

ENVIRONMENT, NATURAL RESOURCES AND REGIONAL DEVELOPMENT COMMITTEE

Inquiry into the management, governance and use of environmental water

Shepparton — 24 October 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

Mr Chris Norman, Chief Executive Officer,

Mr Mark Turner, River and Wetland Health Program Manager, and

Mr Simon Casanelia, Environmental Water and Wetlands Manager, Goulburn Broken Catchment Management Authority.

The ACTING CHAIR (Ms Halfpenny) — Welcome, and thank you, Mr Turner, Mr Norman and Mr Casanelia, for coming in today. Before we go into your introduction and presentation I will just go through a couple of the formalities. The committee is hearing evidence today in relation to the inquiry into the management, governance and use of environmental water, and the evidence is being recorded. Proofs of the transcript will be provided to you to check for accuracy before it is distributed in the public arena. Also all evidence today is protected by parliamentary privilege while the hearing is in progress, but any comments you make outside this hearing are not protected by parliamentary privilege. With that, if I can pass over to you, perhaps you could just introduce yourselves as well before going into the presentation.

Mr TURNER — I am Mark Turner, the river and wetland health program manager at the Goulburn Broken Catchment Management Authority.

Mr NORMAN — I am Chris Norman, chief executive officer, Goulburn Broken Catchment Management Authority.

Mr CASANELIA — I am Simon Casanelia, the environmental water and wetlands manager, GBCMA.

Mr NORMAN — I would like to make some opening comments if I may. Thank you, first, to the inquiry panel for the opportunity to present today. I would like to make some opening comments and then obviously respond to your questioning, utilising the technical experts I have with me, Mark and Simon.

The Goulburn Broken Catchment Management Authority has been actively involved in the management, governance and use of environmental water for over 15 years. In addition to this important role, I want to flag that the CMA is also responsible for delivering a range of functions under the state Catchment and Land Protection Act 1994 and the Water Act 1989, including supporting sustainable agriculture and soil management practices, facilitating river restoration works, advising on resilient approaches to flood plain management and driving community engagement, including supporting native vegetation and biodiversity activities undertaken through a range of community NRM groups such as Landcare as well as our traditional owner groups. We have a strong focus on supporting regional farmers to achieve a balance between production and managing our natural resources sustainably for future generations.

In terms of our environmental water role, it is important to recognise that over the last eight years the volume of environmental water potentially available in the Goulburn Broken catchment has grown from around 3100 megalitres a year to now just under 700 000 megalitres a year. This water is utilised within the Goulburn River, the Broken Creek and a number of our key wetlands, including the Barmah forest.

The Goulburn Broken CMA is responsible for developing seasonal proposals for environmental water in our rivers and wetlands in the region. We are responsible for ordering the environmental water from storage managers — and I understand you met with Goulburn-Murray Water before us — conducting technical studies to inform the environmental water use decisions, and monitoring and communicating the outcomes of environmental water use.

In recent years a number of regulated and unregulated waterways across the Goulburn Broken catchment have experienced hypoxic blackwater events, meaning there is insufficient dissolved oxygen in the water, that threatens the survival of aquatic fauna or results in their death. These hypoxic blackwater events have not been caused by environmental water management, but rather have been caused by unseasonal rainfall and flooding events, washing large amounts of organic material from the flood plain and surrounding agricultural land into these waterways. This has been accentuated by river regulation, which has reduced the frequency — for example, in the Goulburn system up to a 70 per cent reduction — in overbank inundation compared to natural events prior to the construction of Lake Eildon, as well as a reduction in both the extent and duration of overbank flows, which is increasing carbon loads on our flood plains. The build-up of organic material on the flood plain and in ephemeral waterways — that is, waterways that only flow after rainfall — increase the risk of hypoxic blackwater events when high rainfall events actually do occur and result in those overbank flows.

