

ENVIRONMENT, NATURAL RESOURCES AND REGIONAL DEVELOPMENT COMMITTEE

Inquiry into the management, governance and use of environmental water

Melbourne — 5 December 2017

Members

Mr Josh Bull — Chair

Mr Simon Ramsay — Deputy Chair

Ms Bronwyn Halfpenny

Mr Luke O’Sullivan

Mr Tim Richardson

Mr Richard Riordan

Mr Daniel Young

Witnesses

Dr Nicholas Aberle, campaigns manager, and

Ms Juliet Le Feuvre, Healthy Rivers campaign manager, Environment Victoria.

The DEPUTY CHAIR — I would like to welcome our witnesses to the Environment, Natural Resources and Regional Development Committee’s public hearing in relation to the inquiry into the management, governance and use of environmental water and extend a warm invitation to the public and media if they are present. The committee is hearing evidence today in relation to the inquiry into the management, governance and use of environmental water. The evidence is being recorded. The hearings are also being filmed and broadcast live by the Parliament’s website. All evidence taken today is protected by parliamentary privilege. Therefore you are protected for what you say here today, but if you go outside and repeat the same things, those comments may not be protected by that privilege.

I welcome Juliet Le Feuvre, Healthy Rivers campaign manager, executive director, Environment Victoria, and Dr Nicholas Aberle, campaigns manager for Environment Victoria. Today’s evidence is being recorded. You will be provided with proof versions of the transcript at the earliest opportunity. Transcripts will ultimately be made public and posted on the website. I invite you to proceed with a 5-minute opening statement, which will be followed by members’ questions. Please state your name and role for the record and then proceed with your opening statement.

Ms Le FEUVRE — I am Juliet Le Feuvre, Healthy Rivers campaign manager from Environment Victoria, and Nicholas is going to make the opening statement.

Dr ABERLE — Nicholas Aberle, Environment Victoria campaigns manager. First of all I wish to acknowledge the Wurundjeri people of the Kulin nation, the traditional owners of the land where we meet and their elders past and present. We also wish to acknowledge their careful stewardship of both land and water over many thousands of years and acknowledge the critical role that environmental water plays in maintaining culture and caring for country.

Environmental water is incredibly important and valuable stuff. It is the difference between a river or wetland with a healthy flow regime that varies with the seasons and from year to year supports life-giving ecological processes and one that does not — one that functions essentially as a water delivery channel or a drain. What is the difference? The difference is that those life-giving processes — things like water purification, salinity control and nutrient and carbon cycling — underpin all our agricultural processes as well as maintaining some of our most beautiful and valued landscapes and our unique biodiversity. Failing to protect these processes ultimately leads to diminishment at every level: economic, social and cultural as well as environmental.

Environmental water in Victoria is defined by the environmental water reserve which was set up in legislation in 2005. It comprises water that is set aside ‘to preserve the environmental condition and health of waterways’, either as entitlements or through statutory plans, caps on extraction or conditions on other people’s entitlements. It is important to remember that the only really secure part of the environmental water is the entitlements and that this is the smallest component of the reserve. The above-cap water — that is, water that is left in the river once other entitlements have been met — has already declined significantly as river flows in Victoria have decreased on average by around 50 per cent in the last 20 years. Some of the rivers where the decline is most severe — for example, the Hopkins and Avoca rivers — do not have environmental entitlements, and in other rivers, like the Moorabool or the Maribyrnong, the entitlement volumes are very small compared to the ecological needs of the rivers. These catchments are also heavily impacted by farm dams and other unregulated water uses such as plantations, which capture an increasing proportion of inflows before they ever get into the river system or public dams. The situation can only get worse as future climate change is predicted to further reduce inflows and as our growing population increases demand for water.

All of this makes good management of precious environmental entitlements critically important, as these entitlements may be the only thing standing between our rivers and ecological collapse. Environmental water managers need, first of all, an adequate volume of water to meet the river’s needs; and secondly, they need the ability to manage that water efficiently and effectively. This means giving them the tools they need to get maximum benefit out of their entitlements: adequate carryover; the ability to call out water when it is most needed, which may be early in the season; protection of environmental flows as they travel through the river system; and, most importantly, the ability to deliver it to where it provides the greatest benefits and to substitute for missing elements of the flow regime. In-channel flows and freshes can and have been used very successfully to trigger native fish spawning, but these low flows cannot provide the food that young fish need to grow and mature. Flood plains are the pantries of the river system, and watering them is essential to import the organic

matter that is the base of the aquatic food chain. This same watering reduces the risk of blackwater events, which are a subject of this inquiry.

