T R A N S C R I P T

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Climate Resilience

Aireys Inlet – Wednesday 23 October 2024

MEMBERS

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David Ettershank – Deputy Chair
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WITNESSES

Dr Amber Clarke, Chief Executive Officer, and

Chris Pitfield, Investigations and Program Development Manager, Corangamite Catchment Management Authority.

The CHAIR: Welcome back to the proceedings for the Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience in Victoria here in Aireys Inlet. Welcome to the representatives of the Corangamite Catchment Management Authority.

All evidence that we take is protected by parliamentary privilege as provided by the *Constitution Act 1975* and the provisions of the Legislative Council standing orders. Therefore, the information you provide us during this hearing is protected by law. You are protected against any action for what you say during the hearing, but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege.

Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament. All evidence is being recorded, and you will be provided with a proof version of the transcript following the hearings. Transcripts will ultimately be made public and posted on the committee's website.

My name is Ryan Batchelor. I am the Chair of the committee and a Member for the Southern Metropolitan Region in the Legislative Council. I will ask members of the committee to introduce themselves. Deputy Chair.

David ETTERSHANK: David Ettershank. Hi. I am from Western Metropolitan Region.

Rikkie-Lee TYRRELL: Hello. Rikkie-Lee Tyrrell, Member for Northern Victoria Region.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

John BERGER: John Berger, Member for Southern Metro.

Gaelle BROAD: Hi. I am Gaelle Broad, Member for Northern Victoria.

Melina BATH: Melina Bath, Eastern Victoria Region. Hello.

The CHAIR: Thanks so much for taking the time to come and join us today. For the Hansard record, if you could both please state your name and the organisation you appear on behalf of.

Amber CLARKE: I am Amber Clarke, here on behalf of the Corangamite Catchment Management Authority.

Chris PITFIELD: Chris Pitfield, for the Corangamite Catchment Management Authority as well.

The CHAIR: Thanks very much. I invite you to make an opening statement. Do not be afraid to project; there is a bit of noise difficulty for people hearing in the room. You can make an opening statement, and then we will move to questions after that. Thanks very much. Over to you.

Amber CLARKE: Thanks so much for the opportunity to present today. My name is Dr Amber Clarke, and I am the CEO of Corangamite Catchment Management Authority. I am joined by Chris Pitfield, Investigations and Program Development Manager. The Corangamite CMA region is 1.3 million hectares in size. It includes the Great Ocean Road, the Otways, parts of the Victorian volcanic plain and the central Victorian uplands, which are the beginning of the Great Dividing Range, and our region also includes two of the largest regional cities in Victoria, the southern part of Ballarat and Geelong. Within the Corangamite region climate change projections are for a 4-degree temperature rise, 30 per cent less rainfall, a more than 0.8-metre sea level rise and an increase in storm events, and that is given a worst case emissions scenario and a 2090 timeframe. So our region will become hotter and drier and will have less rainfall, and when it does rain it will largely be as storm events. Our highly populated coast and its built infrastructure will also be heavily impacted through sea level rise, which will cause increased inundation and coastal erosion.

Climate change is a key challenge for estuary management, and our region has the highest number of estuaries along the Victorian coast. As climate continues to warm and sea levels rise, storm surge intensity will increase and fresh water inflows through our rivers will decrease. A rise in sea level will result in increased inundation of riverside vegetation and low-lying land, particularly adjacent to estuaries, where rivers meet the sea. Those high water levels and prolonged inundation around estuaries can have social and economic impacts through flooding of adjacent agricultural or residential land, roads and structures such as jetties and boat ramps. This often leads to requests for drainage services to artificially open estuary entrances and allow the water to flow out to sea. However, there are environmental impacts associated with this intervention if conducted under the wrong conditions. We also have increasing evidence that naturally intermittently open and closed estuaries should be allowed to function more naturally, with minimal artificial intervention. While estuary entrance opening may sometimes be undertaken to reduce inundation impacts on land and built assets, it is vital to manage future development in areas that may be inundated when the estuary entrance is closed through up-to-date flood planning controls. We are also starting to realise that the effectiveness of artificial estuary entrance opening is likely to decrease over time as the sea level rises.