Environmental water management can play an important role in mitigating the impacts of blackwater through providing dilution flows, as well as reducing the risk of blackwater events themselves if constraints to the delivery of overbank flows along our large waterways, such as the Goulburn and Murray rivers, are actually addressed. This would allow more frequent inundation of these flood plains, reducing the build-up of organic matter in much the same way as fuel reduction burning practices are used to reduce the risk of wildfires by

removing organic matter loads on the forest floor. With those opening comments I am happy for the panel to ask some questions.

Mr O'SULLIVAN — I can start off. Thank you, guys, for coming in today and presenting to the committee. We have heard from the North Central Catchment Management Authority. We went out to the Gunbower National Park and did an inspection with them to see how the environmental water was being used and managed throughout that forest, and some of the benefits we saw firsthand.

A lot of the information that we obtained during that visit was very valuable, particularly around the blackwater events, and they were pointing out to us that blackwater in small quantities going through the forest and then going back out into the river can actually be beneficial in terms of putting nutrients back into the river and the fish thrive on it and so forth, which is all very good. I am sure that is the intent when some of that management of that environmental water takes place through areas such as the Gunbower forest, and you will have your own areas with similar outcomes that you are trying to achieve.

But the question I want to know is it is all very well when it is managed in a way that is beneficial. When we get the large, significant blackwater events, which kill everything, what is the best way of trying to, one, prevent that from happening and, two, when you see it happening in front of your eyes, what is the best way to try and flush it or dilute it so it does not hit the point where it kills everything?

Mr NORMAN — I think the conversation point you start off on is a valuable one. A blackwater event where it is actually hypoxic and has low dissolved oxygen is where we have the problem. When we have blackwater caused by tannins and organic material in the system it is actually good. It is putting organic matter through it et cetera. The issues around how you manage those hypoxic blackwater events are the real challenge for us. I might call either Simon or Mark to talk about some of the mechanisms.

Mr CASANELIA — I think, as we touched on, the capacity to reduce the frequency or the likelihood of those events comes down to the capacity to be able to inundate those flood plains more frequently. As we state in our opening statement, due to river regulation the frequency and duration of those natural flooding events has reduced, which obviously leads to a build-up of organic material on the flood plain. If we could deliver environmental water more frequently to those floodplains, it could potentially reduce the impact or the frequency of those events occurring. As for some of the smaller events, such as we experience in the Goulburn, we can potentially provide dilution flows but only for small blackwater events; otherwise we do not have the channel capacity or the volumes of environmental water necessary to dilute those flows.

The other problem with trying to provide dilution flows is the timing of those particular responses. These blackwater events can result in very quick drops in dissolved oxygen in an amount of hours, and so for us to provide dilution flows we need to be able to deliver water quickly to that particular site. We often need to deliver nearly twice the volume of the blackwater flow itself, so we are constrained by channel capacity plus travel time. It may take, for instance, in the Goulburn River three to four days for us to deliver water from Eildon to, say, Shepparton or thereabouts to provide that dilution flow. We are constrained by delivery capacity and timing to actually effectively provide dilution flows. In many cases, what we can do is provide follow-up flows to reduce the duration of the blackwater event and potentially reduce the recovery time, or we can arrange to provide small amounts of flows to provide localised refuges for fish to reduce the overall impact.

Mr O'SULLIVAN — If the blackwater event is developing and you can see it coming, do you actually sit down and do a cost-benefit analysis in terms of whether it is worth using the water that we have got on hand to fix that particular issue, which would mean that we will not have that water for the management purposes that we want to use it for in terms of what we have got planned, versus the, 'Oh, well, there're going to be some fish that die'. How do you actually work through the scenarios for when you do and when you do not?

Mr CASANELIA — With the larger blackwater events we experienced, say, in 2010–11 or recently in the Murray system, we just do not have sufficient volumes of environmental water to dilute it, so we cannot resolve it with the delivery of environmental water. And we certainly cannot deliver water on top of those flood events because it would potentially exacerbate the problem causing third-party impacts. We have to wait for the water to travel and to, I guess, dissipate and for the water to return to normal regulated flow levels, which might be weeks down the track, before you can actually put environmental water down there. I guess that crosses that off as an option to actually mitigate the impacts. What we can do is, as I said, provide follow-up flows to try and return the system back to a more normal, healthy system more quickly with the delivery of environmental

water. I guess that is the purpose of environmental water: to maintain the resilience and health of our waterway systems so that, when they do receive shocks like this, we can see a faster recovery.