The river and its flood plain are not separate ecosystems. They are part and parcel of the same system, and a river cannot function properly if it is cut off from its flood plain. We need to reduce the obstacles to targeted flood plain watering, such as removing redundant levee banks and adjusting low-lying infrastructure such as roads and bridges. Doing this work also prepares communities to reduce the impacts of natural flood events.

Environment Victoria has worked long and hard over many years to demonstrate the need for environmental water, to encourage governments to invest in returning water to rivers and to promote the need for strong and independent management. Giving rivers a fair share of their own water is fundamental to maintaining their health and ultimately the health of all communities and enterprises that take water from those rivers. Giving environmental managers the right tools and the ability to use the environment's share to provide maximum benefits and maintain the ecological functioning of our river systems is therefore essential to the long-term future and prosperity of Victoria. I am looking forward to your questions, but realistically I anticipate my learned colleague Juliet Le Feuvre will be handling most of those.

The DEPUTY CHAIR — Thank you. I might start with just one question. It is in relation to the previous evidence we heard from the member for Shepparton, Suzanna Sheed. She talked about greater flexibility within the rules of the environmental water holder for Victoria to enable a more equitable use of water for water users generally. There are competing interests, obviously, for a finite amount of water in the basin particularly. The question I want to ask you is in relation to various submissions we have had to this particular inquiry about the need for greater flexibility and adaptability in the management of environmental water. I would like to hear from you about if you agree there is a lack of flexibility in relation to the rules around the use of environmental water. Can you outline what current restrictions impede the use and greater efficiency of environmental water and what changes you might like to see to the rules?

Ms Le FEUVRE — I think, as Suzanna and Rob just said, the rules for managing rivers are written for irrigation purposes, not for environmental purposes. That is the first thing they developed over the last century or so, particularly in the Murray-Darling Basin. There have been rules since 1915, and they are basically to promote irrigation; the environment has been very much the secondary consideration in setting those rules. So yes, I totally agree. There is a lot of scope to manage the river system better. There is a lot of scope to allow more environmental water delivery when it is not in competition with irrigation delivery. Irrigation delivery takes place primarily over summer. A lot of the environmental demand is in spring or in autumn, so there are ways to optimise the system to allow delivery at that time.

I think as to some of the comments about the carryover increasing the capacity or the ability of the dams to spill, I am not sure that that should be so. Obviously if the dam spills, you could say the environment is of benefit. But the downside is that the environmental water holder loses his entitlements — they erode going over the top of the dam — so that restricts the flexibility of the environmental water holder to do all the other things that they are hoping to do, like extend flood events to allow bird breeding to be completed.

The other thing that is really important to remember in all of this is that environmental water is not just helping fish to breed and birds to breed; it is also exporting salt from the system. One of the targets in the basin plan is to export 2 million tonnes of salt from the basin per year, which is critically important to supporting all our agricultural industries. So far to date the basin plan has managed to do half of the water recovery. So far it can export 1 million tonnes, not 2 million, so we are halfway there. So improving the rules around managing environmental water might be able to assist in that space, but there are certain things which only water can do. No amount of fiddling with the rules, no amount of building infrastructure to deliver it to specific spots — that will not solve all the problems. For those we actually do need a significant volume of water.

Mr RICHARDSON — Thank you for coming in, Juliet and Nick. Looking at some of these flow numbers and projections into the future and the impacts of climate change, how do we better balance the needs of irrigators and the environmental water outcomes? Obviously they are interrelated, but this is obviously in the longer term projections of critical importance, and it will be deteriorating substantially over time. What needs to change in how we address these issues and these tensions with that ever present challenge of climate change?