For our region's natural assets climate change means changes to stream flows, restricted fish movement and less areas of refugia for many species plus changes to estuary and intertidal habitats. Our native vegetation will be modified, including our cool temperate rainforests in the Otways and coastal saltmarsh communities that protect our coastline. Flora and fauna species have already had to cope with over 200 years of human-induced impacts and will now have to adapt to these landscapes that are also impacted by climate change. There will be additional impacts with a lesser known extent in our region – things like changed farming practices from grazing to cropping as the climate changes; higher demand for water, particularly from places like the Moorabool and Barwon rivers; and an increase of stormwater being generated from the built environment and its impact on important saline systems such as the Karaaf wetlands, Lake Connewarre and other coastal wetlands.

Corangamite CMA has been implementing an approach based on an international climate change planning process called adaptation pathways. This allows us to plan for multiple possible future outcomes, considers the robustness and flexibility of different options and combines evidence-based decision-making with the latest science and thinking in relation to planning change. We support further inquiry into the impacts of climate change on biodiversity as well as the broader natural environment.

In this session we would like to put forward three main considerations to the panel. These are the need for a consistent statewide approach to incorporating best available riverine flooding and coastal inundation information into planning schemes, incorporating the natural environment into built environment decision-making and building on what catchment management authorities have already been doing and the knowledge we have with regard to addressing climate change. Thank you.

The CHAIR: Thanks very much for that. We will each have about 5 minutes, I think, give or take, for questions. I might start. One of the things that we have heard a lot about in the course of the inquiry is the changing nature of our weather patterns, particularly the intensification of weather events – more rain falling in shorter periods of time, to put a very scientific lens on the evidence we have been given by some eminent scientists. First of all, is that reflected in your experience? In terms of the catchment management authority, are you seeing intensification of particularly rainfall events but also storm surges, and what impact is that having on the areas that you have responsibility for?

Amber CLARKE: Chris will be best placed.

Chris PITFIELD: We unfortunately have the mantle of having the fastest growing area in Australia, between Geelong and the Surf Coast. We have overtaken the Gold Coast, unfortunately. As a result of that a lot of development has occurred, and the way that a lot of decision-making has happened has been to get water away from the landscape as quick as possible. The way that that has happened with councils in our region has then had a detrimental impact on other broader catchment issues. So we have got a lot of saline wetlands, a lot of Ramsar-listed wetlands, for which we have international obligations, and a lot of EPBC-listed communities and species that are getting directly impacted by these stormwater events.

Our solution is a number of things. One, Melbourne Water have an overarching role as a stormwater authority, if you like, around the 70 councils around Melbourne. When you come to our region there is not that state

government authority role, and so we would love the Victorian government to come up with that approach for our region.

The CHAIR: Sorry, just to clarify, in Melbourne, Melbourne Water plays a function with respect to stormwater management in this part of the world, in the Corangamite catchment. Is that right?

Chris PITFIELD: Yes.

The CHAIR: There is not that equivalent –

Chris PITFIELD: There is not that equivalent. As I said, we are developing quite rapidly and we are almost replicating a lot of what Melbourne is, but there is not that role. We have councils where – the City of Greater Geelong will make their own decisions and the Borough of Queenscliffe will make their own decisions, and then the water impacts a lot of these saline coastal wetlands. So that is one solution. The other thing is that, with the stormwater, if it is managed properly and the right approaches are used, we can actually use this water for good, not evil. We can actually stagger the water to actually help these systems become more resilient to climate change when they do need the water. These are simple approaches that we think will be useful.

The CHAIR: You touched on it a little bit in that question: one of the things that we heard from the councils earlier today is about the growth, really the transformation, of parts of these communities that are seeing rapid urbanisation and a lot of housing growth. Other than the things that you have just mentioned, what do you see as the biggest challenges from a catchment management point of view facing these communities, and what risks might there be and what action could we recommend to try and fix those risks?

