river was now flowing "normally".