Mr TURNER — Just adding to Simon's statement there, in Victoria there is a policy that we will not inundate private land without prior consent. If the water is already out on flood plains, you cannot add water to that without prior consent, and it is very hard to arrange that in a water event such as we have had.

Mr NORMAN — I guess the other point that I would like to add is on the ability to predict where these blackwater events actually come from. The last one we had, in the New Year this year, came out of some ephemeral systems that had an amazing amount of rainfall in one spot. In a very quick period of time it just went and flushed the system, so it is very hard to predict that that sort of event is going to happen. I guess we will be working harder to try to work out some mechanisms by which we can understand where the blackwater risk exists within the catchment. That was quite a shock, that system that created the flows that it did in the rapid time that it did.

Mr O'SULLIVAN — Just another question on a different topic that was raised when we were up in Kerang. We had one of the people writing evidence to us suggest a scenario that might be beneficial for both the environment and for the irrigator. If you can have a scenario where it is a drier time, the environment could provide water and make water available for irrigators, and conversely during a wet time, where the irrigator does not need the amount of water that they have due to it being a wet year, they might be able to provide it to you guys or to the environmental water holder to add to your high flows anyway to provide that environmental benefit. Do you see that as something that could be beneficial for irrigators and environmental water holders and users?

Mr NORMAN — There are some real opportunities in the way we use water. Simon, perhaps you can explain the scenario planning we do around annual watering proposals.

Mr CASANELIA — Yes, certainly. Our seasonal watering proposals not only look at one particular climate scenario that might be faced during the year; we look at very wet through to very dry scenarios and how much water might be available to us to use. Then we prioritise that. So like irrigators and other farmers, we try and make decisions about where to best use the water resources we have in any given year. In relation to trying to decide whether we could use more water in wet years versus using less in dry years, that is factored into it. But I guess, like farmers, during wet years a lot of the flows that we wish to provide with environmental water are sometimes met. Again, during those dry times when rivers, regulated rivers in particular, are far more stressed because of the regulation, we need environmental water to maintain the health of them, so there are limited opportunities perhaps in providing the scenario that you are putting forward.

Mr O'SULLIVAN — Have we got the balance right at the moment?

Mr CASANELIA — I guess you would have to look at that on a system basis. I think within the Goulburn we are certainly maximising the use of our environmental water, and they are certainly looking at opportunities to improve where and how we use it in best meeting the needs of this particular region. We not only use it to meet the needs of our particular region; environmental water that goes down obviously meets a whole variety of other environmental targets further downstream, plus a whole lot of other added benefits for the community as well.

Mr NORMAN — I think we need to recognise that we are on an amazing learning curve here. Have we got the balance right? I do not think we have, but I do not think everyone agrees where the balance is anyway. We are learning at a rapid rate. This is pretty new technology for us, if you like. Farmers have been irrigating for 120 years; we have been irrigating for about eight to 10 seriously, so I am the first to recognise that we are continually learning in trying to get this right.

The ACTING CHAIR — Let me just follow on a little bit on that theme. We have had a lot of submissions from people saying there are lots of organisations and groups that are sort of part of the management of water, and because of that things can get a little disjointed. I guess, two things: one, what is your role in terms of bringing all of the interested parties and groups and organisations together? And just going on from what Luke was mentioning in that example, what opportunities do people have to raise issues and actually have them seriously considered rather than just sort of left in nowhere land?

Mr NORMAN — I appreciate, Acting Chair, that from a community perspective this looks confusing. The process is actually very clear internally. So we are the body responsible for the management, coordination, monitoring and communication around environmental water; Goulburn-Murray Water are responsible for actually delivering the water; and the Victorian Environmental Water Holder and Commonwealth Environmental Water Holder are for holding it —

The ACTING CHAIR — I do not mean just the environment but overall in terms of water usage by who, where, what — I suppose, the whole thing.