Ms Le FEUVRE — The problem for both rivers and for communities is everybody is getting less water, as you said, so we all need to make changes to adapt to that. I mean, river hydrology already has altered quite

significantly over the last 20 years, and those changes are going to continue into the future. No amount of emissions reduction is going to stop that in the short term. So the characteristics of rivers are going to change whether we like it or not, which means that the characteristics of water users also have to change, and this is where there is often a mismatch, where we do not particularly like having to change the way we do things, but the change has to occur across the board.

One of the key pieces of the basin plan, which we have just been discussing — the earlier witnesses were discussing — is the lack of support for communities to change. There has been a lot of money, as Suzanna said, put into recovering the water, but very little into actually having a transition plan for agriculture. How do we do stuff differently, what are the things that we are going to be able to do in a drier climate and how can communities adapt and diversify in the face of that?

With respect to Shepparton, yes, there has been a decline in the agricultural industry, but there has been considerable job growth in other sectors — in education, health care, support services, construction services. Employment in all those sectors has increased. So it is a matter of doing things differently for everybody, not just for the rivers but also for the communities that depend on the rivers. We cannot afford to stay the same.

Mr RICHARDSON — Suzanna made the point that her community and others would be crushed if they were to have more water taken out and the economic impacts would be dire for her community. How do the states and the federal government balance those challenges where we could see one outcome if it is an issue of food security and a second thing if it is about employment outcomes? How do we better support those communities while also trying to deal with some of those environmental challenges and having the flows more frequent? Is it a transparency issue? That was talked about by the department earlier on. How do we protect those communities that underpin Victoria's food security as well?

Ms Le FEUVRE — It is a really difficult thing to do. I do not think anybody is saying it is going to be easy, but I think the communities need to be able to make choices about their future. The impacts of the basin plan have been most acutely felt in the communities which are most dependent on irrigation and which have the least diversity in their economy. The communities with more diversity have been better able to cope. That is the key: giving people options to do different things. Obviously a lot of people like to do things the way they always have, but we cannot continue to do that into the future. We need a transition plan. That is what it is all about. It is about actually talking to the communities — to Suzanna's community — saying, 'Well, we have to change, but what do you need to help us change?'. Do you want to talk just a little bit about transition —

Mr RICHARDSON — Can I just go to that point as well? Are you saying that without change those industries will not exist? Is that what you are contending?

Ms Le FEUVRE — Some of them may not exist.

Mr RICHARDSON — So if there is a decline, where is the decline that is taken up by the environment or the environmental water outcomes? It cannot be all one way if those communities just transition. We lose townships, we lose economic output and job security would be threatened. Where then is the balance between environmental water outcomes as well as economic ones? How does that balance?

Dr ABERLE — I think this is a really challenging discussion. I think Juliet's point is that change is coming and change is inevitable, because we have 1.5 to 2 degrees of global warming locked in. That, as you can see in these diagrams, is going to have massive impacts on just the amount of water that is available in Victoria. We are not saying that all of that water that is lost to climate change should come at the expense of consumptive uses and that it should all be saved for the environment, but there is a climate adaptation challenge here. As Juliet said, there is a transition that needs to happen because you cannot take all the water away from consumptive uses and you cannot take all the water away from environmental uses. I think one of the key things is — you mentioned transparency — about having those transparent and early conversations with those communities who are going to be affected by climate change. This is a climate adaptation issue. We need to have early conversations with those communities about what the future looks like. Let us not pull our punches. It is going to be difficult. We are going to have less water. How are we as a community going to continue to exist when there is much less water.

We know that we cannot just suck it all out of the rivers for irrigation, because that will kill the rivers, and if you kill the rivers, you do not have productive agriculture. So it is about having the preparedness to have those very

difficult conversations and start talking about what the trade-offs need to be. That is not for us or you or anyone to make that call. That is for communities to get together and for community leaders to make sure that those conversations are happening.

Mr YOUNG — I might just pick up on that. It kind of is for us to make a call, because we are making recommendations on this and you are a stakeholder involved in the conversation. This is one of those early conversations about it. So in your opinion, where are the trade-offs? Where do we see those coming from?

Dr ABERLE — When I said it was not for us to make the call, I think that decisions about how communities transition need to be led by those communities, not by stakeholders like us and not by governments. Obviously stakeholders and governments have a huge role in that, but ultimately it is for the community to think about where they want to go.

