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TRANSCRIPT OF PROCEEDINGS

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MR B. WALKER SC, Royal Commissioner

IN THE MATTER OF THE MURRAY-DARLING BASIN ROYAL COMMISSION

ADELAIDE

9.29 AM, WEDNESDAY, 5 SEPTEMBER 2018

Continued from 4.9.18

DAY 25

**MR R. BEASLEY SC, Senior Counsel Assisting, appears with MR S. O'FLAHERTY,
Junior Counsel Assisting**

MR BEASLEY: I'm ready when you are, Commissioner.

THE COMMISSIONER: Very well. Yes.

5 MR BEASLEY: Can I just begin by acknowledging that the land we meet on today
is the traditional lands of the Kaurna people and that we respect their spiritual
relationship with their country. We acknowledge the Kaurna people as the
custodians of the custodians of the Adelaide region and their cultural and heritage
10 beliefs are still as important to the living Kaurna people today. We also pay our
respects to the cultural authority of Aboriginal people visiting from other areas of
South Australia or Australia present here.

Can I also begin by putting on the record my displeasure at starting at 9.30. It's quite
15 clear that some solicitors, no matter how experienced don't realise how much work is
done by counsel in the last half hour before a hearing. Nevertheless, it's a matter for
you and I will cope.

THE COMMISSIONER: You may have to start it more than 30 minutes before.
Sorry.

20

MR BEASLEY: We have Mr Papps here to give his evidence.

THE COMMISSIONER: Thank you.

25

<DAVID JOHN PAPPS, AFFIRMED

[9.30 am]

30

<EXAMINATION-IN-CHIEF BY MR BEASLEY

MR BEASLEY: Mr Papps, you were the Commonwealth Environmental Water
Holder from 2012 to 2018.

35 MR PAPPS: That's correct.

MR BEASLEY: Yes. And you've also been the inaugural Director General of the
ACT Environment and Sustainable Development Directorate which was created in
2011?

40

MR PAPPS: Yes.

MR BEASLEY: And did you commence your career as deputy – you were Deputy
Director General of the New South Wales National Parks and Wildlife Service?

45

MR PAPPS: I was.

MR BEASLEY: What years was that?

MR PAPPS: That was some good time ago. I might have to - - -

5 MR BEASLEY: All right. In the dim dark past. All right. And you hold an honours degree in zoology?

MR PAPPS: I do.

10 MR BEASLEY: And when did you retire your position as the Commonwealth Environmental Water Holder?

MR PAPPS: April this year.

15 MR BEASLEY: You've provided the Commission with – it's an undated document but it's described as a witness statement. Do you have a copy of that?

MR PAPPS: I do.

20 MR BEASLEY: All right. And have you been provided with a copy of a folder of documents with your name on the front.

MR PAPPS: I have.

25 MR BEASLEY: Good. And do you have a copy of the Water Act and the Basin Plan?

MR PAPPS: I don't have the Water Act, I'm afraid. The Basin Plan I never leave home without.

30 MR BEASLEY: Right. Neither do I, I'm afraid, these days.

MR PAPPS: Thank you.

35 MR BEASLEY: You would be very familiar with – first of all, dealing with the Water Act, with those parts of the Water Act that outline the functions of the Commonwealth Environmental Water Holder?

40 MR PAPPS: I am. I can't claim to be so familiar with the rest of the legislation but certainly the operational aspects of it, I am.

MR BEASLEY: And the principal functions of the Commonwealth Environmental Water Holder are that all performed for the purpose of protecting and restoring the environmental assets of the – primarily the Murray-Darling Basin?

45 MR PAPPS: That's correct.

MR BEASLEY: Yes. And the CEWH has powers in relation to not only disposing of water for the purposes of environmental watering but also powers outlined in the Water Act in relation to the trading of water in certain circumstances?

5 MR PAPPS: That's also correct.

MR BEASLEY: And frameworks have been developed for disposing of water and also – for dispersing of water and also for trading water?

10 MR PAPPS: That's right. Including – and when it comes to trading frameworks there are State laws and Commonwealth laws that apply.

MR BEASLEY: And part of the principal guidance for the CEWH in relation to objectives for environmental watering is found in chapter 8 of the Basin Plan, the
15 environmental watering plan; correct?

MR PAPPS: That's correct.

MR BEASLEY: And the key objectives there, if I can summarise them are – first of
20 all, they're all environmental objectives.

MR PAPPS: Yes, that's correct.

MR BEASLEY: Correct. And they relate not only to protection of environmental
25 assets and ecosystems and declared Ramsar wetlands and water-dependent ecosystems, etcetera, but also to the restoration of those assets?

MR PAPPS: Yes, that's correct. It's an absolutely fundamental part of the program.

30 MR BEASLEY: And can I ask you this: we now have, at the federal level, a person described as envoy for drought, Mr Joyce, who recently suggested that environmental water held by the CEWH should be diverted for – to irrigators to help them out.

35 THE COMMISSIONER: Is it irrigators or drought relief?

MR BEASLEY: Well, for drought relief. Well, it might go to farmers, I'm not sure. Perhaps you're right. For drought relief.

40 THE COMMISSIONER: You gave an example of growing fodder, which would be irrigation.

MR BEASLEY: Yes. It can't quite happen that simply under the Water Act in
45 terms of the legalities, can it?

MR PAPPS: No, it can't. The only way of diverting water to a use like that is for the Commonwealth Environmental Water Holder to choose to put temporary water

on the market consistent with the laws and obligations on the Commonwealth Environmental Water Holder.

5 MR BEASLEY: And that would have to be consistent with, for example, section 106 of the Act?

10 MR PAPPS: Indeed. Very specific requirements upon the Commonwealth Environmental Water Holder when it comes to selling or trading – trading allocation water. They are there for a very good reason, to ensure that there is a net benefit to the environment, even the point of the trade of Commonwealth environmental water is to get a significant benefit to the environment and those provisions are set out very clearly to that end.

15 MR BEASLEY: And section 105 of the Act, 105(2)(a) gives functions to the CEWH for exercising powers to purchase, dispose of and deal in water and those powers are not subject to directions by the relevant minister; correct?

MR PAPPS: That’s absolutely correct.

20 MR BEASLEY: And we can, I think, read it that they wouldn’t be subject to direction by someone described as an “envoy for drought”?

MR PAPPS: Absolutely.

25 THE COMMISSIONER: It doesn’t say that - - -

MR BEASLEY: I think it should.

30 THE COMMISSIONER: - - - but you can proceed on the basis that I will draw that conclusion.

MR BEASLEY: Yes.

35 THE COMMISSIONER: Mr Papps, can I just ask this: how many times were you, during your holding office, involved in making a decision under section 106 for the purpose of the section 105 functions?

40 MR PAPPS: In the time that I was Commonwealth Environmental Water Holder, I sold allocation water three times.

THE COMMISSIONER: Three times?

MR PAPPS: Three times.

45 THE COMMISSIONER: And am I correct that – and I’m picking this up not only from the Act and what I’ve read elsewhere but also by reference to the document with your name at the front called the Commonwealth Environmental Water Trading

Framework, November 2016. Is this correct in broad terms: that when you made those decisions you first asked, in effect, “Is the water surplus to current requirements, or may it, as it were, disappear by effluxion of time if I don’t trade it?”

5 MR PAPPS: That’s absolutely correct. That’s the first fundamental question.

THE COMMISSIONER: And the next one, “Have I got in mind a purpose to which I can dedicate the proceeds of the sale which will fit within the relevant rubrics which can be described basically as environmental?”

10

MR PAPPS: That’s true, although it’s often under those circumstances when you make a decision – or when I made a decision to trade, I did not have, necessarily, a specific use of the revenue in mind but I was confident from the analysis that we had done that we would, at the time we came to use the revenue, find such a purpose and so satisfy that legal test.

15

THE COMMISSIONER: Thank you. You’ve anticipated my inquiries. I was struck by the curiosity of drafting of subsection (3) of section 106, particularly paragraph (a), and I think you’ve gone there straightaway. It’s odd in terms of what I might call the sequence of events; you may dispose of water if you use the proceeds of disposal in particular ways?

20

MR PAPPS: Yes.

25 THE COMMISSIONER: On one literal – and it must impossible – understanding that gives you power to do something as long as something which has already happened which can only happen in the future. Which is, in my universe, not possible?

30 MR PAPPS: Yes, it’s a complex approach. It’s fair to say that, Commissioner.

THE COMMISSIONER: Yes. But you’ve interpreted it in the practical and pragmatic way that you’ve described. I don’t need to ask you further about that. What’s the difference between using the proceeds for the acquiring of environmental water or environmental activities – the paragraph (a) point – and the paragraph (c) point; namely, doing so would improve the capacity of the holdings to be applied for the – I will call them statutory purposes? What really is the difference, if any?

35

MR PAPPS: I think the answer to the question you’re asking is that it relates to a choice that the Commonwealth Environmental Water Holder has to use revenue to either purchase more water in a different place at a different time, to further the aims of the Environmental Watering Plan or any of the other environmental objectives that are mandated for the Commonwealth environmental water, or to fund an activity – what is now described as an “environmental activity” – which will improve the efficacy of Commonwealth environmental water.

45

The environmental activity was a recent amendment or relatively recent amendment. It wasn't part of the original Water Act. It followed from an independent review that looked at the legislation and recommended that the CEWH has the discretion if he or she chooses to invest in environmental activities, rather than always having to purchase water with the revenue.

THE COMMISSIONER: I see. But activities were already referred to in paragraph (a) of subsection (3), weren't they? Or you say that is what was added?

MR PAPPS: The section that was added, from recollection, is (3)(a)(ii), environmental activities.

MR BEASLEY: I don't think that's a defined term. Mr O'Flaherty just - - -

THE COMMISSIONER: I'm sorry?

MR BEASLEY: I don't think "environmental activities" is a defined term?

MR PAPPS: No, I think that's right.

MR BEASLEY: So you have to - - -

MR PAPPS: I these grounds very cautiously, as not being a lawyer, but "environmental activity" – as my understanding – is not defined in any specific sense. Its definition is taken from the context of the legislation.

MR BEASLEY: Yes, of course.

MR PAPPS: And there's plenty. I issued a discussion paper at the time to describe what "environmental activities" might be and what I would consider them not to be.

THE COMMISSIONER: Yes. It's just that I don't quite understand why you need paragraph (c) if you've got sub-paragraph (3)(a)(ii) or vice versa. It doesn't matter. I won't – you've explained how you proceeded to think and that is enough for me. Thank you. And by the way, while I'm asking you about these framework questions, I was a bit puzzled by your reference to operating rules?

MR PAPPS: Yes.

THE COMMISSIONER: In the November 2016 framework document, if you've got that, it's tab 3 of your witness bundle and, at its page 10, it refers to the holder having put in place operating rules. That's you, isn't it?

MR PAPPS: That's correct.

THE COMMISSIONER: Then there's a reference to section 109 which empowers the Minister to make operating rules?

MR PAPPS: Yes.

THE COMMISSIONER: Which is not the same, of course, as rules that you've put in place?

5

MR PAPPS: No.

THE COMMISSIONER: Were there ministerial operating rules?

10 MR PAPPS: No.

THE COMMISSIONER: And then finally third you refer to legislated operating rules. Do you see that?

15 MR PAPPS: Yes.

THE COMMISSIONER: Is there just a 'devil may care' desire to make the Act even more readable or what?

20 MR PAPPS: It's probably an attempt to make it more readable. We – the - - -

THE COMMISSIONER: Why legislate it? Why put them through the mill of both Houses of Parliament.

25 MR PAPPS: That wouldn't be a function that I would undertake. I mean, in the sense have my trading as the Commonwealth Environmental Water Holder I was bound by whatever legislation was put in place by either the States or the Commonwealth. The sorts of operating rules that I put in place were simply practices that weren't codified in law and some of them are very obvious if you think
30 about it. So for example - - -

THE COMMISSIONER: I don't have the slightest problem with you promulgating things and calling them operating rules. A, they have to be consistent with the statute or at least not inconsistent. And B, you have to avoid fettering administrative
35 discretions you have in an illegal fashion, but whether you call them "guidelines" or "in-house rules" or "practices and policies", that's fine.

I don't have a problem and I don't have all that much curiosity about them, to tell you the truth, but I am interested in this interplay between you and the Minister and
40 the Parliament that seems to be in discussion at the top of page 10, the 2019 review that you're there anticipating, actually, you describe it in this fashion:

The review will also consider whether there is a need for legislated operating rules.

45

Where does that come from? Is that a government policy or what?

MR PAPPS: No, at the time that this document was written, that was our understanding that the 2019 review that had been foreshadowed would undertake an examination of that question, amongst other things. Whether that's still current I can't actually say.

5

THE COMMISSIONER: I'm just wondering where the desire to add yet more detail to the Water Act would come from, because the Minister can make operating rules under 109.

10 MR PAPPS: Yes.

THE COMMISSIONER: And they are limited by their incapacity to cut across state laws. You obviously – just as an administrator, while you were the holder, can make lawful guidelines for the staff?

15

MR PAPPS: Yes. Certainly, by the time I finished as the Commonwealth Environmental Water Holder, I had no great enthusiasm for adding to the complexity of the legislation.

20 THE COMMISSIONER: Yes. Right. That's the answer to my question. Thank you.

MR BEASLEY: I mentioned before – we discussed briefly that chapter 8 of the Basin Plan sets out the objectives for environmental watering and also the framework for environmental watering, but during the time you were at the CEWH, you – the CEWH also developed what's described as the framework for determining Commonwealth environmental water use, a document produced in May 2013 which you would find behind tab 2 of that bundle. Was that prepared at your direction?

30 MR PAPPS: It existed before I arrived as the Commonwealth Environmental Water Holder. There were two Commonwealth Environmental Water Holders before I held the position and it had been prepared and then modified when I arrived.

MR BEASLEY: So this is an update?

35

MR PAPPS: It's an update.

MR BEASLEY: Yes. And if you go to page 17 it deals with the section of determining the purpose of "watering actions". I'm just wondering, in the use of the term "actions" – and what this part of the framework discusses is when we're in drought or there's little water then the actions are to water so as to avoid damage. Then as there's more water available for maintenance, more water again then you're actually looking at improving - - -

45 MR PAPPS: That's right.

MR BEASLEY: - - - environmental assets. By the use of the word “action”, is that what you had in mind of terms of your interpretation of environmental activities in section 106(3) of the Act - - -

5 MR PAPPS: No, I did not.

MR BEASLEY: - - - or is it something different?

10 MR PAPPS: Environmental watering action is our terminology for the act of deploying water into the environment consistent with the Act and other obligations on me. So it’s an actual watering event.

MR BEASLEY: Yes. All right. And this document is drafted largely to reflect, as I understand it, the requirements of chapter 8 of the Basin Plan; correct?

15

MR PAPPS: That’s correct.

MR BEASLEY: All right. I want to ask you some questions, if I could, please, about your statements and matters of clarification. So if you could have that handy, please. There would have been a lot of people laughing if I couldn’t have found that. I want to ask you, first of all, about paragraph 5 and your first bullet point where you talk about the Plan being an attempt to respond to significant long-term decline in environmental health of rivers and wetland and flood plains etcetera by human activity. And you make the point that:

25

These impacts are not the temporary effects of severe drought as suggested by some.

MR PAPPS: Yes.

30

MR BEASLEY: There’s plenty of documentation and speeches given at around the time that the Water Act – sorry, just prior to the Water Act being legislated about the fact that the purpose of the Water Act is not responding to drought, but it’s responding to – to paraphrase – over allocation of water to irrigators, or for consumptive use, but I’m wondering if you had in mind in that bullet point it is actually a legislated fact in section 21 of the Water Act that the way that the waters of the Murray-Darling Basin have been used has caused long term damage and special measures are needed to stop that?

35

40 MR PAPPS: Yes. And, again without going to a lot of detail, there’s an alternative narrative held by some significant sections of the Basin community that says – and I’m paraphrasing it.

MR BEASLEY: Yes?

45

MR PAPPS: “Environmental damage within the Basin, such as it is has been caused by severe drought and will be remedied, essentially, once the drought breaks.” So

after the Millennium Drought, for example, when there were heavy rains in a couple of seasons that alternative narrative said, “The environment is recovering.” And, of course, the point of that alternative narrative is therefore you don’t need the Water Act, you don’t need Commonwealth environmental water, you don’t need
5 environmental flows, and you don’t need a Commonwealth Environmental Water Holder. And I made – I made the point - - -

MR BEASLEY: This is – we’ve – the Commission has received submissions which essentially – I’m not going to name and I may not even remember who they all were,
10 but there were submissions made to this Commission that the Basin Plan and/or the Water Act are “an overreaction to drought”?

MR PAPPS: Yes. I think that’s a fair reflection of that alternative narrative and I was told any number of times that I had – I being the Commonwealth Environmental
15 Water Holder representing the government – had taken their water to “flush it out to sea. A pointless and expensive exercise.”

THE COMMISSIONER: What was the “it”, salt?

20 MR PAPPS: No, their water.

THE COMMISSIONER: Well, they’re flushing salt out to sea, though.

MR PAPPS: We are indeed flushing salt out. It’s one of the obligations under the
25 Act.

THE COMMISSIONER: Did those dialogues you’re remembering ever condescend to recognise the salt flushing function of water going out to sea?

30 MR PAPPS: Rarely. If they did, they regarded that as requiring a minor amount of environmental water, not the amount of environmental water that we hold.

THE COMMISSIONER: I take it none of these people were environmental hide hydrologists.
35

MR PAPPS: It’s fair to say that. And I guess the point that I make, and without labouring it, because it may be of no interest - - -

MR BEASLEY: I take it they weren’t scientists either?
40

MR PAPPS: No, they weren’t scientists. I’m not sure a lot of them finished high school, but that’s another story. The – one of the problems that you confront in working in the real world is there is sometimes not a convergence about the nature of the problem. If there’s no agreement about the nature of the problem then one of the
45 solutions, in this case environmental watering by the Commonwealth Environmental Water Holder, is not seen by a significant component as a solution, and that means

that the environment in which you operate as an official running a program like that is problematic.

MR BEASLEY: Hostile?

5

MR PAPPS: Sometimes hostile. Certainly suspicious. I'm not arguing that that view is held by all of the community in the Basin. It's not homogenous, but that point was really saying we start from this single point of acknowledgement that there is a problem.

10

THE COMMISSIONER: I think Mr Beasley was directing your attention to what might be described as a very high level and, as it were engraved in stone, recognition of that in section 21.

15

MR PAPPS: Indeed.

THE COMMISSIONER: You find very rarely, for fairly obvious reasons, Parliament using the word "fact" to describe a matter which is as imposing as a compulsory relevant consideration - - -

20

MR PAPPS: Indeed.

THE COMMISSIONER: - - - on, in this case, the Minister and the Authority?

25

MR PAPPS: Indeed. I mean, in many ways the Act, the Plan, and all that has flown from it, is a remarkable achievement.

30

THE COMMISSIONER: I agree. And I'm beginning to think that that, though, I think with respect a completely accurate statement may, if anything, suffer from understatement. I think it might be one of the most remarkable legislative achievements this country has ever seen.

MR PAPPS: Indeed.

35

THE COMMISSIONER: As to the Plan I'm struck by your description of it in your paragraph 8 as being, and I quote:

The Plan is at its essence a biodiversity conservation plan.

40

If you add sustainability as a hallmark of the method or approach which the Plan compels or which the Plan must have and then must compel, would that be in accordance with your view? To add sustainability as, if you like, a method which is mandated to achieve the biodiversity conservation?

45

MR PAPPS: Yes, I think so. My only rider on that, Commissioner, is that sustainability as a term reflecting an idea has been so widely overused that it runs the risk of having no meaning at all, but in the sense that you're describing it - - -

THE COMMISSIONER: It's not sustainable to keep using it, you mean?

MR PAPPS: I don't know what the alternative is, but it's possibly better than triple bottom line, which falls into the same category.

5

MR BEASLEY: I'm going to come to that. One of us will. We might beat each other.

10 THE COMMISSIONER: I don't think you will find much difficulty in persuading me of that.

MR PAPPS: But at its heart the best part of that idea, the truly best part of that idea of sustainability, I agree completely with you.

15 THE COMMISSIONER: Right. Well, two things then. What is the best part of that idea?

20 MR PAPPS: Well, it's the notion that the long-term survival of human activity on the planet depends on the viability of the natural ecosystems that underpin it. Now, there's a lot of definitional problems in that and we probably don't have the time to go into those, but in essence it's reflected in the sort of very short statement that healthy economies are built on healthy ecology, and certainly in the Murray-Darling Basin arguably the human activity in that area is dependent, certainly in my view, on a healthy ecosystem. And so sustainability is about acknowledging that you're going to have human activities in the Basin, that produces food and fibre, but they ought to be undertaken in a way which is manageable. There would never be any zero impact or nil impact on biodiversity. That just – that's impossible. We can't undo what has been done in any ways.

25 30 THE COMMISSIONER: Well, that would be the paradox of thinking ourselves out of the picture?

35 MR PAPPS: Indeed – indeed. So, you know, you end up trying to find – people talk about balance, and I don't know whether that's a good word for not, but in my view it's about sustainability. So into the future, theoretically in perpetuity, some viable natural system supporting a prosperous agricultural system is sustainable.

MR BEASLEY: Well, that's - - -

40 THE COMMISSIONER: Partly, at least – sorry. Partly, at least, we find that, don't we, in subsection (4)(ii), which describes what are elsewhere mandated, namely the observance of the principles of ecologically sustainable development?

45 MR PAPPS: Yes, we do.

THE COMMISSIONER: In particular one that you've just given emphasis to would be paragraph (c) in the five elements of that definition, namely the principle of intergenerational equity?

5 MR PAPPS: Yes – yes.

THE COMMISSIONER: Leaving something for the others who will follow?

MR PAPPS: Yes, indeed.

10

THE COMMISSIONER: Something recognisably appropriate?

MR PAPPS: Yes. And hopefully in a system where, although there are always going to be management input, particularly on the natural side, that we've got to the level where it has got some level of natural resilience back into the system. So it doesn't have to be managed as though it's an emergency ward all the time.

15

THE COMMISSIONER: I'm interested in the language of paragraph (b) of subsection (4)(ii), the second of those elements, the ESD principles?

20

MR PAPPS: Sorry, take me to the - - -

THE COMMISSIONER: The Act.

25 MR PAPPS: Yes.

MR BEASLEY: Page 22, if it's the same as mine.

MR PAPPS: The Act – section.

30

THE COMMISSIONER: Sub – section 4(2) paragraph (b).

MR BEASLEY: If your Act is the same as mine down the bottom left-hand corner it will be page 22?

35

MR PAPPS: Mine says page 179, but - - -

MR BEASLEY: That's interesting. Let me just approach and see what you have been given. Let's go back this way.

40

MR PAPPS: I see. Sorry.

MR BEASLEY: And go to page 22.

45 MR PAPPS: Yes. I'm with you now.

MR BEASLEY: The multitasking I have to do. There we go.

THE COMMISSIONER: But you do it with such grace.

MR PAPPS: What it says about the former Commonwealth Environmental Water Holder, who can't find the page of the Act. Let's not spend too much time on it.

5

MR BEASLEY: That's all right. There's people at the Basin Authority that haven't read it, so don't worry about - - -

THE COMMISSIONER: For the record, that was a joke.

10

MR PAPPS: Yes, 4(b).