Amber CLARKE: Perhaps I will start and then if you would like to add. One of the big risks in those highly developing areas of course is the suitable location of housing for growing populations. We know as the climate changes we will see increased rainfall intensity, increased flooding and flood extent and changed patterns of rainfall and flooding, so the ability to ensure that the most up-to-date flood information is incorporated into planning schemes is really one of the most important things that could be undertaken to ensure both the safety and the orderly development of those areas.

The CHAIR: How old are your flood studies, and how frequently do they get updated?

Amber CLARKE: There are a range at the moment. For example, in our region we have got a number of flood studies that have been undertaken over a number of years. They are done in partnership with local councils, where we often provide the technical input and then work with council to try and progress that through the planning scheme. The state government provides funding to update those periodically; it is not a set review period. But at the moment it is fair to say we have got a number of flood studies that could be updated to better reflect what we know will be a changing climate and also flood studies that have been completed but not incorporated into planning schemes. While we have got some initial modelling along the coast about future coastal inundation, that is largely up to the current 0.8-metre benchmark, so additional modelling could be useful there to reflect potentially higher future sea level rise. We also know that it can be quite challenging. If we look at the coastal councils across our region, really the City of Greater Geelong is the only current council that has a specific coastal inundation overlay in its planning scheme, in the form of an LSIO2.

The CHAIR: So none of the others have one?

Amber CLARKE: No. There is some coastal inundation mapping that is up to 0.8. We receive some notices for comment through the planning scheme from the Borough of Queenscliffe, but there is very limited, for example, sea level rise flood mapping in the other coastal councils. So it is very variable across the state.

The CHAIR: I might hand over to Mr Ettershank, who is never afraid to ask questions about flood management.

David ETTERSHANK: Indeed, and you sort of pre-empted it a few moments ago –

The CHAIR: Sorry about that.

David ETTERSHANK: but you do that all the time. Fools seldom differ.

Thinking about, say, the Moorabool River basin and the Barwon there and the current flood modelling you have in place, how old would that be?

Amber CLARKE: I do not have that figure with me right now, but we can certainly provide it to the committee following this.

David ETTERSHANK: Could you do a guesstimate? We will take it with a –

Chris PITFIELD: We can definitely get back to you.

Amber CLARKE: We can get back to you on that.

David ETTERSHANK: It is old, would that be fair?

Amber CLARKE: I would not say it is old. I would say it is probably only a couple of years, but we can certainly provide the exact date to you.

David ETTERSHANK: All right. In our previous inquiry we looked at the Maribyrnong and the Melbourne Water flood modelling, which came out as rather a rude shock. Would you anticipate that if there was really good contemporary modelling applied to, say, the Moorabool basin, there might be some rather rude surprises there?

Amber CLARKE: What I would say is that if we did updated flood modelling that did reflect expected changes in climate, yes, there may be changes in the extent, depth and velocity of floodwaters that we would see in those flood models, but it would really be a matter of doing that modelling exercise to be able to know the magnitude of those changes.

David ETTERSHANK: And do you have any sense of what that would cost, and could you share with the committee whether or not you actually have the capacity financially and otherwise to undertake that sort of modelling?

Amber CLARKE: Sure. I could give an approximate range, because each flood study is a little different depending on the catchment, parameters and inputs, but to give you a very broad figure, something in the order of, say, $100,000 to $250,000 would probably cover most flood studies. We rely on funding from the state government for those particular flood studies, which is usually decided and allocated on a case-by-case basis. Capacity is a real issue. For example, we could not do 10 at one time. That is why we do try and space them out as well, because it takes a lot of technical input. It also requires extensive input from modelling experts and also the time for councils to participate too, so we cannot take on too many at one single time.

David ETTERSHANK: Okay. We heard from Tom Kompas this morning about the hierarchy of different responses, which ends with protection and addresses other issues. Have you embraced that approach, and how might that be reflected in the work that you are doing?