In terms of trade-offs and where are they coming from, agriculture may need to change to some extent. We may start growing different crops that use less water, or they might actually be the same crops but different varieties. We are already seeing a shift towards almonds around Mildura, which are using less water but providing more economic benefit than previously. There are things like that that we can look at, and there is a lot of research that is going into this space. I am not necessarily an expert on how agriculture can change, but I will just reiterate the point that it is something that is going to have to change in some shape or form. There are smart people out there who are figuring out how to best do that.

Going back to my previous point, I think it is about having those conversations early, not waiting until 2030 or 2035 when things really start getting ugly. I think that is a great thing about this committee. As you said, this committee does have a role in that, and I think a really good thing to come out of this committee would be a clear direction. The adaptation planning for the agricultural sector is going to be critically important. I think that has been recognised through the climate change act and the climate framework that the government has established. The later we leave those conversations, the worse it is for communities.

Mr YOUNG — So far you have only indicated that the agriculture sector needs to change, and that is all about efficiency, improving and making sure we use our water better or grow different crops. Where does the environmental water sector have to change to make that more efficient, and are there examples that you are aware of of things we can do better in that space?

Dr ABERLE — I will throw to Juliet, but I will first say that I did say at the start that this is not about taking all the water away from agriculture and keeping it all for the environment. I just want to make that clear.

Ms Le FEUVRE — I think the figures show that because a lot of the water is not actually [inaudible] water is taking a pretty heavy hit from climate change already. These figures clearly bear that out. Stream flows have dropped dramatically already, and that is one of the truly scary things when we think about climate change and future problems. This kind of evidence is actually showing that it is here right now; it is not somewhere off 20 years away. We are already in that situation. If you look at the way climate change impacts on water shares, who gets what, everybody takes a hit. Of course they do. But the environment's share is squeezed more than consumptive users, because all consumptive users are protected by entitlements whereas the environment's share is not, so it is already taking quite a heavy hit as a result of reduced water availability.

That is one thing. The other thing more specifically to your question about how can environmental water holders do things better, they are very good at responding in really severe drought conditions. The target of watering in those conditions is absolutely essential to keep key species alive. An example is the Murray hardyhead. It would have gone extinct in Victoria during the millennium drought if there had not been environmental water put into specific wetlands for the express purpose of keeping that fish alive. That is one way in which they can really do it and they can really tightly manage it.

It is more the in-between stuff which is harder to conceptualise in terms of how the environmental managers could do that more efficiently. We are at pains to point out that environmental watering of specific wetlands is a great thing for those wetlands, but it does not necessarily help the system to work as a whole. What we have done through our water capture for agriculture is take out the medium-sized events — some of the freshes, some of the small flows, some of the backfill events — and we are not going to ever be able to replace the big stuff. That is in the hands of Mother Nature. A big flood only happens when it happens, but some of those small elements, the medium-sized events, are the ones which environmental watering is focused on to try to restore

some of that — as we say, to get the food back off the flood plain and into the river to mitigate the risk of blackwater and those kinds of things. The environmental water holders need to have the ability, if they are going to manage their water efficiently and effectively, to access the parts of the flood plain which are most important. It is like saying to a farmer, ‘Okay, you’ve irrigated this paddock; you can’t irrigate that one’, and saying that is because of external events. You need the environmental water holder to be able to make those kinds of decisions for themselves as to how they are going to get maximum benefit out of their water.

Mr YOUNG — If I may just indulge myself for 10 seconds, your submission says on the first page that three-quarters of wetlands on private land have disappeared altogether since European settlement. I just want to say thanks to the duck shooters of the 1950s who decided to voluntarily start paying for a licence and to Sir Henry Bolte for using those funds to purchase the first state game reserves, which are some of the best wetlands we have in the world today.

Ms Le FEUVRE — I acknowledge the great work that is from all those state game reserves.

The DEPUTY CHAIR — It is on the record, Mr Young.