THE COMMISSIONER: Yes. 4(b).

15 MR BEASLEY: For the record, the Commissioner said that, not me.

THE COMMISSIONER: I'm interested in – perhaps there's quite a bit packed into that. You recognise that as sometimes what's called the precautionary principle?

20 MR PAPPS: Yes. I do, and I - - -

THE COMMISSIONER: At least it is an aspect – one aspect of the precautionary principle. I just want to ask you about that. If there are threats of serious or irreversible environmental damage, of course, if you go back to what I've been calling the legislated fact, it seems to be, at least relevant to an understanding of the question raised by that condition if there are threats, because the legislated fact – which is, believe it or not, subparagraph 21(2)(a)(i) of the Act:

30 *the fact that the use of the Basin water resources has had, and is likely to have, significant adverse impacts on the conservation and sustainable use of biodiversity.*

MR PAPPS: Yes.

35 THE COMMISSIONER: It's not the most elegant English but it is, with great respect to those who devised it, difficult to misunderstand. I think the "significant adverse impacts" seems to line up with the notion of serious environmental damage.

MR PAPPS: Yes.

40

THE COMMISSIONER: Likely to have – "has had and is likely to have" seems to line up with threats. So that the Basin Plan, which people have to obey, has to be prepared having regard to that fact. Special measures are necessary to manage the use of the water resources to conserve biodiversity is the other legislated fact.

45

MR PAPPS: Yes.

THE COMMISSIONER: Doesn't that mean that that "if" doesn't present much of a problem of interpretation in subsection (4)(ii), it could as well be read when you put it together with 21(2) there being threats of environmental damage. Then we come to lack of scientific certainty. Now, I don't wish to be disrespectful at all of the
5 many scientists whose evidence I have heard, and I don't think it is a criticism of the work, to say that if there's one thing that can be said with great confidence is that practically any aspect of the Murray-Darling Basin that the Water Act and the Basin Plan have directed national attention to is characterised by lack of full scientific
10 certainty.

MR PAPPS: Yes. I think that's absolutely true.

THE COMMISSIONER: Now, I may be old-fashioned – I certainly am – and I may also be a pedant – I probably am – but I don't understand this concept of "full
15 scientific certainty". It doesn't sound like a scientific notion to me.

MR PAPPS: No.

THE COMMISSIONER: What do you understand it to mean?
20

MR PAPPS: To be honest, I've never paid it a great deal of attention because it's drawn from the – I think the – the original Stockholm definition of "sustainability" and I think it's trying to make – in my view it's trying to make a generic point which is, "Don't say to us, when we've got the option of doing something," in this case
25 putting environmental water into the system based on the best available science, "Don't say to us don't do that because we don't have full scientific certainty, and so we're not entirely sure of what its impact will be." So to me it's a – it's driving me – drove me as the CEWH, and it should in my view drive other managers, towards adaptive management. We're going to learn by doing. There is no full scientific
30 certainty. We're going to use the best available knowledge we've got. We're going to apply it, we're going to see what happens, and then we're going to learn from doing that.

THE COMMISSIONER: It sound to me like it's a warning against the rhetoric and
35 political position - - -

MR PAPPS: Yes.

THE COMMISSIONER: - - - of philistines. There being, as I understand it, no
40 useful concept of full scientific certainty.

MR PAPPS: Yes.

THE COMMISSIONER: Indeed, isn't it antiscientific to say we have achieved full
45 certainty?

MR PAPPS: I don't know how you achieve full certainty. Even as a non-practicing scientist I can't see how that's possible, and you've had some very good scientists appear already.

5 THE COMMISSIONER: The best available science, which is an expression that is right at the heart mandated by this statute – one of the several reasons why I think the statute is a remarkable piece of work. Best available science I do understand.

MR PAPPS: Yes.

10

THE COMMISSIONER: And it bespeaks what I might call the human modesty of understanding you won't achieve anything called full scientific certainty?

MR PAPPS: No. I think – I think you're absolutely right.

15

THE COMMISSIONER: Well now, if I read (b) in that way, that – you know, an unusually explicit legislated warning against antiscientific approaches. I'm still asking myself, how do these – how would a philistine ever get to make submissions under the Act. Can you answer that question for me?

20

MR PAPPS: I'm not sure I can. It's much more deeply philosophical than any question I've been asked in six years as the CEWH.

25 THE COMMISSIONER: Well, there are decisions by the Authority, there are decisions by State Ministers, there are decisions by a Commonwealth Minister, but they're all pretty closely mandated or stipulated as to the groundings upon which they can be exercised.

30 MR PAPPS: They are. As you well know the legislation itself says, for example, if the Minister is going to direct the CEWH to do some things then his direction can't, in and of itself, be inconsistent with the Act and the objects.

35 THE COMMISSIONER: Quite. And there are some areas where there can't be any direction.

35

MR PAPPS: And some areas where there can't be any direction. So you're absolutely right. Assuming that a philistine were ever to – heaven forbid.

40 MR BEASLEY: Well, that – sorry, the Minister and the Authority in all their functions under this Act - - -

THE COMMISSIONER: Have to obey these principles.

45 MR BEASLEY: - - - have to take into account ESD and act on the best available scientific knowledge.

MR PAPPS: They do.

MR BEASLEY: Yes.

MR PAPPS: And so the – but in a practical sense you’re sort of reliant, essentially,
on the quality of advice being provided through the system.

5

MR BEASLEY: Sure.

MR PAPPS: I mean, I think that’s – at the end of the day it’s probably the last
safety net that, irrespective of the person making the decision and their attitude to
that, for example.

10

THE COMMISSIONER: Yes.

MR PAPPS: Or their world view about the state of the Basin, for a specific
example, they ought to be getting high quality, independent advice that reflects the
intent of the Act and the Plan and the subsidiary documents and, hopefully, acting
upon them.

15

THE COMMISSIONER: Yes. But, as Mr Beasley has pointed out, these are – this
is a very detailed statutory prescription of the way in which statutory decision-
makers have to go about their business?

20

MR PAPPS: Yes.

THE COMMISSIONER: There is expelled by law from their considerations - - -

25

MR PAPPS: Yes.

THE COMMISSIONER: - - - personal views which might be antiscientific?

30

MR PAPPS: Yes.

THE COMMISSIONER: Or personal views that may be complacent about the
running down of the biodiversity.

35

MR PAPPS: I think that’s - - -

THE COMMISSIONER: They are commanded to take - - -

40

MR PAPPS: Yes.

THE COMMISSIONER: - - - a position if you like. There’s a built in, and I use
this word deliberately, bias.

45

MR PAPPS: Yes.

THE COMMISSIONER: The precautionary principle says you must adopt a position that, notwithstanding what you might call full – a lack of full scientific certainty, that can't be used to postpone measures which are described as being measures to prevent environmental degradation?

5

MR PAPPS: Yes.

THE COMMISSIONER: Which comes back to where we started: there's the legislated fact. There has been environmental degradation.

10

MR PAPPS: Yes.

THE COMMISSIONER: And, as Mr Beasley drew to your attention, two keywords in the aims of the Act and the Plan are protect and restore.

15

MR PAPPS: That's right.

THE COMMISSIONER: Prevent getting worse and try and make a bit better?

20

MR PAPPS: Try and make a bit better.

THE COMMISSIONER: I say a bit better. You've adopted that. That's because, it seems to me, on no view of it does "restore" getting back to a pristine position before European settlement?

25

MR PAPPS: Absolutely correct. Impossible in a system where you've regulated, built large dams.

THE COMMISSIONER: We're here.

30

MR PAPPS: Yes.

THE COMMISSIONER: We're here and, as you say, food and fibre are essential to preserving us as part of the biodiversity.

35

MR PAPPS: Exactly.

MR BEASLEY: A Sustainable Diversion Limit assumes consumptive use.

40

THE COMMISSIONER: Quite. And I – and that's exactly where I'm finally leading up to.

MR PAPPS: Yes.

45

THE COMMISSIONER: The last element I wanted to just find out your views on – this is all picking up your interesting comments about sustainability. As Mr Beasley has pointed out, right at the heart of the – I will call it the mechanism by which the

Water Act and the Basin Plan do their work is the following, isn't it: the first step is – whether you call it baseline or whatever doesn't matter. Hydrologically, let's try and work out what we've been extracting from the system; correct?

5 MR PAPPS: Yes.

THE COMMISSIONER: Next, make our national mind up to it, socially and by our supreme political Act, namely the Act of Parliament, that we've been taking too much; correct?

10

MR PAPPS: Yes.

THE COMMISSIONER: Next, accept that by taking too much we damage something which Parliament, for us, regards as requiring protection and restoration. I'm going to call it biodiversity?

15

MR PAPPS: Yes.

THE COMMISSIONER: Is that fair, so far?

20

MR PAPPS: I think so.

THE COMMISSIONER: The tool by which to do that is to promulgate this central principle – not principle – concept of a sustainable – that word again – diversion limit. All three elements of which, maybe rarely for statutory expressions, have real and useful meaning, politically as well as legally. Sustainable, which picks up the matters you and I have already talked about this morning?

25

MR PAPPS: Yes.

30

THE COMMISSIONER: Diversion that is extraction for consumptive use, and a limit. That is the law is going to say no more than that and propose methods in an area characterised by approximation. That is lack of precision, mechanisms for enforcing the limit, all of which I think accords with your understanding.

35

MR PAPPS: It does.

THE COMMISSIONER: And then at the heart of the SDL is the ESLT, the Environmentally Sustainable Level of Take. There's that word again, right at the heart of things. That environmental sustainable level of take seems, on my reading of the Act and reading evidence – including yours, for which I thank you – does seem to involve this notion of thus far and no further. That is, we can in a sustainable fashion contemplate a certain amount of water being extracted for us, food and fibre – not just food and fibre but - - -

45

MR PAPPS: Human consumption.

THE COMMISSIONER: The stock and domestic and other critical human needs
- - -

MR PAPPS: Yes.

5

THE COMMISSIONER: - - - is trivial compared to food and fibre take. And that the level, which the definition in section 4 subsection (1) of the Act contemplates is a level at which water can be taken which, if exceeded – so it’s all about hypotheticals and making judgments which couldn’t possibly be precise because it’s imagining something in prospect – which if exceeded would compromise. And that’s a terribly important word?

10

MR PAPPS: Yes.

15

THE COMMISSIONER: Would compromise and then four matters, all of which contain other defined propositions. I’m not going to play the word golf, I’m not going to take you from one to the other, but I’m going to sum them up as being key environmental matters?

20

MR PAPPS: Yes.

THE COMMISSIONER: And, in this sort of spiralling fashion of definitions, that certainly includes biodiversity again?

25

MR PAPPS: Yes.

THE COMMISSIONER: Well now, the – that notion of compromise, I’m presently minded to read as being the opposite of the ‘protect and restore’, which is the aim of the Act that makes sense, that the Act has as its purpose?

30

MR PAPPS: Yes.

35

THE COMMISSIONER: Protect and restore, and so it proposes a limit beyond which there would be compromise. That is, travelling in the opposite direction from protect and restore. Is that how you – is that how you have seen it?

MR PAPPS: To a large extent, yes. I think that’s a fair description of it.

40

THE COMMISSIONER: Well, now, this is an accusation I have of your evidence. It’s very careful – no, don’t take that seriously. I mean – and this is, with respect, a compliment from me: you seem to wish to observe appropriate restraint in some of the views you expressed. I want to see whether I can tempt you to something – to expressing something that you haven’t actually written. Do you have an opinion about the – first of all, the process by which the ESLT was achieved? Just for the record, so as to make it clear, we’re going to use figures. 2,750 gigalitres. That’s not the ESLT. That is the amount of water needing to be recovered from the baseline amount of take - - -

45

MR PAPPS: That's right.

THE COMMISSIONER: - - - in order to achieve an SDL which has, as its core, the ESLT. I'm sorry I can't make it any simpler than, that.

5

MR PAPPS: No. That's right.

THE COMMISSIONER: But it has at its heart a pretty simple concept. We've been taking too much. This is an attempt to say - - -

10

MR PAPPS: Yes.

THE COMMISSIONER: - - - how much have we been taking too much. So 2750. Have you got, first of all, a view about the quality or merits of the process by which it was achieved?

15

MR BEASLEY: Can I just help there. You're probably familiar with – and tell me if you're not – the publication the MDBA put out concerning the determination of the ESLT in which it said it had done modelling?

20

MR PAPPS: Yes.

MR BEASLEY: But also said – and you used the term before, the triple bottom line. It said - - -

25

MR PAPPS: Yes.

MR BEASLEY: - - - in a way which is not disclosed as to how it came to be represented in any volumetric terms but it took into account optimisation of not only environmental outcomes, but social and economic outcomes, because the Basin Authority has considered somehow that the definition of Environmentally Sustainable Level of Take, despite what it says in criteria (a) to (d) also must take into account optimisation of social and economic outcomes. You're familiar with all that?

30

MR PAPPS: Yes – yes.

MR BEASLEY: So that's the context in which the Commissioner is asking this question?

35

MR PAPPS: So I think I would say two things, Commissioner. You're quite right, I do have a personal opinion which I carefully avoided documenting in my submission, because I - - -

40

THE COMMISSIONER: What is that opinion?

45

MR PAPPS: I think the methodology that was utilised has some good scientific basis, but at the end of the day it still involved – irrespective of the worth of the science sitting behind it, you know, hydraulic site indicators and flow dependency and flow requirement of species and ecosystems, still required a level of – if you like,
5 political judgment about what the number finally is, and in my view the number is too small. By the number I mean 2,750.

THE COMMISSIONER: I can't find, in any of the documents that are supported by the kind of scientific process you've just summarised, that comes anywhere near
10 2750?

MR PAPPS: No. And if you recall - - -

THE COMMISSIONER: Is that right? I mean, I can't see it in any of those
15 documents?

MR PAPPS: I couldn't lay my hands on it quickly, but I'm not the person to ask because I wasn't involved in any detail, but I certainly think that there was sufficient work of scientific merit that would argue a higher number than 2,750, given that
20 we've agreed right at the beginning that the ambition is not to restore the natural system to a pre-settlement or a pre-regulation state.

THE COMMISSIONER: To the point beyond which it would compromise key environmental matters?
25

MR PAPPS: Exactly.

THE COMMISSIONER: That is, as it were, running on the red line?

30 MR PAPPS: Yes.

THE COMMISSIONER: Taking it to a tipping point, a brink?

MR PAPPS: Yes.
35

MR BEASLEY: You can't forget we have to meet our international obligations as well. That has to be factored in?

THE COMMISSIONER: That's right.
40

MR PAPPS: And you will talk about some of that, I think, with other witnesses. I – the question that follows well, if not 2,750 what do you think it might be or should be.

45 THE COMMISSIONER: I actually wasn't going to ask you that question.

MR PAPPS: Okay. So I should withdraw quietly from that.

THE COMMISSIONER: No. What I was about to say was, because I have to say on the basis of material before me, there is no lucky winner. There's no magic figure. This is an area that does not lend itself, it seems to me, to anything in the nature of precision.

5

MR PAPPS: Yes.

THE COMMISSIONER: And to say so is to distract from the nature of the exercise the Act requires.

10

MR PAPPS: Yes.

THE COMMISSIONER: You have to come up with a single figure because limits – legal limits can only be forced by single figures?

15

MR PAPPS: Yes.

THE COMMISSIONER: There's no use saying to a person you can have no more than five to 10 apples for dinner?

20

MR PAPPS: Yes.

THE COMMISSIONER: That's a meaningless statement.

25

MR BEASLEY: The difference between the high and low figure in the guide is over 4000 gigalitres which is more than the 2,750 alone.

30

THE COMMISSIONER: Quite so. Quite. That's right. So I certainly wouldn't ask you for a figure because it turns out that the process, unless there's stuff hidden in secret archives that nobody I've asked about has seen, it turns out there was no scientific step. It's certainly – have you seen any that brings 2,750 to light as the point at beyond which there would be compromise but at which there wouldn't be?

35

MR PAPPS: No, I haven't and I had the experience of sitting in the senior officials group during the negotiation of the Basin Plan and negotiation of that number because I was the ACT Government representative in that group. And so what I saw was essentially a political discussion, debate, series of trade-off decisions, as – as you point out, I think, inevitably there has to be. So science will get you to a point and then there has got to be a series of compromise or trade-off decisions based around someone's interpretation of political possibilities and social and economic impacts.

40

45

I think the number that emerge from that process at 2,750 was too low but it's the number that we've got for the time being and the only other observation I make quickly, because I'm conscious I don't want to talk too much, is that one thing that we do have in the process at the moment, if the States cooperate, is a long-term experiment that at some point, if done properly in the future, we will be able to say,

“Well, 2,750 gigalitres of Commonwealth environmental water” – on average, because it’s a long term average annual yield – “applied over this timeframe in the best – utilising the best adaptive management processes available gives you this environmental outcome or this set of environmental outcomes.” So over time you
5 certainly could say “Well, we thought it would give us this, here’s the result, it has given us this. Do we, as a community, think that’s an adequate level of environmental protection of such important and iconic landscapes.”.

10 THE COMMISSIONER: There’s a difficulty there, isn’t it, of boiling the frog?

MR PAPPS: Yes.

15 THE COMMISSIONER: If you do that over a sufficiently long time and you decide in some fixed way not to allow adaptive management to alter the basic parameter – that is 2,750 or, as it probably now is, 2,110 – you simply get people, year by year, used to degradation and when you ask them, “Would you like things to be different
- - -”

20 MR PAPPS: That’s true.

THE COMMISSIONER: - - - a lot of people will say, “Well, those days are gone”?

MR PAPPS: That is absolutely true. In fact - - -

25 THE COMMISSIONER: Isn’t that what the Act was actually designed to prevent?

MR PAPPS: Well, the – yes, it was, it was designed to prevent irreversible and unacceptable levels of environmental damage.

30 THE COMMISSIONER: So when you’re at the BOC and watching 2,750 emerge from the process?

MR PAPPS: Yes.

35 THE COMMISSIONER: I don’t want there to be any misunderstanding, I certainly don’t have the view – provisionally at least – I don’t have the view that what the environmental values dictated by the definition of ELST require could possibly be altered lawfully – I stress lawfully - - -

40 MR PAPPS: Yes.

THE COMMISSIONER: - - - so as to reduce it by reference to considerations other than those the statute permits. Increase it, perhaps, but not reduce it because the command is it must be at that point beyond which would be to compromise?

45

MR PAPPS: Yes.

THE COMMISSIONER: And there is a bias – it has to be as low as possible. So there’s another bias that operates in the other direction.

MR PAPPS: Yes.

5

MR BEASLEY: It’s – I think it’s broader.

THE COMMISSIONER: The - - -

10 MR BEASLEY: The Basin Plan must – it is a special measure.

THE COMMISSIONER: Yes.

MR BEASLEY: To conserve biodiversity.

15

THE COMMISSIONER: Quite. But it does say by a method which says your ESLT must be, at that point, beyond which if exceeded would compromise.

MR PAPPS: Yes.

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THE COMMISSIONER: Now, the objects of the Act, which aren’t operative provisions but they aid in understanding everything in the Act - - -

MR PAPPS: Yes.

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THE COMMISSIONER: - - - having started off by referring to the Commonwealth and the States – the relevant States, including the ACT – managing the resources in the national interest as Mr Beasley has pointed out very importantly to giving effect to relevant international agreements?

30

MR PAPPS: Yes.

THE COMMISSIONER: Treaties. And in that regard stresses the addressing of threats to the resources. Then moves to one of the forms of words in the statute which I think give rise to this unfortunate figure of speech “triple bottom line” and I quote:

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In giving effect to those agreements.

40 That’s the national agreements:

To promote the use and management of the basin water resources in a way that optimises economic social and environmental outcomes.

45 MR PAPPS: Yes.

THE COMMISSIONER: There's the three, economic social and environmental outcomes. And then in the very next paragraph:

5 *Without limiting (a) or (b) – without limiting (b) or (c) –*

I should say –

the treaties of the optimising economic social and environmental outcomes –

10 there is then three objects set out:

Ensuring –

that's a strong word:

15

...ensuring the return –

that has a plain implicit assumption –

20 *to environmental sustainable levels of extraction.*

Which is pretty similar to ESLT?

MR PAPPS: Yes.

25

THE COMMISSIONER: Extraction being Latinate for the “Anglo-Saxon take”.

MR PAPPS: Yes.

30 THE COMMISSIONER:

That are for resources that are over-allocated or overused.

Section 21 says that has happened?

35

MR PAPPS: Yes.

THE COMMISSIONER: And then next one:

40 *To protect, restore –*

those magic words again –

45 *and provide for the ecological values and ecosystem services of the basin,
 taking into account, in particular, the impact that the taking of the water has –*

not “may have upon further inquiry” but this is a legislated fact –

on the watercourses –

etcetera –

5 *that are part of the resources biodiversity.*

And then, importantly, the third one, “subject to 1 and 2”. So in lower priority compared to them?

10 MR PAPPS: Yes.

THE COMMISSIONER:

To maximise –

15

note that word, compare it to “optimise” in (c):

To maximise the net economic returns to the community from the use and management of the resources.

20

Now, there are others that are important but not necessarily what I want to ask you now. Do you recall when you were watching aspects – no doubt only aspects – of the 2,750 journey, anybody spelling out that – ensuring the return to ESLT and protection of restoring of the biodiversity came first and economic return after them?

25

MR PAPPS: No, I don’t recall those specific conversations.

THE COMMISSIONER: That would make it very difficult, wouldn’t it, to say, “Well, it’s all very well, the environment needing X but that’s going to take water away from industry?”

30

MR PAPPS: Yes.

THE COMMISSIONER: “Therefore the environment will have to put up with X minus Y.” That would be contrary to this demand, would it not?

35

MR PAPPS: On that reading of it, yes. And so the – and this is an unfair characterisation from someone just watching it some time ago, but certainly in terms of constructing the number and I think you have some evidence from a former New South Wales bureaucrat who basically said, “Well, New South Wales decided the number that was first floated was way too big; they weren’t going to wear that because of its economic impact.”

40

You know, we have Victoria arguing the case for 2100 gegalitres as being able to achieve the same levels environmentally if done properly as the number that had been originally proposed and South Australia arguing for 3,200 which, of course, is how you get the numbers. 2,750 less the 650 so-called “downwater” is 2,100. That’s

45

the Victorian and the New South Wales position. 2,750 plus the 450 upwater is 3,200, so there's the South Australian position.

5 MR BEASLEY: This is what you're talking about as an "imperfect political compromise - - -"

MR PAPPS: Yes.

10 MR BEASLEY: - - - in your second bullet point in paragraph 5.

MR PAPPS: Yes.

15 THE COMMISSIONER: Well, it may have been a perfect political compromise, but it seems to be imperfect statutorily.

MR PAPPS: You're quite right. It was perfect politically.

20 THE COMMISSIONER: Can I – there seem to be a bit of a – and I don't this word – a bit of trickery involved in this. What you've just neatly summarised in relation to the numbers – if it's 650 down, 450 up, it doesn't get you to 3,200.

MR PAPPS: No, but - - -

25 MR BEASLEY: 650 is meant to be environmentally equivalent - - -

MR PAPPS: That's right.

MR BEASLEY: - - - so the Victorians and New South Wales say it does.

30 THE COMMISSIONER: So it's all - - -

MR PAPPS: The ecological equivalents.