Mr NORMAN — All I can talk about is, I guess, the areas that we are responsible for, and we are continually trying to communicate the process —

The ACTING CHAIR — Okay. But you do not bring in the other organisations and groups. Your job is to do that?

Mr NORMAN — Yes. We then have an advisory committee process and a communications process. I might let Simon talk about how we have an advisory group process for our river systems that uses a whole range of players and participants in that process to advise us about their views of how to use environmental water efficiently and effectively.

Mr CASANELIA — That is right. Within the Goulburn Broken CMA, as Chris mentioned, we have got a number of advisory groups. We have got three — one that looks at the Broken system, one that looks at the Goulburn and one that addresses wetlands — and they incorporate members from various agencies and various water holders, be it the commonwealth or the Victorian environmental water holder and depending on the system, the Murray-Darling Basin as well. Plus we incorporate members from user groups, community groups and local landholders, and they provide advice about our seasonal watering plan proposals and developments in a given year. We certainly take their information on board to inform, I guess, how we deliver and manage environmental water in a given year.

In addition to that, we have got a whole series of research and monitoring that goes on, funded through various state and commonwealth programs, and they certainly continually inform our delivery process, not only identifying whether we are meeting the ecological targets with our particular environmental deliveries but, secondly, why we are not. They are also providing information to improve the efficiency and the effectiveness of our various environmental deliveries. It is continually adaptive as this information comes through, and when we get better knowledge of how the ecology responds to environmental water we are continually adjusting there.

The ACTING CHAIR — I should acknowledge the state member for Shepparton, Ms Suzanna Sheed. I am sorry I did not do that a minute ago.

Just a quick one to follow on: Goulburn-Murray Water management were in before you, and they were talking about the need to have more consultation and that there is perhaps a bit of a problem in communication. They did not specifically say your organisation, but I think they seemed to say there was room for improvement. Do you think that is the answer, or is it that the interests are so diametrically opposed? Is there a way of educating or providing something to explain some of the things that are going on?

Mr NORMAN — It is an amazing amount of effort we put into this, and the Victorian Environmental Water Holder just undertook some major market research earlier in the year. Some of the language is difficult. So environmental water — this is quite subtle, but we are talking about water for the environment now instead of environmental water. It is a little subtle change, but for the majority of people — I am sure Suzanna would agree — walking down the main street of Shepparton and talking to them about environmental water, what does that actually mean?

We have put a lot of effort into communication. We use a whole range of tools to try to improve the communication about water for the environment. No doubt our biggest challenge is to continually sell the story. We are an organisation, as I tried to introduce early on, that is about regional development. We do a lot of investment on farms, but we have a continual challenge there from farmers that are losing water for their purposes and it is going down the river. How do we justify that? We are very conscious of that story, but a lot of the changes and programs we are talking about are long term.

We just presented to the community, Simon, three months ago on the major parts of our work around monitoring. It is a five-year program. We are two and a half years into it, and we have spent a lot of time with the community. Some participants in the room today participated in that forum. We recognise very clearly the role around educating people and making people aware of what is actually happening. It is a very emotive issue, so it is very easy to get caught up in the emotion from particular views. Our job is to try to tell an honest, scientific, rigorous story around how the water is being used and the impacts it is having.

Mr RIORDAN — Thank you, gentlemen. Just to clarify something you said at the very start: environmental water, water for the environment, has gone from 3100 megalitres to 700 000 megalitres per year. Did I get those numbers right?

Mr NORMAN — That is size of the volume that we have in our responsibility.

Mr RIORDAN — That sounds enormous.

Mr NORMAN — It is enormous.

Mr RIORDAN — I spent some time on a catchment management authority, and I know that you guys are at the bottom of the pecking order for funds when it comes to trying to get things done.

Mr NORMAN — We are hoping to change that.