Mr RIORDAN — I think we have had a few discussions today. We all acknowledge the important role that science and facts is having in making some of these decisions. I wish to challenge you on the handout today, because the map of Victoria, for example, covers my patch. The reality for me is in dealing with these and bringing stakeholders along, people have to have confidence in what is being projected. I wish to ask a couple of questions. The first one is on the first graph you have, which is the average changes in streamflow from 1997 to 2014, and yet it says the source is from 2007, so my question —

Ms Le FEUVRE — I am sorry. That is a typo. It should say 2017. My apologies for that. It came out in July this year. I do apologise.

Mr RIORDAN — That clarifies that one. It is a mistake.

The second one — and I was on a catchment management board for quite some time and this was a constant question I had and it goes to the heart of this graphic — is that in my patch the reduction in streamflows in the bright red is around 50 per cent by 2065. My logic says that whatever the base point we are starting from to 2065, this modelling is saying that by 2065 there is going to be this sort of average streamflow versus what we have had in the past. Therefore you can essentially draw a linear line to see whether those predictions and so on are tracking.

For example, much of what we are talking about has a big economic impact on our rural communities. We hear it far more acutely in the Murray Goulburn catchment area and less so in this patch, but using the same logic this data would be telling my community, for example, that there will be 50 per cent less in the streams up to 2065. I would contend that the last three years have never had more water in my lifetime in the sense of farmers who have chosen to keep raised bed irrigation are thanking their lucky stars because they would have had no crops without them. The water storages in the Otways have been consistently at almost 100 per cent for the last three years.

The anecdotal experience is not living up to these predictions, and as we have discussed we need to continue to review, we need to continue to monitor this data, because this is supposed to drive and deliver good outcomes and sensible decision-making. It is very easy to produce this map, but when the map does not match community expectations and experience, we have a problem — and that is the problem of bringing our communities along with the necessary change. I seek your comment, because I never see the linear line that we can monitor and track. As we saw with the Bureau of Meteorology this week, they had three days worth of weather information to get right and they got it terribly wrong for most of the state. That of course leads to people mistrusting the information they are being told. It proves it is very inexact.

Ms Le FEUVRE — As a property owner in Wye River, I have experienced both ends of the spectrum on a really personal basis, with bushfires due to really dry conditions followed seven months later by intense flooding. This is not a straight line graph. The problem for climate change is that the climate is becoming less predictable, and the key impact for water resources — although the Otways are possibly an exception to this rule — is that in general over the last 30 to 40 years there has been a decline in late winter, early spring rainfall. The cool season rain is the one which has declined. Summer rainfall has actually increased, but that does not

provide the slow run-off into river systems and dams that winter rain does. It flows straight through as a flash flood, so it does not get absorbed into land. A lot of it evaporates, and it does not replenish the river systems or the reservoirs in the same way that winter rain does. These are not my figures. These are by the best available science that has been brought to bear on this. One thing I think we can all speak to from experience is that the climate is becoming more extreme, so we get both the major events and the long droughts as well.

Mr RIORDAN — I would contend that sometimes we say it is more extreme. If you were watching the news this week, you would have thought it was an unprecedented week of weather.

Ms Le FEUVRE — Yes, it did not actually happen.

Mr RIORDAN — It was so far from unprecedented that it was not funny.

Ms Le FEUVRE — That is right.

Mr RIORDAN — But what I am saying is that this leads to people's confidence. People putting this out have to be prepared to be judged by that information. What I am saying is that this type of data will quite logically lead to people making certain decisions about investment in this area, development in this area, based on that, and we need to have confidence that it is measuring up, because we might have the modelling wrong.

Ms Le FEUVRE — We might indeed have the modelling wrong.

Mr RIORDAN — The last one I will bring you in on is the aerial survey. I am old enough to remember 1983; 1984 was the big drought break; 1993, roughly, there, were the big floods in 1993; and of course 2011. Surprise, surprise — migratory birds along the Murray are prolific when we have floods. It clearly throws the mean out enormously, and as I understand it, there is no comprehensive Australia-wide migratory bird monitoring, and the people that we have had — I think we have had evidence here, but if not, they have spoken afterwards — have said that birds move to where the water is. So we have seen Lake Eyre fill multiple times.

Ms Le FEUVRE — This is the most comprehensive bird monitoring we have. This is a regular aerial —

Mr RIORDAN — But that does not tell me anything that I would not have guessed.