35 THE COMMISSIONER: - - - tied to environmental equivalence?

MR PAPPS: That's right. Downwater is dependent on this notion of ecological equivalence. If that is accepted then it does, theoretically, with the upwater of 450, get you to a 3,200 equivalent plan.

40 THE COMMISSIONER: Well, this is where I'm finding it very difficult in light of the basic tenets that I've been discussing with you of the Act and Plan. How do you get to reduce from the 2,750 by reference to – let's take the simplest concept – supply measures by which a lesser figure, say 2,100, will have equivalent environmental outcomes? How do you get to do that before they have started
45 operation?

MR PAPPS: It's based on modelling and, again, I have to preface everything I say with the fact that, of course, this wasn't my area of expertise or involvement. I had become an operator as the Commonwealth Environmental Water Holder of the obligations under the Water Act and the Basin Plan, but there is a process set out in the Basin Plan for arriving at those projects and those numbers – sets out a process around testing through modelling the equivalent – you know, whether the ecology equivalence has been achieved - - -

10 MR BEASLEY: Sure.

MR PAPPS: - - - and there's a point of reconciliation at some stage in the future – I think 2024 – when there will be a more practical test of reconciliation.

15 THE COMMISSIONER: So the actual system decidedly says, “There is – we've been through that method” and it is, as you say – it has modelling at its heart?

MR PAPPS: Yes.

20 THE COMMISSIONER: And it's modelling something which in terms, not by implication or perhaps but in terms has not happened?

MR PAPPS: Correct.

25 THE COMMISSIONER: It embraces the fact that it's testing projects that haven't even got State planning approval, and it has an effect whereby there would be, before 2024, a reduction of water to be returned to the environment. This rather vulgar expression “closing the gap” – the really unfortunate context for that expression to be reused in politics, I would have thought – and that's a gap between what the environment needs and what has been given up in its favour?

30 MR PAPPS: Yes.

35 THE COMMISSIONER: So you do – you're taking – you're removing a need to reduce take – consumptive take, overtly years in advance of knowing whether the projects said to justify that reduction will be A, effective at all or B, critically speaking will be environmentally equivalent.

MR BEASLEY: Or even implemented.

40 THE COMMISSIONER: Or even implemented at all. Doesn't that mean that the actual system says, “Actually there's – the first part, the first phase of this plan is we're going to take the risk of recovering less water for the environment than how science says it needs in order to avoid compromise”?

45 MR PAPPS: Yes.

THE COMMISSIONER: In the face of the precautionary principle of the ESD - - -

MR BEASLEY: I was just about to say that.

THE COMMISSIONER: - - - that binds everyone.

5 MR BEASLEY: That doesn't seem right. Yes.

THE COMMISSIONER: In the face of all that we're going to do it and, in 2024, stand back and see what has happened?

10 MR PAPPS: Yes.

THE COMMISSIONER: Isn't that in the nature of a fundamental flaw, perhaps in the Act and the Plan or certainly in public policy, that would see that as a proper way of proceeding?

15

MR PAPPS: That's a very significant question.

MR BEASLEY: You used the term "Act and Plan". My contention would be the Act does not allow this. The Plan - - - .

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THE COMMISSIONER: I understand that, but allowing for the possibility that the Act allows for that?

MR PAPPS: I think your summation of it, from my personal perspective, is a reasonable one. It's an interesting notion from a policy perspective which is then reflected in legislation that you're essentially giving something back from the environment in the hope that something else will work but by the time you get to testing that, you will have had a number of years where you haven't been able to utilise that water that you've - - -

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THE COMMISSIONER: That's right.

MR PAPPS: - - - passed back, if you like, into the consumptive pool.

35 THE COMMISSIONER: You're seeing whether an amount of recovery less than science suggests is necessary to avoid compromise will, in fact, be enough to avoid compromise?

MR PAPPS: That's correct.

40

THE COMMISSIONER: So you're second-guessing your own science on the basis of the success of projects that need not – any of them – be implemented at the time you do the second-guessing.

45 MR BEASLEY: And on your own modelling, during that period, you don't have an ESLT. You don't have an SDL that reflects the ESLT.

MR PAPPS: No.

THE COMMISSIONER: Isn't this – that's what I mean by fundamental flaw. If the Act permits that, it rather suggests that the Act has, most unfortunately, started to
5 consume its own tail?

MR PAPPS: Yes. I think you could argue that. I think that, you know, the only answer I have for it – if indeed there is an answer – is that in order to get us to the point where Victoria, New South Wales and South Australia would commit to this
10 grand endeavour, the SDL adjustment process had to be put into place, the downwater was there to ensure Victoria and New South Wales stayed in the room and the upwater was there to ensure that South Australia stayed in the room.

I think the logic of your argument is quite powerful and it does bother me that, for
15 example, in the northern Basin again, 70 gigalitres has effectively been returned to the consumptive pool on the promise of something to be given – in this case, a toolbox of measures from the New South Wales Government which - - -

THE COMMISSIONER: You're being a bit generous by referring to the word
20 "promise", haven't you?

MR PAPPS: Yes. I - - -

THE COMMISSIONER: Nothing is enforceable, I don't think.
25

MR PAPPS: Arguably, if history has taught us anything so far in the history of the Basin Plan, it's that New South Wales promises are suspect. I mean - - -

THE COMMISSIONER: I've not seen any mechanism by which they would be
30 enforced?

MR PAPPS: No. What is the mechanism? What is the mechanism? And I think that's the dilemma. But again we're back into the world of political realities and, having said all of that and agreeing with your assessment of it, I sort of come back to
35 the words in my submission that for all its flaws and for all its political compromises and trade-offs, it's still the best thing going for the Basin Plan at the moment. If there are a set of different political circumstances - - -

MR BEASLEY: Sorry, the Basin Plan is the best thing going for the Basin? Yes.
40

MR PAPPS: Sorry, you're quite right.

MR BEASLEY: Yes.

45 MR PAPPS: The Basin Plan is the best thing going for the Basin at the moment.

MR BEASLEY: You have to remember just on this topic, Commissioner, the power to make this SDL adjustment in 23A of the Act does say in section 3 to avoid doubt:

5 *The long-term average Sustainable Diversion Limit that's produced after the adjustment proposed by the Authority under paragraph 1A or 1B has been taken into account must still reflect an Environmentally Sustainable Level of Take.*

10 Now, by definition, if you've got proposals as supply measures but you take the 605 straightaway – which is what has happened – you can't possibly have an Environmentally Sustainable Level of Take. So for this to be legal, that section of the Act has to be read as adding words, “must reflect” and “Environmentally Sustainable Level of Take” at some time in the future.

15 THE COMMISSIONER: I certainly do understand that submission and find it troubling, to put it mildly. I won't bore you with it but as lawyers we have a fundamental requirement not to find that a statute has operative but opposite provisions within itself. We always have to resolve those apparent difficulties.

20 How to do that in this case is – in relation to what Mr Beasley has raised – is something that is troubling me, but I won't go into evidence with you, unless you turn into a lawyer immediately. But I do want to ask you, in terms of the administration of this kind of scheme, the prospect that Mr Beasley has explained to you of a reconciliation in 2024 – assuming it could be done then, because some of
25 these projects may only just have started, a reconciliation - - -

MR BEASLEY: The Productivity Commission doubts that. Sorry.

30 THE COMMISSIONER: They may not even have started. Yes. Productivity Commission's draft report has a pessimism that I share, concerning that?

MR PAPPS: Yes.

35 THE COMMISSIONER: Let's call it 2024.

MR BEASLEY: The 605 whole lot.

40 THE COMMISSIONER: If, as all the indicators are at the moment, there will not be 100 per cent success in producing the environmental outcomes, let alone achieving environmental equivalence, then do you understand that at least in theory what that means is that we have to set about recovering more for the environment by reducing consumptive take?

45 MR PAPPS: That's my understanding.

THE COMMISSIONER: Unless you subscribe to the magic pudding theory then it's going to have to come from somewhere. And that has to be consumptive take, doesn't it?

5 MR PAPPS: Yes, that's certainly my understanding.

THE COMMISSIONER: So the poor old farmers and their bankers, who have been proceeding on the basis that water rights amount to a certain kind of productive potential will be told, "No, I'm sorry, there has to be a readjustment in an opposite
10 direction because the adjustment has miscarried."

MR PAPPS: Yes. Although I assume that – and again I'm just conscious of the fact that I don't want to do a disservice to people who actually understand in great detail the construction of this Basin Plan – but certainly my understanding is, as you say, if
15 there's a reconciliation in 2024 that shows there has been a shortfall, then it has to be made up. My understanding is that it would be through the voluntary purchase of entitlements at market rates or - - -

THE COMMISSIONER: That's the dreaded buyback?
20

MR PAPPS: The dreaded buyback or, if the government is in power at the time that doesn't think the buyback is a good idea it would have to go down the path, presumably, of investing more money in efficiency programs in some way recover water. But that's certainly my understanding of it.
25

THE COMMISSIONER: Well, if that makes the – if one calls in mind the history where hooligans decided to burn copies of the Guide as a mark of intelligent political discourse, one might anticipate that there will be – to use more anodyne language – community unrest at a reconciliation in 2024 or whenever it occurs.
30

MR PAPPS: Yes.

THE COMMISSIONER: That says, "You've enjoyed for the last, whatever, nine years, 10 years, certain amounts of consumptive use and they're going to have to be
35 radically altered because our SDL adjustment process has failed."

MR PAPPS: Yes, that's a possibility. I think the hope on the part of the Commonwealth and State agencies involved is that their work has been of sufficient merit that that's an unlikely course of action.
40

THE COMMISSIONER: I haven't seen a single – single word of anyone having that at all.

MR PAPPS: No. And I don't want to be the first one to do it, so I'm not. But I
45 think that's the hope that's held.

THE COMMISSIONER: Where does that – where have you – leave aside, if I may say so, the utterances of Ministers.

MR PAPPS: Yes.

5

THE COMMISSIONER: I have not seen anywhere anyone with actual control or hands-on management experience of any of these processes being so bold as to say “I”, whoever the person is, “with my expertise and experience and my knowledge of the facts think that such and such a project will succeed.” That is, will be
10 environmentally equivalent and will therefore justify the return of so much water to – no doubt in combination with all the others - - -

MR PAPPS: Yes.

15 THE COMMISSIONER: - - - will return so much water to consumptive use?

MR PAPPS: Because you’ve ruled out ministerial statements that does diminish the field somewhat, in my view, and to be - - -

20 THE COMMISSIONER: Ministerial statements, if I may say so, keep using the expression “in full and on time”?

MR PAPPS: Yes.

25 THE COMMISSIONER: Which on any view of it is now a meaningless slogan or alternatively a deliberately misleading one?

MR PAPPS: I think that’s true, and we haven’t canvassed yet – and you may not want to – but, I mean, on top of the issues that you’re raising with the downwater efficiency measures, then there’s also the concern that I have – which may be
30 misplaced, but which I raise in my submission – that I am very anxious that at least two of the States will do all they can to minimise the level of upwater that’s put into the system.

35 THE COMMISSIONER: There will be no upwater, surely?

MR PAPPS: I think they have reluctantly accepted that there will be the minimum arithmetic number of upwater to allow the 605 to exist under the rules, there’s a five per cent rule, I think it’s called, and I think they’ve identified that there’s 62
40 gicalitres.

MR BEASLEY: Yes. It’s – 543 would be the figure from 605. So whatever that is.

MR PAPPS: Yes.

45

THE COMMISSIONER: But there won’t be the 450 gicalitres, will there, on what we can see at the moment?

MR PAPPS: On what we can see at the moment I would put my house on it that there won't be 450 gigalitres. And, you know, I think that's a level of great concern that I have and one that I see as a result of manipulation by – of the political system by New South Wales and Victoria, frankly, with only South Australia previously
5 standing up to that sort of manipulation. And I don't know what the current South Australian Government will do. Now, I'm told that - - -

MR BEASLEY: The Commission has asked a question of the South Australian Government as to its level of confidence of getting the 450, so we're waiting for an
10 answer.

THE COMMISSIONER: So we may find out the answer to your last point.

MR PAPPS: So I agree with what you're saying and it therefore makes my central
15 thesis about this is the best thing that we've got in the Basin, for the biodiversity of the Basin. Let's get on it. You know, it becomes more and more caveated, I accept that. And I accept that if we were to have the political circumstances to have a sensible and mature and scientifically based debate about what the next edition of the plan would look like, I would argue that the number would be bigger than 2750,
20 which I think was one of your original questions.

THE COMMISSIONER: Yes.

MR PAPPS: And that we would resolve a whole bunch of other issues where the
25 States are just dragging their feet.

MR BEASLEY: Just on the Commissioner's question though about have you – certainly, despite our best endeavours, there has been no evidence from any person with scientific qualifications that anyone should have any confidence in the supply
30 measure SDL adjustment, but certainly – at least first of all – the Basin Officials Committee members must have had some confidence in them because they are required to, under the Basin Plan – I think, it's section 7(12) – notify the Authority of supply measures to be considered?

35 MR PAPPS: Yes.

MR BEASLEY: The Basin Authority itself must have confidence in the process, because it has to be satisfied of environmental equivalency, otherwise it shouldn't be reaching a figure of 605 gigalitres. So there's two groups of people that must have
40 confidence?

MR PAPPS: I think that's a fair summary. It follows, does it not, from the recommendations they made? And I know that there was a lot of work done on it. I'm not privy to the nature of that work and, indeed, there was work done after I left.
45

MR BEASLEY: Where things get thrown into doubt is when documents have been ordered for production in the Senate which contained the MDBAs analysis of various

supply measures. I'm not sure if you've seen those analysis, but Menindee Lakes is a classic example. But there are others where the MDBA, in responding to the State supply measures, say there's all these – there's a number of environmental risks here, which does create a concern as to whether 7 – whether the section in the Basin Plan
5 requiring satisfaction of environmental equivalency is actually – anyone has really turned their mind to it in a proper fashion. That's perhaps not a question; that might be a submission.

10 MR PAPPS: Again, I think that's a fair summation. I would make the obvious political observation, as a retired public servant, that would be obvious to you as well: whichever Federal Minister has been in charge of this process, certainly during the SDL adjustment process, has made it abundantly clear that the answer needs to be as close to 650 as is possible.

15 MR BEASLEY: Yes. What we've just discussed though, I take it, picks up the first bullet point to the statement to the Commission that the bulk of decisions in terms of Plan implementation are made by politicians?

20 MR PAPPS: Yes – yes.

MR BEASLEY: Can I ask this question, before we turn away from Environmentally Sustainable Level of Take, and I know you've – not in so many words, but in paragraph 6 where you've raised the definition of ESLT, you've gone on to perhaps state in not so many words that you're not a lawyer and you don't want
25 to necessarily get into the construction - - -

MR PAPPS: Yes.

30 MR BEASLEY: Legal construction of ESLT. But I do think – first of all, I'm not sure you need to be a lawyer to have a sensible construction of the definition in the Act. You just need to be able to read English. But secondly, I do – I would like your view on this, and by no means am I asking for a legal construction, but there has been one view suggested by lawyers that the Environmental Sustainable Level of
35 Take definition, where it talks about not compromising – I will use the example of key environmental assets.

MR PAPPS: Assets.

40 MR BEASLEY: That you can pick and choose – pick a winner as to what is a key environmental asset or not a key environmental asset by giving consideration to economic and social outcomes. Do you have any idea, given your – you have expertise and experience in environmental watering, so no doubt you've given consideration to what particular environmental assets require water or should get
45 water from the Commonwealth's water holdings?

MR PAPPS: Yes.

MR BEASLEY: Do you have any idea how, in a practical way, you would decide – someone would make a sensible decision what is a key environmental asset or not a key environmental asset based on some economic consideration, for example? Do you say, “Well, this wetland if we’re going to water it, it will cost two jobs, but if we let it go and we just water the other one it’s only one job, so that’s a key asset and that’s not.” I mean, how – do you have any idea how you would do it?

MR PAPPS: Yes. To the extent that we make those decisions and we do – did – they’re basically made as best we can on scientific grounds, that is the value of the asset based on some criteria that are, in fact, in the – one of the schedules to the Basin Plan but would include, for example, a Ramsar listed wet lands. So it seems to me that it’s an automatic fail if we’re not able to, at some stage in the future, point to a recovery in those Ramsar listed wetlands. There are others where there are unique species or unique ecosystems, so there might be remnants of a formerly widespread ecosystem that’s now contained in just a few wetlands, so those sort of things get on the list.

And then there’s the environmental – baseline watering strategy, which we haven’t talked about much, but which is legally binding on me and other environmental water managers, which also contains a series of specific targets, measurable targets between 2019 and 2024. And so those targets also guide our thinking. The sort of trade-off decisions, again without going into a lot of detail because I don’t think this is the point of your question, but you do make trade-off decisions. So you might say, “We’ve got enough water to put some more, this year, into Barmah-Millewa and see if we can get the Moira grass to reset.” This is an endangered ecosystem, native grasses.

“Or we could use the same water on the flood plains in South Australia to give this effect.” And then you do – you go through the process of making a bit of a trade-off position and the process that’s outlined in the documentation you have is meant to give our – give us some guidance as to how we make those trade-off decisions?

MR BEASLEY: But this is a trade-off between environmental asset and environmental asset; correct?

MR PAPPS: Correct. Not - - -

THE COMMISSIONER: They’re all - - -

MR BEASLEY: All environmental

THE COMMISSIONER: They’re all key and you’re working out your priorities for watering?

MR BEASLEY: Yes.

MR PAPPS: Correct, yes. They're all key, so there's – the question that Mr Beasley asked right at the beginning about, "Well, this one might cost a job or this one might cost two jobs," that never came into our thinking, in a sense, because the water is already in the bank account. We're deploying it now to meet the demands of the Act, the Plan, and the Strategy.

THE COMMISSIONER: Just before we - - -

MR BEASLEY: I want to move on to paragraph 8.

THE COMMISSIONER: Sure. Can I just take you back? There's an expression I didn't quite understand in the first dot point of paragraph 5.

MR PAPPS: Yes.

THE COMMISSIONER: Including, but not limited to, regulation of extraction of water. What else is there?

MR PAPPS: So – and you've got a – you've got a submission from Professor Kingsford that gives a good summary of this. So there are a range of other human activities. So, for example, degradation of habitat has a flow-on impact on the rivers, wetlands and floodplains, and indeed floodplains - - -

THE COMMISSIONER: Just the clearing of land and the growing of pasture has an effect?

MR PAPPS: Yes. Overfishing historically has had an impact. It might not apply anymore.

THE COMMISSIONER: Thank you. No, I understand. Thank you.

MR PAPPS: So those sorts of things.

THE COMMISSIONER: Thanks.

MR BEASLEY: In paragraph 8 of your statement in the second sentence you say that:

Implementation is currently being undertaken under the wrong governance.

MR PAPPS: Yes.

MR BEASLEY: I just wanted to explore what you meant by that, and I do it in this context: the Productivity Commission has recently released a draft report. I'm not sure whether you've seen any of it or not yet.

MR PAPPS: Not yet.

MR BEASLEY: But one of the main criticisms it makes of the current way that the MDBA is set up is that it gets to mark its own homework: it implements the plan and then it monitors how they're doing. And it has made a recommendation, based on that conflict and other issues, that the Authority be restructured in such a way that there's a Murray-Darling Basin Corporation which is the agent of the Basin governance, and then there's a separate regulator - - -

MR PAPPS: Yes.

10 MR BEASLEY: - - - that would be independent of that. Is that the sort of thing you were talking about as "under the wrong governance" or are you talking about other issues as well? And, if so, what are they?

15 MR PAPPS: I'm talking about other issues as well. I think that idea is worthy of examination, I think there's a very sensible suggestion there. I don't know whether it's a better model, but it should be discussed, debated and, if it's a better model, adopted.

20 THE COMMISSIONER: What about revival of the National Water Commission?

MR PAPPS: I think there's some merit in that, although the argument now is that the Productivity Commission and other agencies undertake that role. I thought the National Water Commission did a good, if not perfect, job. I think it's too early to judge whether the replacements to it are going to do the same sort of job.

25 THE COMMISSIONER: The only replacement for it is the Productivity Commission statutory references; isn't that right?

30 MR PAPPS: Essentially, although I think there was some minor roles taken on by the Authority, but I can't identify them at the moment.

MR BEASLEY: There may be better ideas in terms of monitoring. I want to explore them later, though.

35 THE COMMISSIONER: Yes.

MR BEASLEY: If I may. Yes.

40 MR PAPPS: The other governance thing is the one that I mentioned there, which is - and I know it's arcane, and only a bureaucrat I think would worry about it: it's the wrong ministerial council.

45 THE COMMISSIONER: Why is it arcane to suggest that environmental matters should be looked at by environmental departments?

MR PAPPS: I don't know. Every time I suggested it people roll their eyes skyward as if it were insane.

THE COMMISSIONER: Well, now, at Commonwealth level we have agricultural resources in one department?

MR PAPPS: That's right.

5

THE COMMISSIONER: So there's also an environmental department.

MR PAPPS: That's right. The Commonwealth environmental watering program, which is at the heart of the Commonwealth's role, really, in terms of environmental watering, is still within the Department of Environment. It did not go over at the time that then Prime Minister Turnbull made the – made the move. So I – you know, my argument is a simple one, and I know it doesn't solve everything, but it seems to me that the Basin Plan is basically about the conservation of the Basin's biodiversity, its ecosystems, species, ought to be managed by the environment ministers in each State and collectively the environment Ministerial Council.

MR BEASLEY: You've also said in your statement that you've referred to the obstructionist or undermining approaching of Ministers Blair and Neville. I can't resist asking you what you mean by that, as to what you're getting at. What are you referring to there?

MR PAPPS: I'm just concerned as an observer of the process that, for example – and the best example is the upwater.

MR BEASLEY: Yes?

MR PAPPS: That both Victoria and New South Wales first of all drag their feet and then secondly, in my view – and I'm prepared to accept that obviously others have different views – in my view they've tried to read down or obstruct in any way, shape, or form what I saw as a mandated obligation to find 450 gigalitres of upwater. That's the principal example. My exposure to the Ministerial Council has been infrequent but when I have it's very clear, just watching the dynamics, that Ministers Blair and Neville will often operate together to attempt to get the ministers collectively to decide on a course of action, and my concern is that that course of action is often not the best interpretation of environmental outcomes.

I do note the Victorian Government's submission that that – that's not their view. Their view is, of course, Victoria is implementing this and will be proceeding apace to continue to implement it. But I think we discussed before that I'm betting a lot on the fact that under the current set of circumstances we will get 62 gigalitres of upwater and no more.

MR BEASLEY: I wanted to move on to a submission that was made by the CEWH signed by Mr Papps, which is behind tab 11 of the folder concerning concerns about supply measures. I'm wondering if we have the break now, though.

THE COMMISSIONER: Could we resume at quarter past 11?

MR BEASLEY: Yes.

ADJOURNED

[11.00 am]

5

RESUMED

[11.15 am]

10 THE COMMISSIONER: When you're ready.

MR BEASLEY: If I could have one more minute, Commissioner.

THE COMMISSIONER: That's all right. You were going to - - -

15

MR BEASLEY: I was. I was going to – because we've been discussing supply measures, I just want to take you firstly to paragraph 9 of your statement to us. Your first bullet point you talk of:

20 *...deliver the full 450 gigalitres of the supply measures upwater.*

I think you might mean efficiency measures there?

MR PAPPS: Yes, you're right.