Amber CLARKE: Yes, absolutely. Particularly if we think about things like riverine flooding or coastal inundation, prevention is absolutely the best cure there. And for us, really, our role in statutory planning as flood plain management authorities is the way that we deliver that. So, as I said, we work with councils to try and get the most up-to-date flood information in planning schemes, and then that is able to trigger any land use or development applications. It triggers the right process for them to be considered in terms of flood risk, coastal inundation or other hazards.

David ETTERSHANK: Okay. Am I understanding what you said before: you are not actually a referral authority?

Amber CLARKE: We are a referral authority, but we are a recommending referral authority.

David ETTERSHANK: Optional.

Amber CLARKE: Yes, compared to Melbourne Water, which is a determining referral authority. If we receive a section 55 referral from council which is triggered by an overlay or a zone relevant to flood plain management, we review that. We can decide to object to the granting of a permit, not to object to the granting

of a permit or to specify conditions to be put with a permit, but council does not have to take our advice in making its final decision. That is really the key difference there.

David ETTERSHANK: Thank you so much.

The CHAIR: Thank you, Mr Ettershank. Ms Broad.

Gaelle BROAD: Thank you very much. I am just interested: have you had many times when council has not taken your advice?

Amber CLARKE: Yes, there have been instances where that has been the case.

Gaelle BROAD: And have you seen the implications of that?

Amber CLARKE: In a general sense it can lead to things like developments that occur on the flood plain in areas that may be at flood risk, and increasingly with sea level rise we will see similar in terms of areas and developments that could be impacted by coastal inundation or storm surge events.

Gaelle BROAD: I kind of, from the northern region, live more inland, but there do seem to be similar challenges with catchment management authorities and that interaction with councils. My understanding is councils look at the water flow run-off of buildings as such and then the CMAs look at the water flows to the creeks and rivers. Is that correct, and is that causing any confusion in the process?

Amber CLARKE: I guess in relation to our role as a flood plain authority, we have that statutory role to be referred land use and development applications where they are triggered in the planning scheme by, say, a special building overlay, land subject to inundation overlay, flood overlay, urban flood zone and land subject to inundation overlay 2, the coastal overlay. They are the specific times at which we get involved and get referred an application.

Then we would look at the modelling, the flood data and risk that we have available, considering things like depth of flood waters, velocity of flood waters, and also issues such as access, so for emergency vehicles or for people to leave properties as roads become inundated. That is the sort of advice we would provide back to council. So it is about property, buildings, egress and environment.

Gaelle BROAD: You talked a bit about the population growth I guess overtaking Gold Coast. With developments happening so quickly, I guess that does lead to additional water going into some of those creeks. I know in our region there has been apprehension about removing any of what has grown, I guess, in creek beds, and there are quite a number of different authorities that are in charge of our waterways. Can you speak to that? Because it seems that a lot of studies are done but no actual works to remove sediment that has built up in creeks. What does that look like in practical terms?

Amber CLARKE: Sure, I can speak to that a little bit. I guess ultimately council are the responsible authority for stormwater matters in most instances, so they would often have a lead there. When it comes to vegetation and sediment in waterways, the Victorian government has some guidelines on that. Where it is native vegetation in a waterway, it largely will be required to be left there because it may be providing habitat, but if a community considers that it is causing a potential flood risk, the community is able to work with authorities and undertake a flood study. If it does demonstrate there is flood risk, then approvals can be given to manage that vegetation, and then local government would also have a role in relation to native veg regulations. That is the high-level policy setting on that issue.

Gaelle BROAD: And how many different water authorities are there connected with works on river ways? I heard about one gentleman recently that was invited to put a pipe under, but there were about seven or eight different permits. What are they?

Amber CLARKE: Yes, sure. For the catchment management authority, if there are works in a waterway we might be involved through a works on waterways permit, which we would issue. Then there is, for example, Southern Rural Water, who may be involved in licences or applications for works to construct dams, bores, other similar types of works. Then you have your regional urban water corporations – for example, Barwon Water – who may be involved in other processes. They are probably the main agency roles.