Ms Le FEUVRE — You will hear from Wentworth Group later. You have also heard from previous speakers that the Wentworth Group have said there is no improvement in environmental conditions using the basin plan. That is not actually what they have said at all. They have said that there are local improvements which are really encouraging. They have said that at a basin scale we are not yet seeing a significant improvement, partly because there are long lag times before environmental change actually happens. It takes a few years. It takes repeated waterings. It takes a lot of effort to actually get environmental change to occur. So you cannot just flick a switch and say, 'Bang! Up go your waterbird numbers'.

What this graph shows is, exactly as you say, waterbirds respond really well to flooding. It obviously drives numbers. This survey is from northern Queensland right the way down to Tasmania, so it is pretty comprehensive. It is the best one we have. They fly the same transects every year regularly — the same time of year. So if you want to look at environmental data, you cannot get much better than this. It is really strong data, but what it shows is although you do not get the sustained bounce back — you are not getting a sustained increase overall in the population. Overall the population is still bubbling along at really low levels, so it is like bouncing a tennis ball —

Mr RIORDAN — But this is the driest continent on earth that has, as we can see, every 10 years a flood.

Ms Le FEUVRE — But I mean it used to be — if you compare 1983, we go up to 116 million. Is that right?

Mr RIORDAN — It is a big number. Whatever the big number is.

Ms Le FEUVRE — It is 1.6 million, and the last bounce was only a little over half that. Now we are right back down at low levels again. So we are not seeing a sustained improvement over the years. That is the point of the graph — and you would hope that we might.

Dr ABERLE — Could I just add a couple of extra thoughts?

The DEPUTY CHAIR — We are out of time, I am sorry. We have still got two committee members and I am trying to get them to resist the temptation to have a debate and a philosophical argument about climate change, which you have encouraged I might add, Ms Le Feuvre. So I am going to ask Ms Halfpenny if she would ask a question, and then I am going to ask Mr O’Sullivan if he would ask a question, and then we will have to close, I am sorry, because we have a number of witnesses.

Ms HALFPENNY — I believe in climate change.

The DEPUTY CHAIR — That does not mean you have the opportunity to debate that.

Dr ABERLE — I am not sure it is something that we should have to believe in. I think it is a matter of scientific fact.

Ms HALFPENNY — In the evidence just prior to you coming in, one of the suggestions or recommendations was that there ought to be real-time monitoring of waterways — so I suppose just in terms of this as compared to real-time monitoring, one, and then, two, whether you support that idea.

Ms Le FEUVRE — I think this is based on streamflow gauges across the state. There is a state monthly report.

Ms HALFPENNY — Does it tell you the same information, then?

Ms Le FEUVRE — Yes, the same gauges are measured once a month.

Ms HALFPENNY — What would you find out by real-time monitoring compared to what is already done?

Ms Le FEUVRE — The real-time monitoring would give you a much better indication of the sort of local issues you were discussing with the water holder. So if there is then a flood pulse coming down, you can stop releasing the environmental water. It gives you much better information about instantaneous flood heights and what is coming through the system at any given time. That allows much better flexibility and control over when you release the environmental water, and yes, it would be a great thing to do.

Ms HALFPENNY — I guess that is a bit of a management tool. Do you see any other ways that the environmental water managers could manage the way water is provided? Do you have any faith in technology or new infrastructure that would allow for better use of the irrigated water for agriculture as well?

Ms Le FEUVRE — As I say, the technology is great in a drought, when you can then focus watering on a particular drought refuge. It is a wonderful thing to do, but as with most technologies there are limitations on what it can achieve, and it cannot achieve that connection between the river channel and the flood plain. So that is one thing to bear in mind. The other thing is that water which goes out of the flood plain usually returns to the river system, so it can be used again either for other environmental purposes or for consumptive use downstream. The third thing is, which is really important and has been one of the big issues in New South Wales or the whole *Four Corners* stuff, that the environmental water in New South Wales is not adequately protected, so that if it is released upstream it can then be extracted — quite legally, as well as the illegal stuff — by irrigators downstream. They are entitled to do that. Fortunately in Victoria we have much better protection for our environmental water, but that is an absolutely key issue when you look at the basin as a whole — that environmental water is actually what is called green to the sea and can go right the way through the system and deliver the benefits all the way along it. That is a really important characteristic for it to have.