25

MR BEASLEY: Yes. But, dealing with supply measures, you made a submission to the Basin Authority – well, the CEWH did, and you've signed a covering letter to Mr Glyde and that – it's a submission with a covering letter of 1 November 2017. You will find it behind tab 11 of the brief, and I think you've raised this with myself and other Commission staff when we've spoken to you: the fundamental concern you have about a number of the supply measures, and I think one in particular, the hydro cues supply measure and also I think you've mentioned Menindee Lakes here, is that they first of all – and please tell the Commission the full extent of your concerns here – but they seem to attempt to fetter or anticipate certain releases of water by the CEWH, and you're raising a concern concerning that?

30

35

MR PAPPS: That's correct. And this had been an issue I think from the beginning in terms of the projects that the States had been bringing forward, where we made it as clear as we could to the States that they couldn't assume a pattern of behaviour, a pattern of decision-making, which in any way would be a fettering of the Commonwealth Environmental Water Holder's discretionary rights. Which I think was a challenge in some of the projects, because if your ambition is to get a saving based on delivery of an ecological equivalence, there might be a pattern of use that the project is predicated on. So we were – we had raised these in conversations and this letter just summarises that and a number of other concerns that – that I had.

40

45

MR BEASLEY: And I'm right, am I, at page 3 where under the heading General Principles for Entitlements Acquired through SDL Adjustment Mechanism. And you've set out various principles in relation to the acquisition of water entitlements through supply – sorry, the general advice you provided, and you've got all the bullet points, and you've mentioned down in the third last paragraph your main concern:

5
10
The characteristics of some of the entitlements proposed to be acquired through the SDL adjustment mechanism may not be consistent with these principles, limiting my capacity to achieve the ecological outcomes intended by the Basin Plan with the entitlements recovered.

MR PAPPS: Yes.

MR BEASLEY: What does that – what's – can you expand on that concern there?
15

MR PAPPS: The – in a nutshell, the power of the Commonwealth Environmental Water Holder of the existing system of entitlements and allocations is that, with the right product, the right entitlement you're able to, for example, move water around, trade water over space and time, and this improves the long term efficacy of the portfolio that you hold, and so those dot point characteristics are I think a good summary of what we are looking for in a portfolio. And we were concerned at the time that, should the SDL adjustment mechanism projects deliver the entitlements to the Commonwealth water portfolio that they – that they met those minimum set of criteria. I don't recall the exact nature of the concern at Menindee Lakes, but I think our initial concern was that the nature of the product that we might get from that made it a less efficient form of entitlement.
20
25

MR BEASLEY: All right. And when you're talking about the supply measures projects – and I'm at the bottom of the third last paragraph:
30

Supply measures projects such as the structural and operational changes at Menindee Lakes.

And then you've got:
35

An improved regulation of the River Murray.

That's the hydro cues project - - -

MR PAPPS: Yes.
40

MR BEASLEY: Otherwise known as – correct?

MR PAPPS: Yes. I think that's what it's referring to. That was what I took it to be.
45

MR BEASLEY: And – yes. I think you – at page 4 of this letter you set out in more detail your concern. The first main paragraph:

5 *As you are aware, the CEWH has provided advice on a number of projects related to the adjustment mechanism. I would like to take this opportunity to again highlight I cannot commit to providing environmental water to any project which does not fully align with my statutory obligations as the Commonwealth Environmental Water Holder.*

MR PAPPS: Yes.

10 MR BEASLEY: In other words, that these supply measures may make an assumption about behaviour by you, as the CEWH, but if that's not entirely consistent with your own statutory obligations then there's a problem?

MR PAPPS: That's correct.

15 MR BEASLEY: And you've said that there's a moderate – in the next paragraph there's a moderate likelihood that you won't always be – that water from your portfolio won't always be available in a manner assumed by an SDL adjustment mechanism.

20 MR PAPPS: That's correct.

MR BEASLEY: Yes. And then you've set out the reasons why that – in the bullet points, why that moderate likelihood might be a problem.

25 MR PAPPS: Yes.

MR BEASLEY: I wanted to ask you: did you receive a response to this letter?

30 MR PAPPS: I don't recall. I may well have. It should have been – I think – part of the material released publicly, but look, I can't – I can't be sure. The - - -

35 MR BEASLEY: I think we've checked and, look, I'm not saying there has not been a response to this letter, but I think we've had made available to us all of the documents produced in the Senate; is that right? And we haven't found – we haven't found a response.

MR PAPPS: I can confirm that, of course, there were a great many conversations, perhaps not written responses.

40 MR BEASLEY: Yes?

45 MR PAPPS: But there were a great many conversations at officer level, so a very technical level, in some ways far more technical than I had a capacity for, particularly around some of the obscure river regulation projects, but certainly also at my level I was confident that the Authority and that Phillip Glyde, as CEO of the Authority, understood our – my concerns.

MR BEASLEY: Did you have discussions with him concerning these concerns?

MR PAPPS: Yes. We had a range of conversations about those sorts of issues, including these, and I always got the sense that – first of all, Mr Glide gave me a
5 very fair hearing. He was genuinely interested in what I had to say and he understood the perspectives that I was putting to him.

THE COMMISSIONER: What about the questions of implications for Ramsar wetlands that you raise on page 5 with Mr Glide? Do you recall obtaining the
10 assurances you sought there?

MR PAPPS: I don't recall obtaining the assurances. It featured in conversations generally, but it probably wasn't as important as the more fundamental point around an assumption of decision-making. We just wanted to be absolutely sure that
15 everyone knew unequivocally that if, for example, you had come up with a project that assumed I was going to put 10 gegalitres through it every single year you couldn't make that assumption. The Ramsar – we had some conversations about it. I don't recall the outcome of those but it was important, I think given the role that I had, to remind everyone that there were some very fundamental Ramsar obligations
20 that had to be met as well.

THE COMMISSIONER: Yes.

MR BEASLEY: In paragraph 12 of your submission you discuss having a – sorry, I've skimmed over something. The other matter that you have a concern with, regarding the supply measures, is that they are entirely dependent on a constraints
25 strategy being not only implemented but constraints being removed?

MR PAPPS: Yes.
30

MR BEASLEY: In relation to which there's certainly no evidence that has been presented to the Commission, or that we can find anywhere that suggests that much progress has been made in relation to dealing with constraints at all?

MR PAPPS: Yes. I think it would be fair to say, certainly from my perspective as an environmental water manager, that progress on constraints had stalled, particularly the very difficult ones – perhaps they're all difficult, and maybe that's
35 part of the reasoning.

MR BEASLEY: Is that a handicap to the CEWH as well; constraints?
40

MR PAPPS: Yes.

MR BEASLEY: In terms of your ability to - - -
45

MR PAPPS: Yes.

MR BEASLEY: Can you give some examples.

MR BEASLEY: Well, there are physical constraints like the Barmah Choke, which you probably will have heard of. So a natural physical narrowing of the channel, so
5 that limits the physical amount of water you can get through the system and, of course - - -

MR BEASLEY: In the sense that you don't want a flood at the wrong time?

10 MR PAPPS: In the sense that we can't flood private land and, of course - - -

MR BEASLEY: Right. Okay?

MR PAPPS: - - - most of these channels – when I use the word “channels”, some of
15 them were actually rivers and creeks in the system. The water is transported down the rivers and creeks. Most of the flood plains are privately owned and so, of course, you can't flood privately owned land without permission. So that's a – that's a real world limitation. That's the sort of physical constraint that was being examined. That particular physical constraint, for example, comes into play into what I think is
20 now called the hydro cues project. So I guess my observation was that if downwater projects were dependent on resolution of some of those constraint issues then the States would revive their interest in the resolution, and that would be a good thing, because it would just give environmental water managers more options.

25 THE COMMISSIONER: Well, can I just understand - - -

MR PAPPS: Sure.

THE COMMISSIONER: Do I gather, from what you've just said, that you have in
30 mind that there is some environmental watering that might be thought to contribute to the environmental equivalence for a downwater supply measure that presently is impeded by a constraint constituted by, I suppose, an inability to flood private land?

MR PAPPS: That's my understanding.
35

THE COMMISSIONER: Does it follow from that that, but for that constraint, the environmental watering would involve water spreading into privately held floodplains?

40 MR PAPPS: In some form or another, so that the volume of water that could be transported down the river and eventually reach South Australia, for example, at a time that was of most ecological value could be larger than it currently is.

THE COMMISSIONER: So over channel, out of channel flow, which will include
45 the – which will involve, depending on topography, the inundation of floodplains that may be privately held will, in fact, transport more water than wholly in-channel flow; is that right?

MR PAPPS: Yes, that's correct.

THE COMMISSIONER: So that it is in that sense and by those – that progression
of reasoning a desirable thing environmentally at the right time and in appropriate
5 volumes - - -

MR PAPPS: Correct.

THE COMMISSIONER: - - - to flood privately held floodplains?
10

MR PAPPS: That's correct. There would be benefit locally in certain
circumstances, because it's very important to get the connectivity between rivers,
floodplains and wetlands, water going out across them and then coming back into the
rivers, and secondly the ecological advantage of being able to get greater volumes
15 down through the system. Particularly in terms of being able to deliver sufficient
volumes to South Australia at the one time to be able to do more ecological good in
places like, for example, the Coorong.

THE COMMISSIONER: Now, is there any track record of which you're aware by
20 which we might estimate the prospect of success and the length of time next to
achieve it in relaxing, as it's put, these constraints?

MR PAPPS: The MDBA and the States did a lot of preliminary work on this and
I'm not aware of the detail of the outcomes. I once was but it has passed from my
25 mind. But they did, for example, a lot of theoretical inundation mapping and I know
that with the States they explored what options are available in that particular case. I
think they were looking, for example, at easements across private land.

THE COMMISSIONER: That's a form of property which would require, I think –
30 politically if not legally – either consent or compensation?

MR PAPPS: It would require negotiated consent and it would be at the cost to the
government, yes.

THE COMMISSIONER: Well, is there any track record of achieving a program,
35 because it has to be 100 per cent successful?

MR PAPPS: It does.

THE COMMISSIONER: You have to have all the owners agreeing.
40

MR PAPPS: Yes.

THE COMMISSIONER: You can't say, "I will flood Jones, Smith and Brown, but
45 I will leave out of it"?

MR PAPPS: Absolutely. It's absolutely binary. You've got to have an easement that covers all private property in question or not at all.

5 THE COMMISSIONER: I think that has happened in one reach? Is that right?

MR PAPPS: It has.

THE COMMISSIONER: How long did that take?

10 MR PAPPS: My recollection – and again I offer it hesitantly because it – I wasn't, in detail, involved – but I think more than a decade was spent acquiring easements upstream of the Barmah Choke; that is, around the Yarrowonga area.

15 THE COMMISSIONER: It doesn't look optimistic, does it, for achievement by 2024?

MR PAPPS: I would have thought not.

20 MR BEASLEY: You touched on in one of your answers, it's section – Mr O'Flaherty has pointed out to me section 110(2) of the Water Act says that this is about application of State laws to the Commonwealth Environmental Water Holder; this section does not authorise the environmental watering of land without the consent of the owner of the land?

25 MR PAPPS: Yes, that's - - -

MR BEASLEY: I'm not quite sure what that - - -

30 MR PAPPS: - - - exactly the provision.

MR BEASLEY: Yes.

35 MR PAPPS: It's possibly the first legal position any CEWH is made familiar with on acquiring the job.

THE COMMISSIONER: Are there declared Ramsar wetlands that are privately owned?

40 MR PAPPS: I'm not aware of any in the Murray-Darling Basin. There are a few - - -

THE COMMISSIONER: I should have said in the Murray-Darling Basin?

45 MR PAPPS: Yes.

MR BEASLEY: Bits of Macquarie Marshes are privately owned, aren't they?

MR PAPPS: No, the Macquarie Marshes is – the Ramsar Reserve is over the National Parks and Wildlife Service land.

MR BEASLEY: Right. Okay.

5

THE COMMISSIONER: That's why I was asking. So it's in section 110 the legislated – so the legislated non-application of State laws preventing – that might otherwise operate to prevent environmental watering is confined to declared Ramsar wetlands etcetera?

10

MR PAPPS: Yes.

THE COMMISSIONER: But it's a curious provision, subsection (2) that says:

15

This section does not authorise environmental watering without the consent of the owner of the land.

The section doesn't, in terms, authorise anything. It's simply non-applies State law but anyhow - - -

20

MR PAPPS: Yes, that's right. The clearly operational part, from a practical perspective, was section 110 (2) and, in a very practical sense again, it would be unwise of any Commonwealth Environmental Water Holder to knowingly flood private land irrespective - - -

25

THE COMMISSIONER: I would have thought unreasonable, unpleasant?

MR PAPPS: Unreasonable or unwise - - -

30

THE COMMISSIONER: Unneighbourly.

MR PAPPS: Unneighbourly. It would do a great deal of harm, understandably, to the watering program.

35

THE COMMISSIONER: Well, it has the wholly undesirable social character of requiring certain individuals to bear a cost that ought to be borne by all of us?

40

MR PAPPS: Exactly and, of course, the most – one of the most fundamental things that needs to be established between the Commonwealth program and private landholders is trust and this goes to the heart of that trust. They know that it won't happen.

45

THE COMMISSIONER: It certainly is something that which we've received evidence. Listen, can I just ask you a tiny amount of detail, on page 3, paragraph 11 of your statement, fifth dot point, the rivers as appropriate?

MR PAPPS: Yes.

THE COMMISSIONER: Should I understand that that, for example, might be useful in the Lower Darling?

MR PAPPS: Possibly, yes.

5

THE COMMISSIONER: To extend the refuge characteristics of - - -

MR PAPPS: Yes.

10 THE COMMISSIONER: - - - low flow?

MR PAPPS: Yes. Yes. There's - - -

15 THE COMMISSIONER: Is there some reason why it has not happened? Paddle-steamers don't matter anymore, do they?

MR PAPPS: No, paddle-steamers don't matter anymore. They've de-snagged a lot of rivers just to accommodate recreational boating as well.

20 THE COMMISSIONER: about to say, that doesn't matter in the Lower Darling either, does it?

MR PAPPS: No, it doesn't. It's hard to imagine what would.

25 THE COMMISSIONER: Why is it not re-snagged?

MR PAPPS: I think, again, my observation is that some of these programs have dried up for lack of State funding.

30 THE COMMISSIONER: So to speak?

35 MR PAPPS: So to speak. There are a number of things on that list that I was trying to emphasise in an unsubtle way that were capable of being undertaken by State Governments with or without the Basin Plan and one had to wonder why many of them had not been tackled.

THE COMMISSIONER: Thanks. Well, though, what's wrong with trout? That's a question. I've got no interest in killing trout, I just want to know – I think I understand what's wrong with carp. Is it a competition question with trout?

40

MR PAPPS: Yes.

MR BEASLEY: It's flavour.

45 MR PAPPS: Yes, trout are an exotic competitor to native fish.

THE COMMISSIONER: The perch?

MR PAPPS: I'm not sure what species they have an impact on but they're aggressive competitors with certain species of native fish, occasionally referred to by some fish biologists as the rabbits of the river. It's a singularly unpopular suggestion, I might add, removing trout.

5

THE COMMISSIONER: Should go down well with the Commonwealth Club, yes.

MR BEASLEY: Paragraph 12, you've mentioned that you developed a concern regarding the quality of draft New South Wales Water Resource Plans?

10

MR PAPPS: Yes.

MR BEASLEY: And you've set out, in that paragraph, some comments regarding the New South Wales Minister and the New South Wales irrigation industry and why you may have developed a concern. I want to take you to some unsigned letters that were subject of some media attention in Parliament. The first is behind tab 7 of the folder where there's a unsigned letter of November 17 from you to Mr Glyde - - -

15

MR PAPPS: Yes.

20

MR BEASLEY: - - - talking about the Water Resource Plans and seeking, in the second paragraph, an assurance from the MDBA that the states' Water Resource Plans will receive:

25

An independent and rigorous assessment as against the requirements of the Basin Plan.

Raising the issue of transparency in the third paragraph?

30

MR PAPPS: Yes.

MR BEASLEY: And asking for evidence of MDBA's independent assessment of those plans. If we turn the page, I don't want to ask you any questions about the content of the letter yet, I will - turn the page, there seems to be a more developed draft behind tab 8?

35

MR PAPPS: Yes.

MR BEASLEY: Of a very similar letter, again unsigned?

40

MR PAPPS: Yes.

MR BEASLEY: This time cc'd to the Deputy Secretary of the Department of Agriculture and Water Resources?

45

MR PAPPS: Yes.

MR BEASLEY: But it contains a little bit more information. You've said in the third paragraph:

5 *Based on information made available to your office, you're becoming increasingly anxious that the plans will undermine the CEWH's holdings and your statutory function.*

MR PAPPS: Yes.

10 MR BEASLEY: Concern reinforced by New South Wales commentary, again seeking reassurance in the next paragraph and raising the issue of transparency in the following paragraph?

MR PAPPS: Yes.

15

MR BEASLEY: And then again asking for the MDBA's independent assessment?

MR PAPPS: Yes.

20 MR BEASLEY: Again I will ask you some questions about that draft letter in a moment but I just want to make sure that we get the facts right as to the drafting of those letters and whether they were sent. There's behind tabs I and J of your brief, there's – sorry? Okay. I'm sorry, you may not have this, I'm told, which hasn't – I haven't been notified of, so that's another name in the but it has got transcript of Senate Estimates and Mr Glyde and Ms Swirepik – have I said that correctly?

25

MR PAPPS: Swirepik. Yes.

30 MR BEASLEY: Swirepik. Answering questions about this particular letter and Mr Glyde saying that he gave evidence that he – sorry. It doesn't – it's not necessary for you to look at this. I will just deal with it this way?

MR PAPPS: Sure.

35 MR BEASLEY: Mr Glyde gave evidence that he didn't receive a signed version of the letter and that you had not raised any of the issues in the draft letter with him, and you had – he said you had no discussions – sorry, he said you had no discussions with him about the content of the letter. For the Commissioner's benefit I'm looking at the transcript of the Senate Estimates, 2 March 2018, page 35 at about the middle of the page. The following – sorry, then in May – 25 May 2018, there was a further discussion about this issue and it appears as though the draft letters was sent office to office but not to Mr Glyde?

40

MR PAPPS: Yes.

45

MR BEASLEY: And I'm looking at page 17 of the Senate transcript for Friday, 25 May 2018, Ms Swirepik saying:

Yes, my understanding is the letter was transmitted from one ER –

I take it that's executive assistant, is it?

5 MR PAPPS: Correct.

MR BEASLEY:

10 *One executive assistance – that is, David Papp's executive assistance to Phillip Glyde's executive assistant. My understanding is that neither of them had fully considered it.*

15 By her – well, I guess I can't really ask you what she means by that, but I take it that the draft letter that I've taken you to – first of all, that was a letter – did you draft it yourself or did you ask someone to draft the letter for you raising those issues?

MR PAPPS: I asked it to be drafted for me.

20 THE COMMISSIONER: All right. And were you aware it had been sent from one EA to another EA. Is that what you directed?

MR PAPPS: I had – I knew after the fact, yes.

25 MR BEASLEY: All right.

THE COMMISSIONER: Are they just drafts?

30 MR PAPPS: They are drafts and – and I don't know whether you want to – you're going to take me to this but just to explain that in – on issues that are complex and sensitive, which this is, I would often ask my staff – after a long conversation so, you know, I would ask my policy staff to draft me a letter as the basis for a conversation with Phillip – and before Phillip, Dr Dixon – and I would send – for this sort of sensitive matter I would send him the draft - - -

35 MR BEASLEY: Unsigned?

MR PAPPS: Unsigned.

40 MR BEASLEY: Yes.

MR PAPPS: We would have a conversation.

MR BEASLEY: As almost an agenda for a conversation.

45 MR PAPPS: Almost an agenda – almost as a briefing note.

MR BEASLEY: Yes.

MR PAPPS: Yes. If you like, almost an internal briefing note, “Can we have a talk about it? Can I get your perspective?” Based on that I would not send the letter, modify the letter and send it or send it as it is.

5 THE COMMISSIONER: What happened with those that we have these two drafts for?

MR PAPPS: In this case, it’s November 2017; I had decided to retire and was in the run-up to retirement. I had a number of other things on, including a number of
10 Ramsar commitments that involved travel to Switzerland where the Ramsar convention is housed and I simply just didn’t deal with it until it got to a certain point where I decided that the best thing all round would be that the new CEWH can have a look at it, have a conversation with her staff and decide what she would do with it, if anything.

15 THE COMMISSIONER: So does it today represent at all views that you had and still hold or views that somebody else held and you never adopted or what?

MR BEASLEY: Can I just – sorry to interrupt that question but just to get the – if
20 you go to tab M, there’s a confirmation of what you’ve just – the evidence you’ve just given, so do you have a tab M?

MR PAPPS: No.

25 MR BEASLEY: All right. Tab M was a – it looks like a question without notice from Senator Barry O’Sullivan?

MR PAPPS: Yes.

30 MR BEASLEY: And you’ve written to Senator O’Sullivan saying:

Firstly, I want to reaffirm the –

this is an email you’ve sent on 21 April 2018?

35

MR PAPPS: Yes.

MR BEASLEY: Where you thank Senator O’Sullivan for a - - -

40 THE COMMISSIONER: You’ve lost me with alphabetised tabs.

MR BEASLEY: Well, you probably don’t have this.

THE COMMISSIONER: That’s probably why I’m lost.

45

MR BEASLEY: You do now. Which was why I very rudely interrupted your question to - - -

THE COMMISSIONER: That's all right. Well, it's not all right.

MR BEASLEY: No, it's not.

5 THE COMMISSIONER: But I will accede for a while.

MR BEASLEY: But, because I knew you didn't have this letter.

THE COMMISSIONER: Thanks.

10

MR BEASLEY: Anyway. You've said – you thank Senator O'Sullivan for a letter of 28 March?

MR PAPPS: Yes.

15

MR BEASLEY: No doubt to clarify what's going on and you say:

I want to reaffirm the obvious point that only the current CEWH is in a position to determine a final position.

20

MR PAPPS: Yes.

MR BEASLEY: Because you've resigned by this time?

25 MR PAPPS: Yes, I've gone.

MR BEASLEY:

The letter in question was drafted in the Commonwealth Environmental Water Holder office at my request.

30

MR PAPPS: Correct.

MR BEASLEY:

35

It reflected my inchoate concerns over the quality of New South Wales' draft Water Resource Plans, and the potential for a less than optimal opportunity for me to provide feedback on them as part of the MDBA's assessment?

40 MR PAPPS: Yes.

MR BEASLEY:

As was my usual practice on such a complex and important matter, it was my intention to provide the MDBA CEO with an unsigned draft as a basis for discussion.

45

MR PAPPS: Yes.

MR BEASLEY:

5 *This was recognition of the fact that the MDBA was the decision-maker. This discussion would lead me to a final position.*

MR PAPPS: Yes.

10 MR BEASLEY: And then you've said:

My retirement was imminent, so I've left it with the next CEWH.

MR PAPPS: Yes.

15

MR BEASLEY: All right.

THE COMMISSIONER: Your inchoate concerns - - -

20 MR PAPPS: Yes.

THE COMMISSIONER: - - - therefore were not the subject of the kind of process that you had envisaged by which they might be confirmed, strengthened, weakened, or contradicted?

25

MR PAPPS: That's correct.