Gaelle BROAD: You talked about adaptation pathways as well, being an international approach. Can you talk about what that is or explain it further?

Chris PITFIELD: So traditionally when we look at managing our natural assets we have a linear approach, where we look at what it is and we try and maintain what it is now into the future. That does not work when you are looking at it with climate change. So what an adaptation pathway does is it looks at multiple options. It allows you to come up with actions that address resilience – transitional actions and transformational. It is deliberately done in partnership with community, traditional owners, governments, anyone who is involved in management of an asset or a catchment. And the end product is a whole lot of relevant actions to manage that asset as the climate does change. So it stays its true value, but you make different steps along the way so that the whole intrinsic value of that asset maintains its original goal. It was initiated in parts of Europe. We applied it for the Western District Lakes out here, and it came up with solutions of how we manage that system really well. We are very keen to apply it to our estuaries, the Moorabool River and other parts of the catchment as well.

The CHAIR: Thank you. Dr Mansfield.

Sarah MANSFIELD: Thank you. Thank you for appearing today. You touched on this a little bit in your presentation, but you talked about how infrastructure can actually within our waterways potentially have detrimental impacts – and we are starting to learn that – and that more natural ways of allowing water to flow more naturally through river systems can have a whole lot of benefits. I am wondering if you could elaborate on that and explain that. I sort of understand the concept of constraints and relaxation when we are talking about rivers, but is that the sort of thing you are talking about when you refer to that?

Amber CLARKE: Yes. Perhaps I can give a specific example for estuaries in the region. In the past when we have had estuaries where the mouth closes due to the build-up of sand at the mouth, often associated with low flows coming from downstream or dry conditions, there have often been regular attempts to artificially open those estuaries using very mechanical means. It might be an excavator down at the estuary mouth scooping out the sand. What we are starting to understand from research now is that it is, especially for a lot of the estuaries along our part of the coast, part of their natural state to be intermittently open and then closed. And the sorts of benefits that provides, for example, will be associated with movement and breeding of fish up and down the river at particular times of year and movement of things like sediment and nutrients in and out of the system. Also for fringing vegetation along the sides of estuaries having some dynamic changes in water levels can be important for the vegetation but also for things like bird species who may forage in the mudflats at some times of the year, nest at other times or then use the water habitat. So the more that we can understand and facilitate those natural processes of wetting, drying, opening and closing, the ecological benefits for the system will generally be greater.

Sarah MANSFIELD: And further inland there are often tensions between allowing regular lower-level flooding to occur and trying to prevent that with infrastructure. But are there benefits to allowing, again, those more natural flows in inland areas in terms of flood resilience?

Amber CLARKE: Yes, absolutely. There can be benefits for riparian vegetation along the sides of waterways, and when that flooding occurs it can often bring back off the flood plain and into the stream really important carbon and nutrients that then drive food web production and help provide food sources for fish, platypuses and macroinvertebrates and a whole lot of benefits like that.

Sarah MANSFIELD: In terms of the risks then to people and infrastructure near the river systems, are there potential benefits as well of having more regular lower-level flooding?

Amber CLARKE: Yes, and I think it is a lot of those ecological benefits. We know that having healthy waterways also provides benefits for communities, so especially as we have seen during COVID, the chance for people to have green spaces, natural spaces, to go out and enjoy and recreate, is really important to health and wellbeing. So there are those sorts of benefits that people could be expected to get as well.

Sarah MANSFIELD: Yes. I am interested in, at a practical level, what it would mean if CCMA were to take on similar functions to Melbourne Water, as you suggested in your initial comments.

Chris PITFIELD: CMAs across Victoria have been around for 25 years, and we have tried to understand how our catchments work. We have probably got stronger partnerships than other entities in that we work with federal government as well as state and local. We work, in our case, with two traditional owner groups and with non-government organisations, farmers and community groups, so we have kind of got a working knowledge about, one, what the catchments need but also how to work with people. I think that we have tried a lot of this climate change planning, and it is working. We just need that bit of recognition on that side of things and maybe some resources to do it, because we know what to do – we just need the resources to do it, the capacity.