Mr RIORDAN — We are making a huge economic structural change to many rural communities. You pointed out in that last discussion that you have got to justify it, you have got to bring the community along with you and there is no shortage of management authorities that end up in little blues from time to time with their communities. Because we are having such a significant shift in use of the water but still within a very managed — no matter what we do, it is not going back to pre-European involvement, so we are dealing with a whole new ecosystem to a certain extent.

Do you have the resources to properly manage, research and give the conclusive answers that the community will expect that what you are doing is the right thing and the amounts of water that you are taking are sufficient or not sufficient enough or whatever? I know, for example, there always seemed to be a tension about having enough funds for water quality management, river health — all those sorts of things that you guys do. In an environment up here where there is such a big shift of power with the water from traditional human involvement to the environment, do you have the resources to adequately measure and show the benefits, and as a result of that, can you then extrapolate out that X amount of megalitres given back to the environment can deliver this type of improvement? I know it is a long question.

Mr NORMAN — That is all right. Your last point is obviously where we would love to get to. We are a long way from that yet. Simon is leading with a range of universities and a five-year long-term monitoring program, which is one of only seven in the country. Maybe again, Simon, you might be in the best position to give a response.

Mr CASANELIA — Yes, that is right. As Chris alluded to, a lot of these ecological responses we are going to see are long term. The thing is we need to have long-term monitoring programs, which require long-term funding commitments, which is always the challenge. At this point in time we have reasonable amounts of funding focusing on key areas within the catchment and across the Murray-Darling Basin to answer some of these questions that you raise, but it is not spread across all the sites where we deliver environmental water. We are going to have to infer that what we see in one particular region, or some sort of ecological response at a wetland or a river, we are going to see at another site. That is not ideal, but that is the limitation of the funding and the resources that we have. We certainly could —

Mr RIORDAN — What sort of funding pool would you have at the moment as an organisation to carry out that type of work? What sort of budget are you dealing with at the moment?

Mr CASANELIA — That is difficult because the funding itself has been provided by the commonwealth and states, who actually coordinate the monitoring. We are a partner amongst it, so we are not actually, I guess, receiving the funding. We receive small parts of that funding to carry out our particular role. I am uncertain as to the large volume of money that is required to run those programs, but I imagine the funds that we would require to run, say, the long-term intervention monitoring program in the Goulburn would be in the order of, say, \$1 million, perhaps, a year over a five-year period.

Mr NORMAN — Can we perhaps give the panel the number of staff that you have?

Mr CASANELIA — That is right. We basically have five staff who principally are involved in environmental management in the GBCMA, plus obviously we have other people within the organisation that can assist and do complementary works, but principally it is down to about five staff.

Mr RIORDAN — This is not a criticism of your organisation, but essentially you have got five people, and you guys are primarily responsible for delivering the data on improvements, on change, on the environmental impact of these changes, are you not? Is that correct?

Mr NORMAN — Communicating? Yes, along with the environmental water holder, who also has the responsibility.

Mr RIORDAN — Do they have people out in the field like your organisation?

Mr NORMAN — No.

Mr RIORDAN — No. What I am getting at is that we have this huge, structural, economic change to these irrigation communities that is for a very noble cause — I mean, we all want a healthy environment. I will raise the question: it appears to me there are perhaps not enough resources going in that can really deliver the hard evidence of the benefits that this environmental water is delivering into what is essentially a new type of landscape that we are going to end up with. We had our pre-European landscape, we had our modified irrigation landscape and now we are going to a landscape that has a bit of both or a better understanding of both. Could I pose the question that perhaps we need more than five or six people dedicated to really getting our head around what this means?

Mr NORMAN — It would depend a little bit on whether we extend the amount of environmental water in terms of the locations that we use it. As I said earlier, there are about five key wetlands —

Mr CASANELIA — That is right.

Mr NORMAN — plus the Goulburn, plus the Broken Creek, that we are actually utilising that water in at the moment, and that large wetland includes Barmah. We have a full-time staff member dedicated to Barmah. As those locations spread — Mr O’Sullivan’s comment earlier on was spot on about Gunbower. Every site is different. It has got different drivers. It is actually influenced differently. There are different vegetation types and different ecosystems, and it has different access to water.