THE COMMISSIONER: Do you still have those concerns?

30 MR PAPPS: Because I haven't been involved in the subsequent conversations that have apparently happened then they probably are a fair representation on my concerns. Were I to be exposed to the outcomes of those conversations, then perhaps I would adopt a different view.

35 THE COMMISSIONER: Certainly.

MR PAPPS: But I did want to make the point that – and I think I've said this previously, that this is not the first opportunity or time that we had raised concerns about the quality of product from the New South Wales Government. We were not the decision-maker, we didn't have a formal role in the process, but the MDBA would accommodate our observations where they could, and so we had just got to the stage – I had got to the stage where I was very concerned about what New South Wales was bringing to the table. We couldn't do the job with Commonwealth environmental managed water if, for example, planned environmental water was diminished in New South Wales.

40

45

The thing only works if it works together. So that's why the anxiety I had also expressed previously. I suspect you've got copies of them, probably I think Estimates has revealed and released nearly all of my correspondence. I had some concerns around the New South Wales prerequisite policy implementation plan as well, for example.

MR BEASLEY: What were those concerns?

MR PAPPS: I thought that the proposal that they were making for the protection or shepherding of environmental water in New South Wales was clumsy, inefficient, based on the assumption that environmental water always had a negative impact on consumptive water, and wouldn't do the job. It wouldn't properly protect environmental water as it passed through the system. And we had been saying that, and I had been saying that to New South Wales and to the MDBA, from the very first draft of that document.

THE COMMISSIONER: Is it shepherding as such that attracts those descriptions or is it the means of shepherding or what?

MR PAPPS: It was the mechanism for shepherding that was being suggested.

THE COMMISSIONER: So it was – it's an ad hoc embargo was the method?

MR PAPPS: I don't know how to describe it to you, Commissioner. It was – it wasn't actually built around embargoes. It was built around a complicated accounting system that has a name which I can't recall, but the net result was that on our assessment, on our technical assessment, this was not going to provide the sort of protection for environmental water that we needed and, where it would do so occasionally, it would be at some cost to us, and we thought that was not consistent with New South Wales' undertaking to protect environmental water through the New South Wales system.

THE COMMISSIONER: Do I understand correctly that, at its most simple, shepherding is a figure of speech we apply to rules or a system to ensure that when you, the Environmental Water Holder, arrange for some watering by the – by flow, that that won't simply be pumped by irrigators?

MR PAPPS: That's a very good description of it, and the most practical example is indeed in the – in the Darling River, where you've seen some of the publicity around illegal take. Our principal concern at the time was legal take where there's no shepherding.

THE COMMISSIONER: Yes. Quite. And so shepherding – I wasn't being quite clear, I was not talking about anything illegal?

MR PAPPS: No.

THE COMMISSIONER: That is irrigators pumping because the levels say – the requisite levels to permit pumping - - -

MR PAPPS: Had been reached.

5

THE COMMISSIONER: - - - existed, yes?

MR PAPPS: Yes. So what they were doing was perfectly legal.

10 THE COMMISSIONER: Yes. Now that, as I understand it, is an example - - -

MR PAPPS: Yes.

15 THE COMMISSIONER: - - - of one of the ways in which water may, to use the jargon, lose its character from environmental water to become available for consumptive use?

MR PAPPS: Yes.

20 THE COMMISSIONER: Which I stress may not be unlawful but may be a real defect in the overall exercise.

MR PAPPS: That's right.

25 THE COMMISSIONER: Well now, I had understood that one way which shepherding is currently capable of being carried out is by the imposition of temporary and localised embargoes - - -

MR PAPPS: Yes.

30

THE COMMISSIONER: - - - to coincide with an environmental release; is that correct?

MR PAPPS: That's correct.

35

THE COMMISSIONER: That sounds – and I'm only a lawyer, that sounds elegant in its simplicity to me; is there something wrong with it?

40 MR PAPPS: We would have preferred an arrangement where the shepherding process was built into – built automatically into Water Sharing Plans, so it didn't require a ministerial discretion.

THE COMMISSIONER: So how would people know they can't pump in that reach for that time?

45

MR BEASLEY: Is this - - -

THE COMMISSIONER: Sorry. Let's take - - -

MR BEASLEY: - - - by the imposition of daily extraction limits and total daily extraction limits, individual daily extraction limits? Some mechanism like that?

5

MR PAPPS: That might be part of it, for example.

MR BEASLEY: Yes.

10 MR PAPPS: But they would, again going back to the Commissioner's question, and my understanding isn't quite as technically detailed as you might want, it would involve making sure that irrigators were aware of the presence of flows and that would trigger, if you like, a rule in the WSP that protected those flows.

15 THE COMMISSIONER: So kind of a standing embargo arrangement?

MR PAPPS: Like a standing embargo arrangement that didn't involve the Commonwealth Environmental Water Holder and his or her staff having to negotiate all the way up to the New South Wales Minister to get a ministerial embargo.

20

THE COMMISSIONER: Quite. Yes. That isn't elegant, I agree. Yes. So that - - -

MR PAPPS: But it is straightforward and very effective as an interim arrangement.

25 THE COMMISSIONER: Can and should however, you say, be anticipated and built into a WRP?

30 MR PAPPS: Yes. I can't describe exactly what it would look like, but I also can't believe that between the expertise and experience in the New South Wales agency and the Commonwealth Environmental Water Office, and the MDBA for that matter and their operational wing, that we couldn't come up with a mechanism that would meet the obligation that New South Wales, and indeed all Basin States, had given already as part of the Basin Plan.

35 THE COMMISSIONER: I've received some material suggesting that, unfortunately, the bank of knowledge skill and experience in the New South Wales department may not be what it used to be.

40 MR PAPPS: I think that's a fair comment. In the period - - -

THE COMMISSIONER: In which case that's a critical phase in their operations - - -

45 MR PAPPS: Yes.

THE COMMISSIONER: - - - to complete WRPs by mid next year?

MR PAPPS: Yes. No, you're quite right. I think that's – that's exactly my understanding. I've seen the loss of expertise in the New South Wales department. I think I made passing mention in my submission that you can't have an investment, a public investment in this amount of environmental water in this case, and not fund the agencies at the level necessary to properly manage it.

THE COMMISSIONER: If I may say so, that flies in the face of history.

MR PAPPS: Yes, you're quite right. Governments' capacity to snatch defeat from the jaws of victory, having introduced a strong and positive and useful policy, then defund the relevant agencies. You're quite right, but I live in hope.

THE COMMISSIONER: It's a false economy that's constantly being practiced, I would have thought.

MR PAPPS: Yes. My 30-odd years in various public services lead me to agree completely with you.

THE COMMISSIONER: Though I think I agree with – I'm sure I agree with what I think you were saying, namely it ought never be the case that very large sums of public money are expended on grand and beneficial schemes without ensuring that there are all the necessary ancillary expenses provided for as well.

MR PAPPS: Yes.

THE COMMISSIONER: Now, you've talked about what I will call administrative and if I might call them subsidiary regulatory functions. It does occur to me, from all the material I have received that, in this area in particular, given the likely dynamic nature of our relative ignorance concerning the system and our need to improve that position constantly, that monitoring, science, evaluation, analysis, publication, scrutiny, invitation of peer review, etcetera, is a continuing process that must also be funded; is that not right?

MR PAPPS: Yes, you're quite right. Absolutely.

THE COMMISSIONER: Whereas the material I've received rather suggests that's not happening.

MR PAPPS: Yes. I think the experience we've had in things like ecological monitoring is that the total expenditure seems to be declining and the Commonwealth currently, I think, spend more than anyone.

MR BEASLEY: The MDBA made a submission to the Productivity Commission that the – I will come to this a moment – but the Basin is too big and their funding is too low for them to properly monitor.

THE COMMISSIONER: Well, isn't that – on any view of the objects of the Act and the core concepts of SDL and ESLT, and the protecting and restoring in a sustainable fashion the biodiversity – doesn't that rather indicate that the consideration not only of funding, but of governance, displays a currently deficient approach?
5

MR PAPPS: Generally, I think so. In the Commonwealth Environmental Water Office I think we have sufficient funding for our ecological monitoring just to be able to deploy adaptive management. But it really needs, in order to be as good as it can be, a greater investment in funds. And that would be true of other Commonwealth agencies and State agencies.
10

THE COMMISSIONER: But it would need to be funding that wasn't dependent upon discretionary decisions of an entity or agency whose work was being scrutinised. That being, I regret to say, an opportunity for human nature in its most venal.
15

MR PAPPS: Yes.

THE COMMISSIONER: Well then - - -
20

MR PAPPS: I think that's an issue.

THE COMMISSIONER: - - - that would mean the MDBA should not be responsible for funding what I'm going to call scrutiny of its activities. It should rather be responsible for funding of its operational activities, much of which will be science, of course. It would seem odd to me, from what I know about a peer review traditional approach in science, if authors were responsible for funding peer reviewers whose identity they knew. That would appear to be - - -
25
30

MR PAPPS: It's an issue.

THE COMMISSIONER: - - - be an elementary error in process, wouldn't it?

MR PAPPS: Yes. If that is in fact happening, and that the review process is being influenced, then that's not an appropriate outcome.
35

THE COMMISSIONER: Similarly, it would seem unfortunate to me that one would have to depend to any great extent on ARC grants for work important to the Basin. The ARC is a wonderful thing, no doubt underfunded as well, but it seems odd that monitoring evaluation and constant improvement – that is continuous improvement for something like the Basin Plan and the watering plans under it – would depend upon the kind of competition - - -
40

MR PAPPS: Yes.
45

THE COMMISSIONER: - - - which can never satisfy all applicants that the ARC has to conduct.

MR PAPPS: Yes, I think that's right. Which is why the Commonwealth
5 Environmental Water Holder has an advantage in that she can access a fund that only
the Commonwealth Environmental Water Holder can authorise expenditure from and
that's what is being used, amongst other things, to fund the long-term ecological
monitoring necessary to underpin the adaptive management. And I think it's
10 contemporary best practice in Australia. If it could be expanded, that would be a
boost, and your observations on the other sorts of monitoring and peer review, I
think, are reasonable.

THE COMMISSIONER: Don't get me wrong. I'm not suggesting the ARC should
15 have no role in this, but it just seems to me that one shouldn't have to depend on that.

MR PAPPS: Yes.

THE COMMISSIONER: If the Productivity Commission draft report suggestion
20 concerning separating what I will call operational and administrative functions from
regulatory or scrutinising functions were followed through, then the latter entity
could be provided with funding which – free of political dictation - - -

MR PAPPS: Yes.

25 THE COMMISSIONER: - - - could enlist the skills and judgments of people who
otherwise may or may not apply for an ARC grant.

MR PAPPS: Yes.

30 THE COMMISSIONER: And then there's CSIRO, standing with its statutory
charter, in a position to provide a great deal of the intellectual grunt in this area as
well, isn't it?

MR PAPPS: Yes, I think so. Certainly been used extensively by the Authority.
35 We've got a slightly different arrangement. I'm sorry, I use the present tense and, of
course, I'm not any more the CEWH. The Commonwealth Environmental Water
Office has a different arrangement, involving its own ecological monitoring, that
essentially has seen it enter into contractual agreements with consortiums including
40 universities and other researchers, and it means that the research is focused very
strongly on results and outcomes, and what we learn from them, and publishing
scientific papers is a secondary benefit, not the primary outcome.

THE COMMISSIONER: That's in itself no bad thing, so long as publication is not
45 impeded; isn't that right?

MR PAPPS: That's right. It seems so far to be working very well, and certainly the
body of knowledge that's being generated by some really excellent scientists out of

the work that we've been funding is impressive and growing. But it all depends, as you rightly point out, at the beginning you've got to make sufficient investment for it to be useful.

5 THE COMMISSIONER: Well now, some of the questions I've been asking you about funding, as you may have detected, contain a concern on my part about what I will call institutional conflicts.

MR PAPPS: Yes.

10

THE COMMISSIONER: One of those institutional conflicts is between politics and science, in my view.

MR PAPPS: Yes.

15

THE COMMISSIONER: Is that something that you've experienced?

MR PAPPS: Yes.

20

THE COMMISSIONER: In a piece of correspondence that's at tab 15 of your witness bundle Mr Pratt on 18 April 2018 in writing to the Chair of the House of Representatives Standing Committee on the Environment and Energy says in the third paragraph that:

25

Having the CEWH role within the Department encourages the integration of a whole of government approach to the protection of Australia's environment.

Do you see that?

30

MR PAPPS: Yes.

35

THE COMMISSIONER: I don't presently understand what that jargon – I do understand it, believe me, what whole of government means, but I don't understand what that jargon – expression is intended to promise or threaten in relation to section 107 and 105 of the Water Act. Let me explain. Section 105, which describes the functions of the CEWH, being functions which are discharged on behalf of the Commonwealth, see subsection (1), is then more specific about the general function of managing the Commonwealth environmental water holdings.

40

MR PAPPS: Yes.

THE COMMISSIONER: And in particular, it has three of those sub-functions as being exercising Commonwealth powers to dispose of water.

45

MR PAPPS: Yes.

THE COMMISSIONER: - - - exercising Commonwealth powers to contract for that purpose, and maintaining records. Now, all the functions are governed by the purpose of protecting and restoring environmental assets so as to give effect to treaties, see subsection (3). And the management of environmental water holdings in the Murray-Darling Basin has to be in accordance with the Environmental Watering Plan, which derives from the Basin Plan and the WRPs; isn't that right?

MR PAPPS: Yes.

10 THE COMMISSIONER: One of the sub-functions in relation to managing those holdings is making available water from the Commonwealth holdings, see paragraph (d) of subsection (2); right?

MR PAPPS: Yes.

15 THE COMMISSIONER: Go over to section 107 and there's an express sparing of the holder from direction by the Secretary of the Department or the Minister?

MR PAPPS: Yes.

20 THE COMMISSIONER: In relation to paragraphs (a), (b) and (c) but not, for example, (d) - - -

MR PAPPS: Yes.

25 THE COMMISSIONER: - - - of section (2) of section 105.

MR PAPPS: Yes.

30 THE COMMISSIONER: Again, I apologise for the tedious way this has to be specified, but that's reflecting the statute.

MR PAPPS: Yes.

35 THE COMMISSIONER: I, at the moment, see a real tension between what might be thought to be an implication that the Secretary or Minister can give directions to the holder in relation to managing – in relation to making available water from holdings, and the specific provisions of subsection (3), subsection (4) which restricts the purpose and manner in which those holdings can be used?

40 MR PAPPS: Yes.

45 THE COMMISSIONER: And so I'm troubled by what it is that I should understand as being conveyed by "a whole of government" approach. Let me explain: whole of government means there won't be conflict, for example, between one Minister and another.

MR BEASLEY: No, we're all on the same page. We're all on the same page, it means.

5 THE COMMISSIONER: Whereas I would have thought the provisions here mean that the Commonwealth Environmental Water Holder from time to time would say, "Minister this water is not available to relieve the needs for irrigation of somebody who wants to grow fodder for a market with rising prices."

10 MR PAPPS: Yes.

THE COMMISSIONER: And, "Unless and until the statute changes it doesn't matter that Cabinet makes a decision, I am not permitted to make it available, see section 105"?

15 MR PAPPS: Yes.

THE COMMISSIONER: It's called the rule of law, actually, and I mean that really seriously.

20 MR PAPPS: Yes, absolutely.

THE COMMISSIONER: So what – I mean – what lies behind this notion that Mr Pratt, as Secretary of the Department, advances to a very important standing committee of the House of Representatives concerning the encouragement by the integration of a whole of government approach to the protection of Australia's environment? What does that say about the statutorily required independent statutory restrained judgment of the CEWH?

30 MR PAPPS: I would have to speculate, because I wasn't clearly involved in the construction of the letter, but my personal view is I think it goes to the value for the Commonwealth Environmental Water Office, for example, having access to expertise within the department on threatened species conservation, on environmental mapping and information management, being able to access, for example, the people who have been working on the Bonn Convention and other biodiversity conventions that are managed outside of the CEWH. I think that's what it's going to, but I – that is speculation on my part.

40 THE COMMISSIONER: Section 116 requires the staff necessary to assist the holder to be public servants employed in the Department and made available for the purpose by the Secretary of the Department?

MR PAPPS: That's right, yes.

45 THE COMMISSIONER: And so we didn't – we don't need an integration of a whole of government approach to staff the office, because section 116 says the Secretary needs to make those arrangements.

MR PAPPS: That's correct.

THE COMMISSIONER: So we can put that one aside. I'm also troubled by the
5 fact that I think I'm to identify the current CEWH as being either an author of, or the
person responsible for, this statement?

MR PAPPS: The submission?

THE COMMISSIONER: Yes?
10

MR PAPPS: I assume that to be the case.

THE COMMISSIONER: It says:

15 *The contact for the submission.*

Now, that's not the letter, it's the attached document:

20 *The contact for the submission is Ms Jody Swirepik, the CEWH.*

MR PAPPS: Yes.

THE COMMISSIONER: I appreciate that doesn't amount always to who the author
25 of the submission is, but it certainly amounts to saying, "Here's somebody
responsible who can help you."

MR PAPPS: Yes.

THE COMMISSIONER: And we're not talking about a clerical position. We're
30 talking about the very opposite in the hierarchy, aren't we?

MR PAPPS: That's correct.

THE COMMISSIONER: But what about the letter itself? Should I assume that the
35 current CEWH agrees with the idea that having the CEWH role within the
Department encourages the integration of a whole of government approach to the
protection of Australia's environment?

MR PAPPS: I'm not sure. I really don't want to put any words in her mouth. My
40 reading of it would be the very non-statutory interpretation of the value added by
being in an environment department and having access to that expertise and
experience that isn't contained within the Commonwealth Environmental Water
Office. So I know, for example, that when I was the CEWH dealing with Ramsar
45 international matters, I drew heavily on the expertise outside of the Commonwealth
Environmental Water Office as well as within.

THE COMMISSIONER: So how on earth would a whole of government approach to the protection of the environment encompass a drought envoy suggesting diversion of environmental water?

5 MR PAPPS: I'm not sure it would. I couldn't see that as a proper construction of that approach.

THE COMMISSIONER: Well, no doubt, if I've been boxing at shadows, Mr Pratt or Ms Swirepik can put me right.

10

MR BEASLEY: I wanted to go back to your draft letter behind tab 8.

MR PAPPS: Yes.

15 MR BEASLEY: And I wanted to know whether there's anything behind the issue of assurance that you raised in the fourth paragraph that:

The Water Resource Plans will receive an independent and rigorous assessment against the requirements of the Basin Plan.

20

That's the MDBAs job. Was there a particular issue that led you to seek that assurance? What was behind raising that?

25 MR PAPPS: Yes. So just again to provide some context: so this was drafted for me by staff in the CEWHO, I was comfortable with the content as the basis for conversation. That's a perhaps unnecessarily assertive approach, that possibly would not have survived the conversation with Phillip Glyde, but I think that we were concerned to be supportive of the Authority in exercising its role in this regard given the very significant pressures being brought to bear on them by the State agencies and the State governments. So it possibly reads, as you read it, more intimidating than I would have meant. So were I have to gone through the normal process with this letter, I'm sure I would have modified the language so it was a more collaborative and supportive thing - - -

30

35 MR BEASLEY: Okay?

MR PAPPS: - - - in supporting the Authority, offering whatever technical advice, for example, that we could.

40 THE COMMISSIONER: What was the New South Wales commentary which excited some of these concerns?

45 MR PAPPS: It could be characterised in our view, and certainly in my view, as reflecting a lack of commitment to implementing the reforms that they had committed to or meeting their obligations in a way that was as complete as we would like, And things have changed, of course. The New South Wales department is under new leadership, so perhaps this is all an artefact of history, but certainly in the

period that I served the New South Wales department, in my view, was unnecessarily aggressive in reading down its obligations under both the Plan and the agreements associated with it.

5 And I gave some examples before where, for example, the prerequisite policy
measure implementation plan around shepherding, for example, seemed to us to be
the product of an agency that either didn't understand what was needed or
understood it and chose not to provide it, because they were building everything on
10 the assumption that held environmental water always had a negative impact on third
parties, in other words consumptive users. So it was the – it was this culture thing
that I've talked about before that, you know, the agency if it has got a very bad
culture, a very negative culture, produces things that are, in our view, a reading down
of what they ought to be doing.

15 THE COMMISSIONER: Was it the existence or the use of environmental water
holdings that seemed to attract that characterisation, or is it both, or neither, or what?

MR PAPPS: Good question. I think it was mostly the utilisation or a concern about
how it might be utilised.

20

THE COMMISSIONER: So we're not talking here about effects on riparian owners
such as damage to crops or rendering pasture unavailable?

MR PAPPS: No. They're concerned about flow-on impacts. For example, were we
25 to utilise all of the rights available to – if the Commonwealth were to utilise all of the
rights available to it as an entitlement holder, for example, where there would be
competition for channel space, for example, during irrigation season.

30 THE COMMISSIONER: In a sense that's in the nature of things, isn't it?

MR PAPPS: It is.

THE COMMISSIONER: That happens between consumptive users as well doesn't
it?

35

MR PAPPS: It does.

THE COMMISSIONER: That's why they have to book their orders?

40 MR PAPPS: Correct.

THE COMMISSIONER: And then there are operating rules which are strikingly
sophisticated?

45 MR PAPPS: Yes.

THE COMMISSIONER: Which have existed for, probably over a century, to accommodate that kind of question, isn't it?

MR PAPPS: That's right. And we - - -

5

THE COMMISSIONER: Why is that third party detriment?

MR PAPPS: I think there's a cultural assumption that environmental water is second class.

10

THE COMMISSIONER: Yes.

MR PAPPS: So maybe I gave you the wrong answer to your question. Maybe it's both existence and utilisation in that regard.

15

THE COMMISSIONER: So they accept that they might be shoulder to side by somebody who got in first who's another farmer, but they don't like it if it's for watering a bird breeding site?

20

MR PAPPS: No, correct. And to be fair where – when I was Commonwealth Environmental Water Holder, where there weren't significant ecological ramifications and we were asked to delay water, for example, to do that – accommodate irrigation water – we would do so, but we wanted the chance to exercise a discretion based on the circumstances, not have it assumed.

25

THE COMMISSIONER: Was there, in these dealings, any explicit reliance on guarantees about reliability and changes - - -

MR PAPPS: Yes.

30

THE COMMISSIONER: - - - By reason of 6.14 of the Basin Plan?

MR PAPPS: Yes, there were concerns around that. I can't explain the technical detail of those concerns.

35

THE COMMISSIONER: Not sure I can either, but anyhow?

MR PAPPS: It's beyond my understanding, but they were one of the concerns that were raised. It was quite explicitly put to us at times that it needed to be – irrigators and consumptive users needed to be protected from any action which would affect the reliability of their entitlement. When we would ask for evidence that such a thing was happening it was usually not forthcoming. In fact, I never saw any evidence. And arguably in some circumstances, such as the one we talked about with the extraction of what was previously environmental water, we improved the reliability of a consumptive entitlement.

45

MR BEASLEY: We've covered some of this ground, but in paragraph 29 of your submission – sorry, Commissioner, do you have any questions leading up to that?

THE COMMISSIONER: No. That's fine fine.

5

MR BEASLEY: Paragraph 29 of your submission, you've said in terms of the – you've submitted in terms of environmental watering:

10 *The Commonwealth and all Basin State governments must significantly increase their funding of long-term ecological monitoring.*

I just want to go through with you what requirements there actually are for monitoring, and explore with you your concerns there.