Sarah MANSFIELD: I was just going to ask again on that: I guess in terms of the sorts of decisions you would then be able to make at a practical level, say, around stormwater, what practical difference might that make if you were able to take on that decision-making role that Melbourne Water does?

Chris PITFIELD: It may not be the CMA, it might be another authority, but what we are finding within landscapes is the water, how it moves across the landscape, and similar to what you said before, there seem to be a fair few different partners who have a say on things. We would much rather have, 'Okay, what's that water need to move through that landscape?' and then work backwards from that. Stormwater is a perfect example of that – for example, on the Bellarine, how water moves from Geelong to the sea. There is not that overall lens over it, and we have got the combination of the stormwater and sea level rise but also intuition into the groundwater layer and then it coming through the wetlands – so it has got all these things happening all at once. So we just need to have a step back and see what is needed for that landscape and then have someone who actually says, 'This is what's needed,' because there are huge benefits in having that approach, not just from a risk perspective but opportunity as well.

Sarah MANSFIELD: Yes. Thank you.

The CHAIR: Thanks, Dr Mansfield. Mr Berger.

John BERGER: Thank you, Chair. Thank you both for your appearance. My question is more along the lines of floodwater as well. We have seen a lot of development through Torquay and then up into Armstrong Creek, and the floodwaters that come through there from time to time end up in Lake Connewarre. I just wonder whether there have been any lessons learned from the flood management side of it in Warralily and then up into Charlemont to bring it all into the catchment area – whether we have got that balance right.

Amber CLARKE: Yes, it is an area that we are certainly working with council on and thinking about, especially in relation to the northern and western growth areas in Geelong – how we make sure we incorporate really early on in the planning process ability for stormwater to be managed so that it does not potentially move downstream and have those harmful effects. Those processes are still very much underway at the moment, but that is really the key to incorporating good stormwater management early on in the process.

John BERGER: I think at some stage you will probably find that Armstrong Creek will end up being part of Barwon Heads in years to come, so it is a matter of whether we get that management system right and what the effects around the wildlife and all that there are going to be.

Chris PITFIELD: We have learned a lot – it may have been mentioned this morning – on the Karaaf wetlands, the stormwater issues that have impacted that really important system. One of the things that the CMA has been trying to do is demonstrate that as a canary in a coalmine to other councils, saying, 'This is what's happening here. It's going to happen on other parts of the Bellarine.' That is one of the things we have been trying to do. It has been hard because a lot of the approaches have been an engineered approach and not a whole-of-catchment. That is something that the CMA is out front and centre with, but it is something that we have always struggled with, to get others to come along on that journey.

John BERGER: Thanks, Chair.

The CHAIR: Thank you. Ms Bath.

Melina BATH: Thank you very much. I always feel like I am talking a foreign language when I talk planning scheme amendments, but I am interested, very much so. You have said that you are a growing catchment management authority, really part of that growing region – you have got six councils underneath. Could you provide some context? You mentioned before about objecting to planning permits and not objecting

to them. Could you please, and you may need to take it on notice, provide some context maybe in whole numbers or a percentage – clearly not case by case; we are not asking for that – as to how many permits in terms of LSIOs and VC2010s et cetera you have been asked to investigate, that you have objected to or that you have not objected to?

Amber CLARKE: Yes. I will just perhaps start with a clarification. There are six coastal councils in our region but nine councils in total, three of which do not have any coast. There are both the coastal inundation that we work with the coastal councils on, but then obviously the other three councils as well, on riverine flooding. You are right, we certainly have those numbers. We can provide exact numbers to the committee following this presentation.

Melina BATH: Okay, thank you. The other question you may or may not know. For many people if they feel that their permits have not gone through, they have been objected to, council then can and cannot take up their position. Is that correct?

Amber CLARKE: That is correct.