Mr O’SULLIVAN — Thank you very much for coming in. I would have liked to ask a couple more questions, but there is one in particular that I would like to ask about the Murray-Darling Basin plan, which we have already discussed. Under the current regulations — well, law — Victoria’s contribution is 2750 gigalitres, including the 650 of environmental works. In a realistic world or in an Environment Victoria world, what do you think that number could really be?

Ms Le FEUVRE — The actual water recovery target?

Mr O’SULLIVAN — Yes.

Ms Le FEUVRE — For us the basin plan actually has a 3200 gigalitre water recovery target. It includes the 2750, plus the 450 gigalitres of water, and that is what is actually required in terms of keeping the river system

functioning as a whole. It is the minimum for that rather than a maximum. You will recall in the work that was done in the early development of the plan the best available science recommended a figure much in excess of that. So the 3200 was a compromise between the partners and the federal government, and it is the minimum that is actually required to keep the river functioning as an ecosystem.

Mr O'SULLIVAN — But what do you think it should be? That did not answer my question.

Ms Le FEUVRE — Sorry. So your question is?

Mr O'SULLIVAN — What would Environment Victoria like to see that number actually be — the 3200?

Ms Le FEUVRE — Yes, that would be an excellent outcome.

The DEPUTY CHAIR — If you have another one, go for it.

Mr O'SULLIVAN — The other one is probably a little bit more extensive, but I am interested in your talk about a transition plan for agriculture. I understand your theory, although I agree with what Mr Riordan said in terms of it not being quite as practical as just applying the science directly, but what would it mean for an industry such as the dairy industry in northern Victoria if we were to go down the path that you are advocating, which is that you move away from intense irrigation types of agriculture to higher value, more water-efficient types of agriculture? So essentially that would mean the end of the dairy industry in Victoria?

Ms Le FEUVRE — Possibly. It could be a possible outcome, but the dairy industry has undergone really significant change already. There has been enormous change in the dairy industry over the last 20 years. Farmers have made huge strides towards adapting to producing product while using less water. They have already done a lot of work, so it is a question of how much further can you go. It is supporting that change. The dairy industry looks quite different now from how it did 20 years ago. In 20 years time it may look quite different again, and it is not for me to predict how it is going to end up. But it will probably be different from what we are doing now. There will be different milking systems, there will be different crop systems, there will be different food production systems, and there may be a completely different relationship to irrigated agriculture than it has at the moment. You have to be open-minded about where all this is going to end up.

Mr O'SULLIVAN — I am very interested in your argument in that space.

Dr ABERLE — And I think we will see — sorry, just quickly — different types of changes being considered, and it is not a straight line between now and 2065 in terms of run-off declining. That is not how the climate system works, but we are doing Victorians a disservice if we base our long-term decisions on looking out the window at how wet it is now rather than relying on the best available science. We know what the best available science is telling us. We might have wet periods; we will have dry periods. But to pretend that we are not going to have a much drier future is not helping anyone. It goes back to the point I was making earlier — that if we —

Mr RIORDAN — It is not pretending it is not happening; it is just being able to measure it.

Dr ABERLE — Right, but I think we as a society have a tendency to not prepare for the future terribly well — I think we react quite well — and I think if we delay difficult conversations until 2030 or 2040, we are going to leave communities and the dairy industry in much worse shape than if we were to say now, 'It's going to be a lot drier in the future. What can we start doing?'. Some dairy farmers might decide to move out of dairy. Some dairy farmers might think, 'Oh, okay. I'll just amend my practices and I think I'll survive'. Those are difficult decisions, no question, but we cannot ignore that climate change is having a massive impact and we cannot wait — or if we do wait, we are doing all Victorians a disservice.

The DEPUTY CHAIR — Thank you, Dr Aberle. We do not, unfortunately, have time to discuss the consequences of climate change now, but I appreciate both of you. Thank you, Ms Le Feuvre, very much for your time, your submission and your verbal submission to us this morning. Thank you both.

Ms Le FEUVRE — Thank you for the opportunity.

Witnesses withdrew.