15 MR PAPPS: Yes.

MR BEASLEY: We've discussed chapter 8 of the Basin Plan.

MR PAPPS: Yes.

20

MR BEASLEY: Which doesn't set out monitoring obligations, but more principles to be applied in environmental watering. I've just noticed that it talks about watering environmental assets and talking about the selection of environmental assets, none of which has any relevance to economic or social outcomes, but - - -

25

MR PAPPS: No.

MR BEASLEY: Schedule 7 of the Basin Plan sets out – which is at page 229, if you have it, if you've got the same page numbers as I do, sets out the targets to measure progress towards objectives and talks about targets immediately up to 30 June 2019:

30

No loss of or degradation of the following –

35 it talks about flow regimes, hydrological activity, river flood plain and wetland types, etcetera, condition of the Coorong.

MR PAPPS: Yes.

MR BEASLEY: Then longer term targets from 1 July 2019.

40

MR PAPPS: Yes.

MR BEASLEY: Then we have schedule 12 of the Basin Plan, which outlines various bodies who are to be the reporter on matters concerning the Basin Plan and, for example, the achievements of – looking at – I'm now at page 249, schedule 12, item 7:

45

The achievements of environmental outcomes at a Basin scale by reference to the targets in schedule 7 –

that I've just taken you to.

5

MR PAPPS: Yes.

MR BEASLEY: And both the Authority and the CEWH are to be a reporter in relation to that?

10

MR PAPPS: Yes.

MR BEASLEY: And in relation to other items in schedule 12 sometimes it's the Basin States, sometimes it's the Authority, and sometimes it's also the CEWH, so identification of environmental water and monitoring of its use is something the Basin States, the CEWH, the Authority have some obligation to give monitoring on. It also mentions category A and category B. I get very nervous when we see categories like that, but in this case category A is subject to five yearly reporting and B is annual reporting?

20

MR PAPPS: Yes.

MR BEASLEY: And, back when I read that, note, it has got a reference back to section 13. Section 13 – or chapter 13, I will call it, of the Basin Plan is the Basin Plan program for monitoring and evaluating the effectiveness of the Plan?

25

MR PAPPS: Yes.

MR BEASLEY: Although it largely discusses the obligations of the Authority to monitor the effectiveness of the Basin Plan and, in particular, at section 13.05, at 153, it talks about the Authority evaluating the effectiveness of the Basin Plan against the objectives and outcomes set out in chapters 5 – which is the chapter dealing with the overall objectives for the Basin Plan, which are largely environmental?

35

MR PAPPS: Yes.

MR BEASLEY: If not entirely. 8, the Environmental Watering Plan, and chapter 9 which is – I should know already, water quality and salinity. Yes?

40

MR PAPPS: That's right.

MR BEASLEY: And makes reference to the sections in the Water Act where that power originally comes from. The Basin Authority itself though has released a number of reports about the monitoring it has been able to do, and in particular I'm referring to some 2017 publications by the Basin Authority and, for example – and I'm just wondering whether this is what you have in mind in terms of the need for

45

more money for monitoring. The Basin Authority has put out statements, and I will tender in the end all the documents that these statements come from, but for example the Basin Authority said there's no native vegetation monitoring program across the Basin.

5

Therefore, the determination towards maintaining recruitment of River Red Gums, Black Box, or Coolibah is difficult due to lack of information at the Basin scale. There's no widespread mapping, monitoring or reporting of lignum shrub land vegetation in the pace base. There's no consistent data that provides evidence of the current state of five of the 25 key native fish species in the Basin. There's still a significant amount of work required to fulfil a robust and rigorous evaluation of the hydrological dataset to monitor environmental water under the Basin Plan, etcetera, etcetera. And I'm grateful – so he gets a record – a note in the transcript, Mr Traeger has done that research. They're the sort of holds - - -

10
15

MR PAPPS: Yes.

MR BEASLEY: - - - you're talking about in terms of monitoring that, really, it's essential that those sorts of matters are monitored. You can't do adaptive management unless you know what's going on for a start, is that right? It seem very obvious.

20

MR PAPPS: Absolutely correct. Not only the things you read out – they certainly were in my mind – but also the state programs; the state agencies undertaking this work using their own water – planned environmental water or State-held water – also have to report so that we get a complete picture. And you're right – I don't want to take you through legislative provisions, but there is a definition of “adaptive management” which I'm obliged to follow in the Basin Plan. And, very clearly, even if you hadn't worked out yourself that you can't do adaptive management without appropriate monitoring, you would clearly see it's – you've got to know what's happening and respond accordingly.

25
30

THE COMMISSIONER: Well, the well-known phrase “learning by doing” involves knowing what's being done, doesn't it?

35

MR PAPPS: Yes.

THE COMMISSIONER: Yes.

MR PAPPS: Yes. There is no way to do the job that is being asked of any environmental water manager, let alone the CEHW without proper ecological monitoring and the sorts of things that Mr Beasley read out from those reports.

40

THE COMMISSIONER: Well, if you bear in mind as, arguably, a constant that an SDL has, at its definitional heart, the notion of an Environmentally Sustainable Level of Take, from time to time?

45

MR PAPPS: Yes.

THE COMMISSIONER: - - - then the vast experiment which is the Basin Plan is one where you wouldn't necessarily wait to a preconceived end point to make alterations, isn't that right?
5

MR PAPPS: That is right.

THE COMMISSIONER: You may find, for example, that you're inflicting more economic harm than is necessary because there has been tremendous success in excess of expectations and modelling - - -
10

MR PAPPS: Yes.

THE COMMISSIONER: environmental watering - - -
15

MR PAPPS: Yes.

THE COMMISSIONER: - - - enabling irrigators to obtain what might be called an "earlier rebalance" in their favour?
20

MR PAPPS: Yes.

THE COMMISSIONER: I've not heard anybody argue against that as a possibility?
25

MR PAPPS: No, I think that is a possibility and, of course - - -

THE COMMISSIONER: The converse is also true, though, isn't it?

MR PAPPS: The converse is true. If you're prepared to accept the first, you have to accept the converse. There is a local example of that – which you would be aware, of course – you can do that through trade.
30

THE COMMISSIONER: Yes.
35

MR PAPPS: And we talked earlier about there being, effectively, a temporary surplus of allocation water which then you're making exactly that judgment.

THE COMMISSIONER: Yes.
40

MR PAPPS: And you're putting it onto the market so there's a temporary benefit to irrigators if there's a demand for it and I've never had any trouble selling – I never had any trouble selling water. But you're quite right, and I think there's some capacity – although there might not be a great political willingness, there is some capacity for Ministers to say, "Something has changed so dramatically and we've learned something so significant that perhaps we need to rethink something".
45

THE COMMISSIONER: Yes. That brings me to climate change. I think - - -

MR BEASLEY: Before we go there, can I just finish off on monitoring.

5 THE COMMISSIONER: Yes.

MR BEASLEY: Is that all right?

THE COMMISSIONER: Yes.

10

MR BEASLEY: I just wanted to get on the record, because I did mention the MDBA had made a submission to the Productivity Commission about its limited resources. What it said that – it has actually said that:

15 *The principal approach –*

I'm quoting from the submission:

20 *The principal approach used by the MDBA has been to define a project, commission it and then collect the evidence from on-ground data gathering programs. However, the Basin is too big, the MDBA budget is too small and there are too many players for this to be a sound basis for our evaluation and reporting. We need to better leverage a small budget, improve the capacity to do future evaluations by pivoting the MDBA environmental monitoring*
25 *evaluation from commissioning to aggregating and analysing information from a range of external sources.*

And then it talks about means that that can be done but clearly the MDBA itself has a concern that this doesn't have the money.

30

MR PAPPS: Yes.

THE COMMISSIONER: They seem to exhibit there a familiar and perhaps, sometimes, praiseworthy inhibition on the part of public service in asking for more
35 money, but isn't that the obvious answer – increase the budget?

MR BEASLEY: It might be and if they had come and given evidence here I could have asked them whether they needed more money. It might be one of the things I asked.

40

THE COMMISSIONER: Can I ask about climate change now.

MR PAPPS: Can I just mention - - -

45 MR BEASLEY: Can you wait one minute because there is a – I just wanted to ask you, you've mentioned in your submission something called the LTIM which is the

CEWH's – the office's Long-Term Intervention Monitoring program. Can you describe that?

5 MR PAPPS: Yes. I've been talking a little bit about it before. So this is at the height of the adaptive management that the Commonwealth Environmental Water Office and Holder undertake. It uses contemporary best science – establish
10 consortiums to undertake monitoring over seven areas across the Basin. It grapples with the same problem that you were referring to, Mr Beasley, in some of the commentary from the MDBA – you can't sample every site or every species or every ecosystem, so you've got to choose, based on best available science, things that are representative.

THE COMMISSIONER: Or proxies?

15 MR PAPPS: Or proxies.

MR BEASLEY: Yes.

20 MR PAPPS: And so the LTIM is based on that science; there are common methodologies used so you can compare results from year-to-year and across areas, where that's possible.

25 THE COMMISSIONER: One of the problems there is that is something that science and so you find yourself – you haven't been collecting everything you need but that's the nature of the exercise, isn't it?

30 MR PAPPS: That's the nature of the exercise. You know, we had to make a number of compromises because we simply couldn't afford the level of monitoring that we and the scientists would have preferred so we've come up with - - -

MR BEASLEY: Just pulling you up there, you need monitoring, do you not, to properly exercise the function given to you under the Water Act?

35 MR PAPPS: Yes.

MR BEASLEY: To protect and environmental assets of the Murray-Darling Basin because, without monitoring, you don't know what's needed to do that – fulfil that function?

40 MR PAPPS: Absolutely.

MR BEASLEY: Yes?

45 MR PAPPS: Which is why we created the long-term intervention monitoring program to move site-by-site short-term intervention monitoring into something that's programmed over five years with consortiums employed to do the work,

common methodologies, data reported, analysed and used as the basis of adaptive management.

5 But as I say, like anything if there was more money available it could be usefully
spent to get finer-grain monitoring. The other observation I just wanted to make in
passing which you might be aware of, of course, is that the Authority really has had
to struggle with enormous pressures, political and otherwise, and, of course, the State
Governments, starting with New South Wales, reduced funding, joint – there were
joint programs, you're probably aware of this, of course, joint programs which the
10 States - - -

MR BEASLEY: Yes. The Basin Plan for joint – yes.

15 MR PAPPS: And, of course – so New South Wales wound back money, Victoria
followed suit and - - -

MR BEASLEY: Why?

20 MR PAPPS: I can only assume that the original New South Wales decision was to
do harm to the Authority. The end result was that, for example, the native fish
strategy which the Authority had been running on behalf of all of the States went by
the bye. I don't think they do the sustainable river audits anymore - - -

25 MR BEASLEY: No.

MR PAPPS: - - - because I don't think they can be paid for, so it seemed to me to
be a particularly short-sighted and unnecessarily harsh decision on the behalf of New
South Wales which was then followed by Victoria.

30 THE COMMISSIONER: Unless, of course, your purpose is to render the work of
the Authority sufficiently difficult and, therefore unsatisfactory an outcome as to
politically justify its abolition?

35 MR PAPPS: Yes. I cannot and do not want to speak on behalf of the Authority.
You've got plenty of evidence on that basis but I will say this: they have been
subjected to, in my view, a determined and wilful campaign of undermining from
politically-active elements in the irrigation industry which is an attempt to go to the
heart of their credibility as part of a longer term undermining of the entire initiative.
Of course, if you can't demonstrate the success of the program because you don't
40 have funding to show that or you can't use adaptive management properly, that is
surely a long-term risk to the program and I don't think a State Minister or, for that
matter, any Minister does anything by accident.

45 THE COMMISSIONER: Again, you may be flying in the face of history there, but
anyhow - - -

MR PAPPS: Yes, I've probably gone too far.

MR BEASLEY: Sorry, you do have permission to raise climate change, Commissioner, but not to start hearings at 9.30.

5 THE COMMISSIONER: Tell me, I've read what you've written about climate change. At least as it's, I think, popularly understood, we don't expect to observe it by really gross step changes, though I would have thought the concept of tipping point may disappoint that expectation?

10 MR PAPPS: Yes.

THE COMMISSIONER: At least, so far, we don't think that is typical of the Basin – that is, something like the Millennium Drought is compared with something like the Federation Drought and the apparently supposedly comforting statement is uttered that Dorothea Mackellar got it right. Now, you will have gathered by the way I phrased that that you shouldn't identify me with that – as holding that opinion myself, but I certainly accept from all the material before me it seems clear to demonstration that to point, say, to Millennium Drought and say, "I told you so" with respect to climate change is fatuous, poor science and worse politics probably. On the other hand, all the material seems to have indicated Parliament's decision that there is something called climate change that has to be taken into account?

MR PAPPS: Yes.

25 THE COMMISSIONER: In the Basin Plan?

MR PAPPS: Yes.

30 THE COMMISSIONER: I hope I'm not misrepresenting the position of the MDBA when I paraphrase their position as being that Basin Plan doesn't need to do anything specific or peculiar or uniquely directed to climate change in the timeframe that the Basin Plan comprehends because the – what I will call seasonal or circumstantial allocation of the amount of water actually able to be enjoyed under the various entitlements sufficiently accommodates such changes, mostly feared to be in the nature of drying?

35 MR PAPPS: Yes.

40 THE COMMISSIONER: As are thought to constitute climate change. Have I captured – is that an understanding that you share?

MR PAPPS: It's certainly one that I've heard. Again, my only reluctance is I don't want to speak on behalf of the Authority and say "Well, that's their view", but I've certainly heard that expressed.

45 THE COMMISSIONER: Well, if we turn to – let me just see. I'm sorry. Again, it's the wonderfully Australian style of statutory drafting that means I've got to jump you from one thing to another. If you go to your Act, please?

MR PAPPS: Yes.

THE COMMISSIONER: You will see that section 22 sets out a table of matters that must be included in the Basin Plan. Item 3 in that table is the identification of risks to the condition or contingent availability of the Basin water resources and, specifically, it must include the risks that arise from the effects of climate change. Do you see that?

MR PAPPS: Yes, I do.

THE COMMISSIONER: And then item 5 in this table of matters that must be included in the Basin Plan is the strategy is to be adopted or manage or address those risks.

MR PAPPS: Yes.

THE COMMISSIONER: Including climate change. And they must relate to the management of Basin water resources. So we then go to the Basin Plan and in chapter 4, part 2, section 4.02, the identification of the risks required by item 3, which you will remember include climate change are, if I may say so, pretty obvious in (a), (b) and (c)?

MR PAPPS: Yes.

THE COMMISSIONER: Insufficient water, unsuitable quality, poor health?

MR PAPPS: Yes.

THE COMMISSIONER: And the consequences of those risks materialising is – and I can hardly believe that anybody bothered writing this down – that insufficient water would be available. So whether or not that was useful as an exercise of the Basin Plan is not so important as turning to the strategies to managing or address those.

MR PAPPS: Yes.

THE COMMISSIONER: Which you will then find, with admirable brevity, expressed in about a page of print, the first two sentences of which says they're going to set out the strategies. I can't understand why that's considered sensible drafting, but anyhow. The second says that the Authority must have regard to them when undertaking its functions, which I suppose is blessed relief. And then finally we have the strategies named, some of which seemed to me, with not that much respect, to be bordering on the fatuous. The first is that:

The Basin Plan is to be implemented.

Well, the law requires that in any event. Including its key elements, well, if you implement the Basin Plan you will implement its key elements. I don't understand

any of that as to why that constitutes a strategy. Obey the law, it says. Then it says in (b):

5 *To develop Water Resource Plans and amendments based on best available knowledge and in consultation with relevant stakeholders.*

The law already requires that. And then:

10 *To promote a risk based approach to water resource planning and management. *

Well, that was the whole point of items (3) and (5) of the section 22. So, so far at least, I just think this is an outstandingly derisory compliance with (3) and (5) in section 22 for the Basin Plan. And then we have (d), which I think is incredible in its
15 blandness, it's:

To manage flows to optimise outcomes.

20 Thank you. And then finally we have something which chimes with something that might be practical:

To ensure effective monitoring and evaluation of the implementation of the Basin Plan.

25 And so this, if we can hold the thought, is one of the strategies to manage or address the risks including – not limited to – including climate change?

MR PAPPS: Yes.

30 THE COMMISSIONER: Then we have in (f) something which, addressed to the Authority, seems to make its already restricted budget utterly inadequate, namely:

35 *To promote an enforced compliance with the Basin Plan and Water Resource Plans.*

And, from what you've been telling me, there is just no way they can do anything more in that regard, particularly given the attitude of New South Wales and Victoria; is that right?

40 MR PAPPS: I think it's a risk.

THE COMMISSIONER: Were unlikely to see the litigation - - -

MR PAPPS: Yes.

45 THE COMMISSIONER: - - - brought by the Authority against one of the States are we?

MR PAPPS: No, I just don't see that happening. It's not the way it's – it's not the way it has traditionally worked.

5 THE COMMISSIONER: Well, the national interest seems to include the proposition that it's appropriate for one of these States or both of these States from time to time to threaten to what they call "withdraw from it", whatever they mean by that?

10 MR PAPPS: Yes. That's absolutely true and, of course, as I've pointed out – as you would be aware, it's another statement of very obvious fact that you can't implement this thing without the Basin States' cooperation. You simply can't do it, so we need the States to participate.

15 THE COMMISSIONER: Well, that's a question – that's, partly at least, a constitutional question that may have different answers.

MR PAPPS: Yes, and also a practical operational question. So - - -

20 THE COMMISSIONER: Well, in terms of practical, it's plain to demonstration that it's right. Yes.

25 MR PAPPS: Yes. Which is why I think the threat is effective, because withdraw from what? They can't voluntarily withdraw from the law or the legal obligations upon them, but I think the threat carries weight because of the practical implications that it would be impossible to do what we're doing without their cooperation.

THE COMMISSIONER: Well now, this leads – and I haven't finished yet these strategies.

30 MR PAPPS: No. Sorry, I - - -

35 THE COMMISSIONER: No, don't – it's important. A matter I want to raise with you: much of the material particularly from government, and indeed from industrial interests, amounts to praise – sometimes self-praise – of the Basin Plan, and the endeavour it represents, that it derives vigour and robustness from the cooperation that it displays and requires. And from your nodding I gather that you've heard that kind of language before?

40 MR PAPPS: Yes.

THE COMMISSIONER: In light of some of the evidence you've given, and what I've read and heard from other sources, it occurs to me that a totally opposite view is possible: that the requirement for cooperation is a fatal weakness?

45 MR PAPPS: Arguably. It could be two sides of the same well-worn coin, in the sense that as I explained very poorly in my submission, that for all my concerns, for example, and bad experiences with part of the New South Wales bureaucracy, that

part which deals with environmental watering, so the Office of Environment and Heritage particularly, including the park service occasionally, is a collaborative professional constructive or was a collaborative constructive and professional relationship. They were, in my view, outstanding professionals dedicated to ensuring that we got the best environmental outcomes. So - - -

5 THE COMMISSIONER: But that's with the ESLT that you were given?

MR PAPPS: Yes, with the ESLT we were given. So - - -

10 THE COMMISSIONER: The Act doesn't say to slow down degradation; it's to reverse degradation.

MR PAPPS: It says don't go backwards until 2019 and then after 2019 get better. I mean, that's a very crude paraphrasing of it.

THE COMMISSIONER: Well, one would hope that it might say that. Although, for the reasons Mr Beasley has pointed out, there seems to be another view abroad – which may not be right – that actually until 2024 you can go backwards if you like and see how you go.

MR PAPPS: Yes. In terms of the SDL adjustment, yes.

THE COMMISSIONER: Taking the adjustment now, in the expectation – I'm not sure that anybody actually has the expectation – on the assumption that things will turn out 100 per cent successful?

MR PAPPS: Yes.

30 THE COMMISSIONER: Supply measures in time and in full?

MR PAPPS: No, I think that's a legitimate construction. I just wanted to make - - -

THE COMMISSIONER: Yes, I understand.

MR PAPPS: - - - the very obvious point that there are some very strong professional collaborative relationships between the Commonwealth and the States in the space focused on the operational work.

40 THE COMMISSIONER: I have understood, I think, your evidence which you've partly just repeated now that you distinguish between what I will call professional colleagues, both administrators, and scientists, and technicians, and inspectors, if you like, at State level, and the very senior bureaucrats and the Ministers whom they directly advise; is that correct?

45 MR PAPPS: That's a fair summary.

THE COMMISSIONER: Coming back to these strategies.

MR PAPPS: Yes.

5 MR BEASLEY: Sorry, can I just point out something. Section 172 of the Water
Act, when we were talking about monitoring requirement, I just want to get on the
record because I didn't mention that section but that deals with the MDBAs functions
which include, at 172(1)(b) measuring, monitoring, recording, the quality and
quantity of the Basin water resources including measuring, monitoring and recording
10 - - -

THE COMMISSIONER: Is that (c) or (b)?

15 MR BEASLEY: (b), I've got - - -

THE COMMISSIONER: (b), is it?

MR BEASLEY: - - - 172(1)(b).

20 THE COMMISSIONER: Sorry, yes.

MR BEASLEY: (c):

25 *Measuring, monitoring and recording the condition of water-dependent
ecosystems associated with Basin water resources.*

(h):

30 *Collect, analyse, interpret information about Basin water resources and water
dependent ecosystems.*

(i):

35 *To disseminate information about the Basin water resources and water-
dependent – to the extent the Authority considers it desirable to do so –*

that would – you would assume they would be funded to do all that.

40 THE COMMISSIONER: I think those are the kind of functions that you have
drawn to attention in your written material as well as really requiring close
governmental and intergovernmental attention to funding, is that right?

MR PAPPS: Yes.

45 THE COMMISSIONER: Yes.

MR PAPPS: Yes, absolutely.

THE COMMISSIONER: I will just go back to this climate change strategies. We're still at 403 of the Basin Plan. We then have in G – and remember this is a strategy to manage or address risks including climate change:

5 *To improve knowledge of water requirements, including environmental water requirements, and the impact of climate change on water requirements.*

10 So I think we are now having a taxpayers' expense devoted to saying that a strategy to manage and address climate change is to find out the impact of climate change?

MR PAPPS: Yes.

15 THE COMMISSIONER: I can't imagine that for somebody who had hands-on responsibility as you did that that tells you anything at all, does it?

MR PAPPS: No, not really.

20 THE COMMISSIONER: It looks like box ticking to me.

MR PAPPS: Yes, it certainly hasn't been the source of any of our thinking about – sorry, I'm in present tense again, it hadn't been the source of any of my thinking around climate change and how we would manage that adaptation.

25 THE COMMISSIONER: Anyhow, I challenge you to spot the difference between the elements of G that I've just quoted and H to which I next come, which is to improve knowledge of the impact on Basin water resources of climate change.

30 MR BEASLEY: I haven't seen a – I could be wrong about this, but I haven't seen the publication by the Basin Authority on climate change.

THE COMMISSIONER: I think this is it.

35 MR BEASLEY: No. What I'm saying is it may be but this is – the strategies are for the Authority – which the Authority must have regard to the strategies. Right. I will leave it there, what I was going to say.

40 THE COMMISSIONER: In particular, are you aware of any guidelines that go to climate change in any terms more useful than these really very disturbingly silly propositions under 404? You see there's a power, not an obligation to publish guidelines setting out specific actions?