Melina BATH: Therefore some of those people wanting to build their house may then go to VCAT.

Amber CLARKE: That is correct.

Melina BATH: Do you have a quantum of numbers – it can be either aggregated or the separate nine councils – where people are challenging at VCAT? Would you have those?

Amber CLARKE: We probably would be able to get you those numbers after this hearing.

Melina BATH: I guess the reason why I am asking is because it is an ever evolving issue, and there is a compelling case. This is not 'Let's target the CMAs for making the decision'. Let us support CMAs, councils and planning et cetera but also those individuals who are buying blocks of land thinking it is going to be there forever home in getting the C2010, but they cannot build on it because of egress. With that context and those numbers, what should we be asking government to assist councils, people and CMAs to do? What help do you need from state government? You are probably already having conversations, but what do you have that we can ask government to do for the betterment of the outcomes?

Amber CLARKE: Sure. I think probably the most important thing is having a consistent statewide approach to riverine flood and coastal inundation mapping in planning schemes. So you are right: it can be frustrating for communities that they may see one type of information in a planning scheme. We also provide flood advice to landowners, who can come to us and make a request about a particular property. We will always provide the best available data that we have at the time, but that may be different to what is represented in the planning scheme at a point in time, so that can be difficult for communities. Again, I think if there is a consistent statewide approach to having the best available and up-to-date information on riverine flood and coastal inundation in planning schemes, that would go a long way.

Melina BATH: Thank you. I guess since the disaster of recent bushfires we have got bushfire overlays that are statewide, benchmarks et cetera. Could that be similar but differently applied in terms of riverine and coastal flooding? Is that kind of where you are thinking?

Amber CLARKE: Yes. I think the statewide bushfire hazard overlay could be a model that could be applied.

Melina BATH: Thanks, Chair.

The CHAIR: Thanks, Ms Bath. Mrs Tyrrell.

Rikkie-Lee TYRRELL: Thanks. Look, this is the beauty of being last: everybody has taken all of my questions. For the benefit of the report and this inquiry, is there anything that we have not asked you that you think could be of use for the climate resilience report?

Amber CLARKE: Okay. Good question. I think I have reiterated our main points around that consistent statewide approach to updating the planning schemes. As has been raised by the panel, there is always the need

to be updating flood studies and to update them in line with best available climate science. It is also helpful to have clear state direction on the emissions scenarios that we should be planning for and whether they are low, medium or high, because then that also influences the modelling that we do. It does take resources to conduct and update flood studies, and increasingly we will need more coastal hazard assessments as well. I think the state government can play an important role in continuing to provide funds in those areas – and you may have some additional points on climate adaptation.

Chris PITFIELD: Yes. The CMA has done a power amount of work on looking at climate change impacts on the natural environment, and we have documented that. It has been our focus for the last 10 years. The work that we did initially, probably about seven or eight years ago, was supported by the Australian government. The climate change projections are going to be different across Australia, and we were lumped under the Southern Slopes cluster. The five CMA regions across Victoria and Tasmania were lumped together, and we worked together to look at how we could work together to address climate change. It was a very powerful way of addressing climate change, and as a result we have come up with some really good solutions to address that.

A lot of funding programs and initiatives from the Victorian government over the last 10 years follow state boundaries, so we have Barwon South West and the Grampians. We have been in situations working with farmers and community groups near Bannockburn who are working with farmers in the Mallee, and climate change projections are going to be completely different across those two landscapes – and there is this thing called the Great Dividing Range in the middle. A recommendation is that when further programs get delivered they match to what the climate change projections are, so it allows that collaboration. It allows that reality check about how we address climate change, instead of government boundaries that just do not add up, to be quite frank.

The CHAIR: Very insightful.

Rikkie-Lee TYRRELL: That was good.

The CHAIR: Thank you, Mrs Tyrrell. Amber and Chris, thanks so much for coming in and for the evidence today. You will be provided with a copy of the transcript shortly to review. With that the committee will take a short break.

Witnesses withdrew.