If we can actually engineer additional opportunities to put that water in additional wetlands, then that requirement and demand for extra resources grows. Your point was really valid about the research bit, and I guess we are on a fairly early learning curve around research. What is the demand? How can we tell the story that you completely articulated is the really clear story we want to be able to tell? In five years time with long-term monitoring are we going to be in a position to be able to tell that story? Do we need more resources to get more scenarios, to test more positions and situations to tell that story? We are very conscious of needing to tell that story, as I said earlier.

Mr RIORDAN — The answer is possibly yes.

Mr NORMAN — If you are going to ask, ‘Do they want more resources?’, of course we are going to say we want more resources.

The ACTING CHAIR — Are there a few things that you can observe? What do you think things would have been like had nothing changed from 15 years ago?

Mr TURNER — I joined the CMA about 10 years ago. Going back about as far as eight years ago the theory was that Goulburn River golden perch — or yellowbelly, you might know them as — did not breed here. The theory was that they must breed somewhere else and move up into the Goulburn system later. Through our monitoring and delivering environmental water we have worked out that now we can get them to spawn. It was only eight years ago, this whole theory. You would think the science would be well beyond that now, but no. We have been able to get them to spawn, and now we are working out whether we can get them to move from

other systems in here to spawn or at what life stages we can get them to move around. That is the stuff we have only learned from monitoring in the last few years.

Mr RIORDAN — I just have one last question on that. We have spent a little bit of time in this hearing talking about blackwater. Obviously blackwater is a big publicity attention grabber. Do you think that a lot of the commentary on it can be quite a big diversion in the great scheme of issues that you have to deal with in managing the systems up here in the sense that it is predominantly a natural event, or it is not so much a natural event but an event caused by our interference in the environment? Do you know what I mean? I know it upsets people because it kills fish and wrecks your weekend, but in the great scheme of things obviously it is a resilient landscape, it recovers; move on, or is it actually something that, as you said, as we go through this learning journey of how to manage the environment, we can actually manage the environment so we would not have them as often?

Mr NORMAN — I think it is something that we should definitely not ignore because it is a little indicator that we have got the balance wrong in the system. The blackwater event was very heartbreaking for an organisation that is very focused on river health and fish. To see Murray cod floating down the system through that blackwater event over Christmas was a heartbreaking event for many, many people. So we do not want to repeat those exercises. At the same time, the rainfall events are sometimes hard to manage. But it is really an indication that we are not getting a lot of the system out and flushing that organic material back into the waterways on a more regular basis, so it is building up. Blackwater events potentially become a continually emerging issue for us. Because of climate change scenarios we potentially get greater summer storms. Blackwater events happening over summer are disastrous because of the impact that water temperature has on the system. So for me it is an indicator that we have got this balance wrong and we have got to keep working at it.

But the positive side, I guess — and Simon can add to this or contradict me — was that we started to see the system come back in Shepparton and downstream of Shepparton after about six weeks after the most recent blackwater event. We had never seen that recovery, and most of the fishermen around here said they had never seen it recover that quickly. So there are some things, to get back to the Acting Chair's comment, that we are doing around environmental water to build resilience, refuges, changing the system, that I think must be working for the system to have bounced back as quickly as it did this time around, despite the size of the event.

Mr CASANELIA — I totally agree, and that is also the added benefit of having those monitoring programs, so that we can actually see those positive responses when something like this does occur.

The ACTING CHAIR — Thank you. We are mindful of the time, and we have our next group in, but when we go through this evidence and we start putting the report together, is it okay, if there are other questions, to write to you and you can answer those?

Mr NORMAN — Absolutely. I understand earlier there were just some questions around some work that we had done around land use and water trading impacts. We have got a report on that. If that is of use too, we can forward it into the system.

The ACTING CHAIR — Yes. If you could send that to Christopher — great. Thank you very much for your time today.

Mr NORMAN — Thanks for the opportunity.

Witnesses withdrew.