MR PAPPS: Yes.

45 THE COMMISSIONER: Were you aware of any?

MR PAPPS: No. There are – we occasionally get some guidance in the annual watering priorities that might reflect some thinking about climate change but again, to be fair to the Authority, it’s also a challenge for the Commonwealth Environmental Water Office that we were really only at the beginnings of coming to grips with and I think I mentioned specifically that some of the scientific thinking around this question is certainly further advanced and needs to be taken advantage of.

10 THE COMMISSIONER: I’m just trying to – I find it very difficult myself to understand how one sets about to address the risks of climate change with respect to the water of the Basin. I’ve asked this question of a number of people and the paraphrase of summary of some of them would be to the effect that you make sure that in your setting of the allocation of water between industry and – or consumption and environment, you permit, in dry times, the survival of biodiversity and relevant ecosystem by ensuring – I will use the word “sufficient” water for that purpose.

15 Have you heard something to that effect?

MR PAPPS: I have.

20 THE COMMISSIONER: And sometimes the slightly pretentious expression “refugia” - - -

MR PAPPS: Yes.

25 THE COMMISSIONER: - - - is used to describe these niches?

MR PAPPS: Yes.

30 THE COMMISSIONER: And sometimes the – again, another vague word – resilience is raised as a quality that is to be either encouraged or preserved by, in dry times, directing an appropriate amount of water to appropriate places. Have you heard that concept as well?

35 MR PAPPS: Yes. It’s an ecological concept so it probably is - - -

THE COMMISSIONER: And are they matters that have guided your operational decisions as the CEWH?

40 MR PAPPS: To an extent, yes.

THE COMMISSIONER: Well, you – did you have the thrill of dealing with dry years?

45 MR PAPPS: Yes. Yes, although I have been lucky over the six years that I had more, better - - -

THE COMMISSIONER: Yes?

MR PAPPS: More wet years than dry, but yes.

THE COMMISSIONER: And could you – were you able, in any sense, to articulate for yourself whether climate change was a matter that played any part in your
5 decisions as opposed to what I might call the here and now of the dry?

MR PAPPS: Only in a very limited way.

THE COMMISSIONER: I'm finding it really difficult to get my head round how
10 you might say climate change as opposed to the fact that it has been a very dry three months?

MR PAPPS: Yes. And the sorts of things that you've talked about are the sorts of things that we were thinking about initially, improving longitudinal or lateral
15 connectivity, so that species in ecosystems can make some adjustments. Ecological resilience.

THE COMMISSIONER: What does that mean? Does it mean you get them used to being dry?
20

MR PAPPS: You would have, for example, in a species you have a population that is sufficiently healthy, so in terms of size and just health, to be able to survive through perturbations like long dries.

THE COMMISSIONER: How do you do that? Is it training them to get used to more dry than they've been used to? That sounds odd to me.

MR PAPPS: No. It's - - -

THE COMMISSIONER: So it means more water rather than less, doesn't it?
30

MR PAPPS: Yes, it means – in essence, and I'm probably not the best person to express it, you will get much better advice from the scientists you've spoken to, but you really are adopting a management regime which is not strictly natural in order to
35 get an ecological outcome. In this case, for example, you might say you want to improve the population – the health of the population of Murray cod in the Edwards River. Because it's ecologically significant, you want it to be of a size with the individuals healthy enough to be able to grow and maintain a viable long-term population. That sort of population could deal better with some of the changes that
40 might flow from climate change than a population which is small and unhealthy, with too many adults and not enough - - -

THE COMMISSIONER: Can I extrapolate that to trees as well?

MR PAPPS: Yes. You could apply it ecologically to a whole range of things.
45

5 THE COMMISSIONER: It does – I must say I’ve felt a deal of sympathy with whoever had to devise these fatuous so-called strategies, because I think conceptually it just, to me as a lawyer, without any scientific pretension, it sounds very difficult to understand how, in the here and now, I address climate change in terms of water resource management.

MR PAPPS: Yes.

10 THE COMMISSIONER: Leave aside the admission of so-called greenhouse gas, etcetera.

MR PAPPS: Yes.

15 THE COMMISSIONER: Which is not within the MDBAs remit.

MR PAPPS: No.

20 MR BEASLEY: Can I just correct something I said? Well, I wasn’t aware of any publication by the Basin Authority.

THE COMMISSIONER: We’ve got a couple of statements from them, actually.

MR BEASLEY: Well – a couple of statements from the Basin Authority.

25 THE COMMISSIONER: About it what they do – in various publications about what they do.

30 MR BEASLEY: Well, there’s one that certainly hasn’t been tendered, which to put on the record is called a technical paper. It’s Managing Water in the Murray-Darling Basin under a Variable and Changing Climate, subtitle Dealing with Climate Change in the 2012 Basin Plan into the Future. The authors are Neave, McLeod, Raisin, and Swirepik. I will just give you a couple of highlights in terms of the topic, Incorporating Climate Change and Variability Considerations in the Basin Plan, chapter 6:

35

The Basin Plan continues to support and strengthen the State’s annual allocation process. The process is responsive to climate variability and change.

40 THE COMMISSIONER: I think this is along the lines of what I was saying earlier. Perhaps understandably, they say, “Well, it adjusts to - - -

MR BEASLEY: Yes. That’s what - - -

45 THE COMMISSIONER: - - - variable conditions.”

MR BEASLEY: But they're also asserting that the recovery of additional water, ie, the average of 2750 a year from consumptive use, will build the resilience of water dependent ecosystems in the face of a drying climate.

5 THE COMMISSIONER: Again - - -

MR BEASLEY: So the assertion of – and they're saying the modelling to support development of the SDLs used an extended climate sequence, ie, 1895 to 2009 and therefore captured all the dry and wet periods of that 114 year period.

10

THE COMMISSIONER: I think that's pretty much what I was saying, they're saying that climate change in the time period they say they're looking at doesn't require doing anything other than what we already do for the variability of the climate.

15

MR BEASLEY: No. Well, they do say also - - -

THE COMMISSIONER: Now, they might be right. I don't know.

20 MR BEASLEY: - - - also that the Basin Plan identifies climate change as a risk.

THE COMMISSIONER: It does indeed. I think I've pointed out that it does say, with admirable brevity, but if with outstanding fatuity. Now, could I come back then to what I'm trying to grasp in practical terms out of this climate change risk. What you've told me concerning the building up of what I'm going to call the health of individuals and populations they comprise, in associations that constitute overall biodiversity in an ecosystem sounds to me as if, pretty much uniformly, it urges more, not less, water in what I'm going to call ordinarily stressed conditions that arise in our variable Basin; is that right?

30

MR PAPPS: I think so. I think that's - - -

THE COMMISSIONER: That's not simply add water.

35 MR PAPPS: No.

THE COMMISSIONER: That is when, where, for whom, etcetera, etcetera?

MR PAPPS: That's right.

40

THE COMMISSIONER: But it's going to be in the direction always of, given that there is consumptive take - - -

MR PAPPS: Yes.

45

THE COMMISSIONER: - - - and that, but for the consumptive take, all those populations and systems would have more water - - -

MR PAPPS: Yes.

THE COMMISSIONER: - - - the response I gather, that you see climate change as evoking, will be in the direction of more, not less, water?

5

MR PAPPS: As you say, with that caveat of properly applied.

THE COMMISSIONER: There was never simply add water.

10 MR PAPPS: No.

THE COMMISSIONER: That's a silly, vulgar, dismissive criticism that I have not seen any foundation for at all. Never come across anybody giving evidence to this Royal Commission saying, "Just add water."

15

MR PAPPS: No. No, you're quite right. I think, without again going into a lot of detail, there are some add-ons to that. But I basically accept that, and the other thing I would say is that I think environmental water managers, and you could make this criticism of me in my time, haven't made the best use they could of some of the very good scientists in Australia who are turning it their mind to this question. And I – in Professor Kingsford's submission, for example, he drew attention to some work that had been done and will be done, and I think it's time for the managers to increasingly turn to that for more insights into actual management responses going beyond just the sort of generalisations I've made.

25

And I guess the other thing to say, again, you sometimes hear – I used to hear a lot, "Well, in drought, nature suffers the same drought." That's true, flow dependent systems in the Murray-Darling Basin are highly variable, they go through periods of wet and dry. That's absolutely true, and you've got to – you've got to mimic in your program that wetting and drying cycle, but you also have to acknowledge that it's not always completely natural, because you've got systems which are starting from a degraded position. And so sometimes the watering regime is unnatural in the sense that you're trying to get a specific ecological outcome, and so you're watering to an end, and in some future stage possibly go back to something that is far more natural and episodic.

30

35

THE COMMISSIONER: It seems to me, from what I've heard and read, that the experience now over a century of the frequency, duration and what I'm going to call severity of cease to flow events in the Lower Darling are a very – a real flagship example of what you've just said; is that right?

40

MR PAPPS: I would see it – I would see it that way.

THE COMMISSIONER: So that it's true cease to flow is historically observable, and perhaps prehistorically to be inferred, but it would appear that the frequency, duration and severity has increased since the Second World War, I think.

45

MR PAPPS: Yes, I think that's right. It's an almost inevitable consequence at least of regulation and increased utilisation of water.

5 THE COMMISSIONER: It sort of stands to – I don't want to oversimplify, but if I can simplify it, in a sense, it may be valuable. Doesn't it simply stand to reason that unless the volumes are trivial, diverted water upstream produces less water for the environment downstream?

10 MR PAPPS: Absolutely.

THE COMMISSIONER: As well as less water for diversion upstream?

MR PAPPS: Yes, correct.

15 THE COMMISSIONER: I know hydrology is a lot more complicated than that but - - -?

MR PAPPS: Unfortunately it is, yes.

20 MR BEASLEY: I just wanted to ask a couple of final questions. The – I – you were on the standing committee for the meeting of the Ramsar Convention on wetlands in the meeting of May to June 2017. There was, from Australia there was you and Mark Taylor?

25 MR PAPPS: That's right.

MR BEASLEY: Is the head of the CEWH automatically on that standing committee or - - -?

30 MR PAPPS: No, so – trying to simplify it, so the Ramsar Convention is managed by the contracting parties who meet every three years.

MR BEASLEY: Yes?

35 MR PAPPS: In between the convention, every three years there's a standing committee that's made up of a chair, a vice chair and the chair of the finance committee and Australia occupied vice chair position, and I was the official that represented Australia, which made sense because I was administratively responsible for Ramsar Convention in Australia so - - -

40 MR BEASLEY: Yes. And Mr Taylor is who?

MR PAPPS: Mr Taylor is one of two branch heads and he's responsible for the small group in the CEWHO that manages Australia's Ramsar obligations.

45 MR BEASLEY: And Dr Carmody is the legal adviser to the secretariat.

MR PAPPS: Yes.

MR BEASLEY: And do you have, given your role or your membership as a voting member on the standing committee, do – does the topic of where the countries are
5 meeting their Ramsar obligations come up. Must I imagine?

MR PAPPS: It comes up at the conference.

MR BEASLEY: Right.

10

MR PAPPS: So there's a process that gets formally gone through each and every conference every three years where those Ramsar wetlands that are at risk of significant harm, if you like, from human activities are put on a schedule and then reviewed, and each contracting party responsible for those Ramsar wetlands has to
15 have a recovery plan if one of their Ramsar wetlands is in such a state and has to report back to the Convention about what it has done and how things are going.

MR BEASLEY: And what's the – can you put on the record for us what the situation is in relation to Australia and are we meeting our international obligations
20 in relation to our Ramsar wetlands?

MR PAPPS: I can't recall the status, I'm afraid, because it's one of the many things I can't recall. We have had and continue to have a small number of Ramsar wetlands at risk and on the schedule. We have active recovery plans in places like Macquarie
25 Marshes, for example, which has been on the schedule and there's a recovery plan that Australia has committed to along with New South Wales. The Coorong has been listed on that and I think there are a couple of others but I cannot summon them.

MR BEASLEY: Yes. All right.

30

MR PAPPS: Has Australia – Australia has been a longstanding member of the Convention. I think it was the first signatory, certainly the first contracting party to activate the convention by declaring a Ramsar wetland – the Coburg peninsular in
35 1970-odd – so we've been a very active part of that convention and contributed over the years. My personal opinion is that I would like to see Australia do more; I would like there to be more Commonwealth funding of Ramsar obligations; I would like there to be more Commonwealth support for States in meeting their obligations. But again we're back into the world of competing demands for limited government dollars and the Ramsar Convention doesn't get anywhere near World Heritage status
40 convention – World Heritage Convention status.

MR BEASLEY: And finally, from my point of view, behind tab 5 of your volume is a review that was undertaken of the Commonwealth Environmental Water Holder's operations and business processes?
45

MR PAPPS: Yes.

MR BEASLEY: That was an independent review that you asked to be prepared?

MR PAPPS: Yes.

5 MR BEASLEY: Is that right?

MR PAPPS: That's correct.

10 MR BEASLEY: Behind tab 6 is your response?

MR PAPPS: Yes.

15 MR BEASLEY: I think it – I certainly understand – I think the document, having read it, speaks for itself, but I'm just wondering if you would go to page 21.

MR PAPPS: Of the original review?

20 MR BEASLEY: Of the original review. Are you able to help me with that diagram as to what it means?

MR PAPPS: No. I think it means - - -

MR BEASLEY: It looks like what happens when I'm given an original document.

25 MR PAPPS: Yes.

MR BEASLEY: And where it - - -

30 MR PAPPS: It's a technique I've got come across before.

THE COMMISSIONER: It's a really good example of why I prefer words to pictures.

35 MR PAPPS: A social network diagram. But I think it's trying to - - -

MR BEASLEY: I think it has somehow left out the mayor of the Renmark Council. He must be buried there somewhere.

40 MR PAPPS: No. He's in there somewhere, I can assure you. I think, all jokes aside, it's meant to be a representation or reflection of the complexity of the environmental watering, when you've got so many stakeholders.

MR BEASLEY: Yes, all right.

45 THE COMMISSIONER: So was this your parting gift to the office, was it, the review?

MR BEASLEY: Figure 7?

THE COMMISSIONER: No.

5 MR PAPPS: No, I - - -

THE COMMISSIONER: You - - -

10 MR PAPPS: I commissioned it – I hadn't quite made up my mind to retire when I
commissioned it. I had just – we got to the point of having managed a significant
amount of water for a while, and I wanted someone to come in – I didn't have a
statutory obligation, I just wanted some people to come in, Neil Byron in this case,
along with a panel of experts and tell me are we on track, or are we way off the mark,
do we need to change things?

15

THE COMMISSIONER: Yes.

MR PAPPS: I expect the new CEWH to continue to look for improvement –
constant improvement in the practise. She's an outstanding individual with a great
20 depth of technical knowledge and I probably wouldn't say that's my legacy to her. I
would say it's just part of a process that she will continue.

THE COMMISSIONER: Thanks.

25 MR BEASLEY: And just for the record – I'm not sure whether this is in your
folder, Commissioner – but right back when I was asking questions about the
unsigned letter - - -

MR PAPPS: Yes.

30

MR BEASLEY: - - - from - - -

THE COMMISSIONER: Yes.

35 MR BEASLEY: - - - Mr Papps to Mr Glyde there was an answer from the
department to a question on notice which says this:

40 *A copy of the unsigned letter was sent to and received by the MDBA on 12
January 2018. The letter was sent by email from Mr Papps' executive assistant
to Mr Phillip Glyde's executive assistant. Copy of the unsigned letter was
tabled in the Senate Estimates Hearing on 2 March 2018.*

I don't have any further questions for Mr Papps. Do you, Commissioner?

45 THE COMMISSIONER: No.

MR BEASLEY: Mr Papps – I mean, one of the things you’ve emphasised throughout your evidence – not throughout your evidence, but you emphasised as part of your evidence is, despite some of the matters we’ve covered today, the importance of the Basin Plan and the miracle of its – the fact that it became a legislative instrument. Is there anything further you would like to say to the Commissioner that we haven’t covered or that you would like to expand on that we have covered?

MR PAPPS: No, I don’t think so. I think we’ve covered off, pretty much and perhaps even gone to areas where I – where I can’t claim a particular expertise. So I do hope that I’ve caveated those sufficiently. I don’t want to – I don’t want to speak on behalf of others, for example, the Authority but I to feel as though we’ve covered off a lot of material and I thank the Commissioner for his questions and the opportunity to participate.

THE COMMISSIONER: The thanks are all due from me. I’m very much in your debt for the care and perspective that you’ve brought to my attention. Thank you very much.

MR PAPPS: Thank you.

<THE WITNESS WITHDREW [1.14 pm]

THE COMMISSIONER: We will adjourn until quarter past 2.

MR BEASLEY: All right. Yes, thank you.

ADJOURNED [1.14 pm]

RESUMED [2.15 pm]

MR BEASLEY: Ready when you are, Commissioner.

THE COMMISSIONER: Ready.

MR BEASLEY: Professor Paton is here.

<DAVID CLELAND PATON, AFFIRMED [2.15 pm]

THE ASSOCIATE: Please state your full name.

PROF PATON: David Cleland Paton.

THE COMMISSIONER: Please sit down, Professor.

5

<EXAMINATION-IN-CHIEF BY MR BEASLEY

[2.15 pm]

10 MR BEASLEY: Professor, could you provide the Commissioner with your tertiary qualifications, firstly.

PROF PATON: Tertiary qualifications include a BSc with Honours from the University of Adelaide, completed in '74, confirmed in 1975; PhD from Monash University completed in '79, confirmed in 1980.

15

MR BEASLEY: What was the topic of your PhD?

PROF PATON: That's a great question. I think it was the Behaviour and Feeding Ecology of the New Holland Honeyeater.

20

MR BEASLEY: You said that really quickly; I missed the last bit of that.

PROF PATON: Sorry, I will do it slowly.

25 MR BEASLEY: Yes.

PROF PATON: Because I figure people might be listening in. It was called the Behaviour and Feeding Ecology of the New Holland Honeyeater, and it would have probably had scientific names as well, but that will be a good enough title.

30

MR BEASLEY: Can you outline what that thesis was actually about?

PROF PATON: It - - -

35 MR BEASLEY: No, I'm only joking. Don't. It's all right. You are – I'm interested – I will ask you afterwards. And you are currently a member of the University of Adelaide, School of Biological Sciences?

PROF PATON: Correct.

40

MR BEASLEY: And how long have you been a member of that school?

PROF PATON: The school has – there has been a series of changes in school names, but I've been at the university since 1983, and the school has changed from a suite of different names through time.

45

MR BEASLEY: If I said to you, you had research expertise in relation to the ecology of the Murray River and the Coorong, and its bird and plant life, you would agree with that?

5 PROF PATON: I would certainly agree with that, having written a book on it as well, in 2010 that summarises the Coorong and Lower Lakes ecology.

MR BEASLEY: All right. Thank you. Now, you've also provided a submission to the Commission dated 30 April 2018.

10

PROF PATON: Correct. I think that was the date.

MR BEASLEY: And whilst I will take you to the detail, or give you the opportunity to explain the detail of the nature of your submission, you have a particular concern that you have raised with the Commissioner about one of the South Australian – what's called the Supply Measures Project, in particular the South East Flows Restoration Project; correct?

15

PROF PATON: That is correct.

20

MR BEASLEY: Before – I just want to identify first of all the documents that you've provided to the Commission where you raise those concerns, but not take you to the detail of them yet.

25 PROF PATON: Correct.

MR BEASLEY: And then I think it's best if we identify what the supply measure project is all about, and then come to your concerns then. So that's the order I would like to do things. You've got a folder in front of you that should have your name in front of it. If it has got someone else's name it's the wrong folder, but if it has got yours it's the right one. And behind tab 1 you will find – can we just identify that that's your submission - - -

30

PROF PATON: Correct.

35

MR BEASLEY: - - - you provided the Commission. Behind tab 2, do I take it that that was a submission you made to the Basin Authority about the supply measures adjustment, SDL adjustment generally, but with specific concerns about the South Australian supply measure, the south-east one we've mentioned?

40

PROF PATON: That is correct.

MR BEASLEY: Yes. And you also engaged in some correspondence directly with Mr Glyde, and if you go – who's the Chief Executive of the MDBA, and if you go behind tab 13, please. That's a letter of 8 April 2018, sent to Mr Glyde of three pages where you also raise concerns about the South East Flows Restoration Project; correct?

45

PROF PATON: Sorry. There was the one I raised. Maybe we've got the wrong one here. 13?

MR BEASLEY: 13.

5

PROF PATON: Yes. That's - - -

MR BEASLEY: That's a letter from you to Mr Glyde?

10 PROF PATON: Correct.

MR BEASLEY: And then – and you've copied him in on your – the submission you had made back in November and, if you go to tab 14, that's Mr Glyde's response to your 8 April letter of – his response to you of 19 April 2018; correct?

15

PROF PATON: Correct.

MR BEASLEY: And then you wrote – behind tab 15 you've given us a copy of an undated letter which is your further response to Mr Glyde's response to you, and it's undated, but I assume you sent that relatively soon after receiving - - -

20

PROF PATON: It was. In fact, it's actually probably an email that was - - -

MR BEASLEY: Right. Okay. All right.

25

PROF PATON: - - - the content of an email responding to that letter that I received.

MR BEASLEY: All right. And they're the relevant documents in relation to the concerns you have concerning this project.

30

PROF PATON: They will be some of them.

MR BEASLEY: All right. Well, you will get the chance to tell us in all their glory in a moment. I just want to identify what this project is all about. Behind tab 25 is part of the South Australian Government's South East Flows Restoration Project, part of their phase 2 submission, so I guess it's part of the business case. It's actually already in evidence. It's RCE – exhibit RCE198. So what we're talking about – I'm reading, Commissioner, from page 1 of RCE198, the bottom paragraph:

35

40 *The project will construct the South East Flows Restoration Project channel –*

so it's building new infrastructure –

45

which will use a combination of widening existing drains totally approximately 81 kilometres and newly constructed drains totalling approximately 12 kilometres which will divert additional water from the upper south-east.

Whereabouts in the upper south-east?

5 PROF PATON: Well, this particular one connects into a drain – I think it’s the Blackford Drain that drains out into the sea, just around about – I forget the name of the place, next town down from Salt Creek, but it comes out probably 40 kilometres south of the Coorong proper, and the drains are inland from there, and run northwards. So this is where the drains will go.

10 MR BEASLEY: So 40 kilometres south of the southern bit of the South Lagoon.

PROF PATON: That’s right.

MR BEASLEY: Right. Okay.

15 THE COMMISSIONER: So these are artificial drains constructed in the 19th century?

20 PROF PATON: So some of these, 19th century, yes. There were artificial drains drained across the – across from inland towards the sea, so perpendicular to the coast, to take away surplus surface water, so that you could have more land for farming.

THE COMMISSIONER: You mean to transform the landscape?

25 PROF PATON: To transform the landscape, but you transformed the landscape when they removed all the vegetation or a very high proportion of it - - -

THE COMMISSIONER: Quite so - - -

30 PROF PATON: - - - which actually added to the problem of having too much water.

THE COMMISSIONER: So the fresh water, if I can call it that, that is the subject of this so-called restoration project, is water which itself is generated by an old drainage project; is that right?

35 PROF PATON: The whole – the history of the place is much more complicated than that. The notion was that there was water that flowed naturally into the Coorong way back.

40 THE COMMISSIONER: When you say “flowed” do you mean - - -

PROF PATON: Flowed into the Coorong - - -

45 THE COMMISSIONER: By ground water or via channels?

PROF PATON: - - - via Salt Creek. This is surface water flowing in at Salt Creek. There’s much - - -

MR BEASLEY: When you say “a long time back”, what are you talking about?

5 PROF PATON: Because the drainage system – it was a level of facilitation of the water coming, so for the water to get in easily there was a structure – a cutting made through the dune which is – or the range which is immediately in from Salt Creek to enable water from the flat – the other side of that to allow it to get into the Coorong, and this cut was up to four metres wide. I think in 1886 they widened it or deepened it to enable the water to come in.

10 THE COMMISSIONER: Before these artificial works, did Salt Creek constitute a channel by which that fresh water entered the Coorong?

15 PROF PATON: Probably very hard to determine that. There was some work done by Jensen and others in the '80s which looked back at the history of this and after this cutting was put in place to enable more water to come in – so it's an enhanced flow – I think it was something like 10 years in the next 50 between 1864 and 1910, some water came in but there were many years out of the 50 or so years when water did not go into that system.

20 THE COMMISSIONER: You mean the cut didn't operate – did not operate - - -

PROF PATON: Until 1864.

25 THE COMMISSIONER: But even when – even after it came in - - -

PROF PATON: Even after it came in you've got an enhanced level of water and, I think, sometime in that intervening period there was also some redirection of water further south to come into the system so you've got potentially more water coming in than naturally occurred. Even in that period there was only about 10 years in which water actually entered the Coorong at Salt Creek – fresh water coming off the land.

30 THE COMMISSIONER: It's called Salt Creek, I presume, for obvious reasons, but what's its source.

35 PROF PATON: Yes. Well, the source – there are two sources. One of them was you could go back to when the original – George French Angas went through there.

40 THE COMMISSIONER: Sorry, not the name. Not the name. No, the source of the creek.

PROF PATON: George French Angas went in there and he – that's where the saltiness came from because he said it was a salt creek. There is – there's meant to be a freshwater soak or seepage probably a few hundred metres in from the actual coastline which gives water into that creek line.

45 THE COMMISSIONER: So when you call it – it's a creek in the sense of an inlet rather than a creek in the sense of a running watercourse, is it?

PROF PATON: Most of the time that's what it is, yes.

MR BEASLEY: It may not matter very much but where we're talking about the inflow of this fresh water from the southern part of the – beyond the southern part of the south lagoon – technically that would be inflow of water that's not technically part of the Basin, correct?

PROF PATON: At the moment that is correct.

MR BEASLEY: Yes. All right. So the proposal here is that the concern that is sought to be addressed is to lower the salinity of the water in the south lagoon; correct?

PROF PATON: That's the intent of the drainage scheme.

MR BEASLEY: Yes. With – and by adding an additional volume of fresh water which will be a medium volume of up to 26.5 gigalitres per year.

PROF PATON: Correct.

MR BEASLEY: According to the business case.

PROF PATON: But you need to also appreciate there is already water coming in from another scheme that was approved in the 1990s that's releasing water in there now. The average amount that's coming in is – per year is something like 12 gigalitres per year. This came in in about 2000 and this is now supplementing that 12 gigalitres by pushing it up to another 25 gigalitres on average.

THE COMMISSIONER: Does that existing project have a name?

PROF PATON: It's called the Upper South East Dryland and Flood – I thought it was "mitigation" but I think some of the reports say Management Plan.

THE COMMISSIONER: That's a snappy title.

PROF PATON: Yes, it's long, isn't it? They use an acronym.

THE COMMISSIONER: I bet they do. Now, it's called a restoration – the one that you're talking about is called a restoration project, why?

PROF PATON: I think you could, that it's a restoration project because the series of swamps that sit between Salt Creek and run down towards Kingston, the town where the Blackford Drain is, used to have a series of swamps that sat on the eastern side of that first range in from the Coorong, some of the swamps are – like Tilley Swamp and that – they've actually been without water for a period of time and so you could argue this will – if it's done properly, should enable some of those freshwater swamps to be re-established or restored.

The issue then is that the use of restoration suggests that these flows are also going to do something to restore some sort of salinity regime for the Coorong. I'm very dubious that is the case. In fact, I actually think the salinity regime is pretty much like it has been most of the time. And at the moment there's no reason to put water in there to fix the salinity. The salinity is not high.

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10 THE COMMISSIONER: Does it surprise you to know that, long before I accepted this appointment, I, along with many Australians, understood that the Coorong was being ruined by excessive salinity.

PROF PATON: I think that's a general opinion held by many people.

THE COMMISSIONER: It's a fallacy, is it?

15 PROF PATON: It's a fallacy. If you go back to some of the earlier descriptions – sometime in the late 19th century, there's even records – I think the person was actually looking to find a way to open up the channel to enable you to get from the north lagoon through to the south lagoon. He reported the lagoons as being three times saltier than seawater then. And you sit there saying, “Well, if it's three times
20 saltier than seawater then, it's clearly - - -”

MR BEASLEY: What's seawater? 35?

25 PROF PATON: Seawater is about - - -

MR BEASLEY: Right.

PROF PATON: 37. That varies. 37 grams per litre might be a reasonable measure.

30 THE COMMISSIONER: Are there parts of the Coorong, taken as a whole – are there parts of the Coorong – talking for the whole of the Coorong – which have become more saline than they should by reason of that environmental degradation?

35 PROF PATON: Okay. So the Coorong has a salinity gradient along it.

MR BEASLEY: North to south. Correct. Yes.

40 PROF PATON: It's north to south. It's near – let's say it should be but it's fresh or marine or somewhere in between at the Mouth and then it slowly but steadily increases down the lends of the Coorong. You can find certainly find records of salinities being in the two to three times saltier than the seawater down in the southern lagoon at least way back through '90s, '80s, '70s and I even think there's a bit of data for the '60s as well. So this has been a common pattern and whenever the salinity gets a little bit high, everyone jumps up in arms. The salinity gets a little bit
45 higher when you don't have reasonable flows over the river so periods of little or no flow, salinity rises a bit but it resets usually after you get a good flow, and that is it.

THE COMMISSIONER: Sorry. You infer, let's say, at the time of the Federation Drought, the southern Coorong would have been more saline than ordinarily?

5 PROF PATON: It probably would have been just like it was in our one. It was a period of time - - -

THE COMMISSIONER: What about the northern Coorong.

10 PROF PATON: The northern Coorong is probably going to be slightly salty too. The whole lot will be salty in those times. I mean, if you don't have a flow you've got marine water at the Murray Mouth, so you're already up to 37 grams per litre. If you do have a flow, it's freshwater, it's zero grams or very, very low levels. There will be some marine water mixing there. So the salinity fluctuates across this system, there's a gradient, and for the vast majority of the records I can see there has never been a stage when the South Lagoon has not had salinities that are typically one and a half to two and a half, maybe three times, saltier than seawater.

15 THE COMMISSIONER: So - - -

20 MR BEASLEY: What level do you get to when you use the term "hypersaline"?

PROF PATON: So this is one of the dilemmas, I think. I sometimes use hypermarine. Most people would use hypersaline as being above the salinity of sea water, but I've seen it and heard it being used in some of the evidence here where it's misused. They talk about the lower lakes being hypersaline. They've just got salt in it, and that's a misnomer. So sometimes, to make it clear, hypermarine says for me it's above the salinities of seawater. And that's a much safer way, I think, of - - -

30 THE COMMISSIONER: So, what, I should watch out: hypersaline sometimes just means it has got some salt in it, does it?

PROF PATON: Well, that's how it's been used by - let's say lay people. I think the scientists would happily know what the hypersaline is. Hypermarine just clears the pattern and says that, and I will probably get castigated for that.

35 THE COMMISSIONER: No. I understand - - -

PROF PATON: Yes.

40 THE COMMISSIONER: I understand hypermarine.

PROF PATON: Yes.

45 THE COMMISSIONER: But if I see hypersaline, I should ask, "hyper what?"

PROF PATON: Yes. You should probably, but most people would be - most scientists who work in these areas would know that's being saltier than seawater.

THE COMMISSIONER: Thank you. So are there any parts of the Coorong, say in the north or whatever, that as you understand it have, as a result of environmental degradation, become more saline than it would otherwise have been? Because I take it, as to the south, no is your answer.

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PROF PATON: I think the question you've got to put here is that the salinity varies from – over periods of time. There are periods of times when the salinity will be lower, and those are periods when there is good flows over the river – down the river and over the Mouth, barrages into the Mouth. There are times then when you don't have flows and what happens then is you draw in salt into the system; the salinity rises.

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MR BEASLEY: Is it seasonal as well?

15 PROF PATON: There's a seasonal component too, absolutely.

MR BEASLEY: Which is?

PROF PATON: Because of changes in evaporation and changes in rainfall. So the notion here is we should think of this as being a lot more dynamic - - -

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THE COMMISSIONER: Thank you.

PROF PATON: - - - than a set salinity. And that's the important point to appreciate.

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MR BEASLEY: Does that mean warmer – more warmer months, it's more likely to be a higher level of salinity?

PROF PATON: So the salinities – the salinities are typically lower across the length of the Coorong, still with a gradient, in spring. And this is usually the time when you've got the bulk of the freshwater flows.

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MR BEASLEY: Yes.

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PROF PATON: As the flow stops and as evaporation takes course the salinities builds up the whole of the system.

THE COMMISSIONER: Is the source of the salt the ocean? Or is it also transport from - - -

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PROF PATON: No, it's the ocean. It's pretty – pretty simple to say that. If you talked about one gigalitre of marine water coming in, carries 37,000 tonnes of salt.

45 THE COMMISSIONER: Right. Thanks. That's a lot.

PROF PATON: That's a lot.

THE COMMISSIONER: Thanks.

MR BEASLEY: Just to clarify, the aims of the South East Flows Restoration Project, I'm looking at now the document behind tab 27 – is it tab 27 or – yes, 27,
5 God, there's a lot of tabs in this brief. Tab 27 which is the South East Flows Restoration Project referral under the Environmental Protection and Biodiversity Conservation Act 1999. And I'm looking at page 31. The government here is stating that the aims of the SEFRP – it's almost harder to say the acronym. (1):

10 *Divert additional relatively fresh water from the upper south-east drainage system to the Coorong to assist in managing salinity in the Coorong South Lagoon during periods of low Murray River flows, thus building resilience and supporting a healthy ecosystem.*

15 And (2):

Provide additional environmental benefits by increasing flow through en route wetlands in the upper south-east.

20 So the first aim, does that mean that this project is – that the water from the new and old drainage system that will put the freshwater into the Coorong south will only happen during low flows of the Murray, or is it to happen all the time?

25 PROF PATON: Look, as far as I can work out, the proposals and the operating programs for that are actually saying if the salinity gets to 60 grams per litre, that's about one and a half times the salinity of seawater, that's the trigger to release freshwater into the system.

30 MR BEASLEY: I see. Okay.

PROF PATON: And the intention, as far as I can see, if this is to be an SDLAM the intention is to make it kosher, to actually deliver the water which is required, you're going to be releasing that 25 gigalitres at that point so you can claim that you've
35 actually done the equivalent amount of ecological work that 25 gigalitres would have done upstream.

MR BEASLEY: I see. And - - -

40 THE COMMISSIONER: So what - - -

MR BEASLEY: I don't understand that.

THE COMMISSIONER: How do you derive that equivalency?

45 PROF PATON: That's the way in which the accounting, as far as I can work out, is done. The accountancy is never clear, but they've got numbers about the quantity of

water that doesn't have to be returned to the river that is delivered by these SDLAMs.

THE COMMISSIONER: Yes. But how about equivalency?

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PROF PATON: That's a good question. That's a very good question.

THE COMMISSIONER: How do you understand it?

10 PROF PATON: I can't – well, my argument would be that the equivalency is that you provide the same ecological benefits, and the dilemma with this program is that the ecological benefits are only measured – only measured by various water quality parameters, not about the impact that changes in those water quality parameters have on the biota, and it is the biota that is largely protected under the EPBC Act, like my
15 migratory shore birds.

THE COMMISSIONER: Can I ask you about the statement on page 32 of this state government referral under the EPBC Act. In the middle of the page it reads:

20 *An ecologically healthy Coorong South Lagoon requires the ongoing maintenance of both salinity and water level within their management target ranges.*

25 Now, stopping at that point, maybe I'm just getting grumpy, but that's circular, isn't it? The management target ranges are presumably those designed to produce something that's ecologically healthy.

PROF PATON: That's what it should be.

30 THE COMMISSIONER: So the sentence says an ecologically healthy lagoon requires an ecologically healthy lagoon.

PROF PATON: Well, I would have said that's exactly what's required. If you want a - - -

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THE COMMISSIONER: It's a statement that bears a lot of repetition, doesn't it? But when I go on to the rest of that paragraph that suggests that this is a project designed to change things from what they presently are by way of a supposed improvement.

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PROF PATON: Yes.

THE COMMISSIONER: Do I gather from reading your material that you think that is fundamentally wrong?

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PROF PATON: Yes.

THE COMMISSIONER: Where do you suppose they got the notion that the salinity observed in this dynamic way in the South Lagoon was pathological rather than natural?

5 PROF PATON: This – you have to bear in mind that this probably developed during the period of the Millennium Drought. In the Millennium Drought the salinities in the South Lagoon got extremely high. This as a period of no flows over the barrages, and the salinities in the South Lagoon got up to probably – typically averaged out about 150, 160 grams per litre, which was above the tolerance of the
10 salt tolerant animals that use that system. There were various other proposals being considered at this time with potential funding from the Federal Government. One of them included actually pumping the salt water out of the Coorong into the South Lagoon – sorry, into the Southern Ocean, and this is another one of those ones which were proposed here.

15 And to some extent it's just a carryover from dealing with these really high salinities that existed in this period of adversity for this system. It actually recovered from that pretty quickly – and pretty quickly, within three or four months of water returning, of big flows returning, the salinities inside the South Lagoon were pretty close to what
20 they should have been.

THE COMMISSIONER: What about biota?

25 PROF PATON: The biota struggled, because now the water levels are much higher. So when you talk about having that earlier statement we discussed, and the notion about balancing salinity and water level, water level has hardly been dealt with within the Murray-Darling Basin Plan, and there's a fundamental issue for the Coorong, and that is the flows that used to come were enough to lift the water level and keep the water level up through the Coorong through spring and into early
30 summer, and then they drop.

THE COMMISSIONER: Now, if I've correctly understood, that is important for the breeding cycle of Ruppia.

35 PROF PATON: That's correct.

THE COMMISSIONER: And thus the feeding of birds.

40 PROF PATON: That's correct.

THE COMMISSIONER: Is that right?

45 PROF PATON: That's right. And the salinity is another one, which they might well be compounded together, the changing water levels might influence salinity, but we can manage the salinity, with what might come back in the system now. We have not found a way to solve this water issue which will continue.

THE COMMISSIONER: And when we use the word biota, I'm including plant life.

PROF PATON: Absolutely, plant life. You – plant life is just part of a food chain, and so it's going to affect everything else. Yes.

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THE COMMISSIONER: I've noticed, yes. Well now, do you infer that at earlier times, and I will just take the Federation Drought because it chimes with the Millennium Drought a hundred years later, do you infer that, to use the colloquial jargon, the south Coorong was probably hypersaline so as to excite the kind of alarm that the Millennium Drought conditions produced back then as well?

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PROF PATON: There has certainly been – not so much then, but you could argue if you had those conditions I dare say people would have been concerned about high salinities at that time as well.

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THE COMMISSIONER: And I don't - - -

PROF PATON: And I can use the evidence that comes from other people in the 1960s, a chap called John Noy was working in the South Lagoon at the time, he was measuring what are called wind the shifts of water levels based on winds, but he also made a comment, "Look, there were lots of dead plants around," and so forth, "salinity is high, it's killing the plants." In fact, what probably was killing the plants was low water levels, and that then – his view was, "Well, we need to make the salinities lower to make it better than it was." And you can see this repeating over the last 40 years, almost that - - -

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THE COMMISSIONER: Whereas you infer that there has been fluctuation according to watering.

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PROF PATON: Yes.

THE COMMISSIONER: And that even, before artificial drainage and other influx effects, that meant that from time to time biota would be – I don't know the right word. Depleted - - -

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PROF PATON: Challenged.

MR BEASLEY: Stressed.

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PROF PATON: Stressed, yes.

THE COMMISSIONER: - - - by increasing salinity and alteration of levels and that you inferred that nonetheless they would recover once salinity and levels changed in a beneficial way.

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PROF PATON: In most cases these things don't disappear, it's only when salinities get extremely high for extended periods that you will lose them. They have a set of

propagules that will enable – the plants certainly do seeds and turions, start to fill perennating organs that will enable the plant to re-establish.

5 THE COMMISSIONER: I was going to ask you about that. Are they something like stolons in other plants?

10 PROF PATON: They're a stoloniferous type plant, but they make little sort of stores of starch which they sit with a little shoot, and that can sit there and then eventually enable it to re-establish. A bit more like a potato, perhaps, is a better way of thinking of it.

THE COMMISSIONER: Thanks. So I suppose there's no way of knowing what's happened over the last millennia - - -

15 PROF PATON: No.

THE COMMISSIONER: - - - in terms of which biota have not managed to make it back after a bout of excess salinity. That is, excess for their requirements.

20 PROF PATON: Yes. Yes. So - - -

THE COMMISSIONER: Do you infer anything in relation to that, or you simply say, "Well, I don't know, I don't know."

25 PROF PATON: Well, we certainly have an idea of how the Coorong formed and so originally there would have been – there would have been a coastal marine system because there would have been, instead of a Youngusband Peninsula blocking all the sea ingress into the system, there would have been barrier islands, and so it would have been a protected marine system. Maybe – I don't know, maybe a thousand
30 years ago, those dunes joined up and made a peninsula and it would have started changing then. And you can certainly see in the records of cores how the system went from marine organisms through to organisms which were hypermarine, and changes in the actual biota over those periods of time.

35 THE COMMISSIONER: Thank you.

PROF PATON: But I think there's a clear starting point here, and that is that this wetland was listed as a Ramsar wetland of international significance, and at least my
40 understanding of that legislation, says that we aim to measure and maintain it under the conditions at the time it was nominated, which was 1985, and those conditions are not that different to what the conditions are now as far as the salinity is concerned. The South Lagoon, from my perspective, is always hypermarine. It's just how much – how salty that it is, and it seems to oscillate and get lower during those periods of flows, good flows down the river, to periods of when high – where
45 you have a period of years without adequate flows.

THE COMMISSIONER: The characteristics, for the purpose of Ramsar obligations, do they include, for the south Coorong, variability.

5 PROF PATON: These sorts of definitions are probably not there, but they should, because that's part of the natural system and it would have been in 1985. It's very hard to actually nail something down and say you're going to manage it against these specific variables or organisms, because they're responding to more than just one of the things we're going to be able to manipulate, but it certainly was a much better place for water birds through that period than it is now.

10 THE COMMISSIONER: It does seem to be a characteristic, if I can use the word "natural" I will, that it is variable.

15 PROF PATON: Yes, absolutely. And some of that variability is caused not by salinity changes within the Coorong system, but by changes in wetlands outside it.

THE COMMISSIONER: You have to explain that. I don't understand.

20 PROF PATON: So things like birds and that might actually be – stay on freshwater systems and they will come and aggregate onto the Coorong in dry periods, during the droughts, but they will come there in summertime when they're largely ephemeral wetlands, dry, but they will go back and breed next year when they refill. And so the Coorong becomes this critical refuge for both migratory shore birds from other countries which come to its shores, but also for many of our water birds. And the irony is in the middle of the Millennium Drought the Coorong and the Lower
25 Lakes were absolutely critical. They probably housed 95 per cent of the birds, from the estimates I have heard, of - - -

30 THE COMMISSIONER: Kind of an asylum.

PROF PATON: It's – absolutely.

MR BEASLEY: Well, refuge I think is the word.

35 PROF PATON: It's the absolute refuge. It's the last place. It's – the one place that you should be looking after is this wetland.

40 THE COMMISSIONER: And that's notwithstanding, however, that it was no doubt highly hypermarine.

PROF PATON: It was highly hypermarine. I think in the middle of that Millennium Drought there was probably 240,000 banded stilts in the South Lagoon alone, close to the global population.

45 THE COMMISSIONER: Sounds like a lot.

PROF PATON: It's a lot. It was fricking hard to count.

MR BEASLEY: Why is that? Because - - -

PROF PATON: It's partly because during that dry period there's no other wetlands around.

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MR BEASLEY: Right.

PROF PATON: So Banded Stilts are very good at exploiting the ephemeral inland saline lakes. We still don't have a good understanding of how they move around these things, but as soon as they start to fill, some of the birds go there, they will breed, often breeding on things like brine shrimps, and they do exceptionally well. Up until probably 15 years ago there was probably about three records of this species breeding – five records of this species breeding in the country. We've got the capacity to find them now. In those really salty periods they're good at exploiting salty habitats. So we might have lost key biota of the Coorong, that were things like chironomid larvae, they had shifted further northwards to where the salinity were suitable. Even *Ruppia tuberosa* established in the North Lagoon during this period. And that South Lagoon, it just filled up, it was like a brine shrimp soup and those birds were doing exceptionally well in that.

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In fact, the only time they've ever been recorded to breed in there was during this period. So although there might have been a lot of media saying, "The Coorong is dead," it had actually changed and that South Lagoon had changed quite dramatically, and the Federal Government actually made sure that Ramsar Secretariat knew that it had changed, but it probably didn't mean – and we didn't know at the time – that it wasn't going to go back to where it was, and it has gone back to that.

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THE COMMISSIONER: Say that last bit. Probably didn't - - -

PROF PATON: We didn't know at the time whether this would have the capacity, it had that ability, to return to what it was prior to the Millennium Drought. We now know that it did have that resilience there, for most elements. So the small fish came back within a year. The chironomid larvae came back, certainly, within a year. The *Ruppia tuberosa* was the one which was struggling, because the fundamental issue for it is actually keeping it covered with water, not keeping the salinity low. In fact, low salinities disadvantage it.

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THE COMMISSIONER: So there was a Ramsar notification of changed characteristic. Is it silly of me to say, well, actually perhaps you should change the description of the characteristic because the variability is actually characteristic of the whole think.

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PROF PATON: Well, I think – I think you – I think you could now – I think you could now do that, and I think that's – and the smart thing is you probably don't want to be pushing the system into that system the whole time, and it's better to have that, because you won't have plants growing in that type of high salinities, and that then is a problem for bird species, so in most ecological – when we have most ecological

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changes there will be a few species who are winners, and there are some which lose out in that system.

5 THE COMMISSIONER: It's not just birds. Could be us.

MR BEASLEY: So you're picking up the notion of the Coorong being identified at a certain state in 1985 when it's listed, but the irony of it being a massively variable – so, yes.

10 THE COMMISSIONER: A snapshot doesn't seem to be, if I can - - -

PROF PATON: No. That's very true.

15 THE COMMISSIONER: - - - be corny about it, a snapshot is not a very good panorama. No.

PROF PATON: That's right. And you might that that act – or whatever it is, like, Convention, failed to pick those sorts of things up, and the Coorong is one of those really changeable systems.

20 THE COMMISSIONER: Well, to be fair – or to be fair, the characteristic should have been described by those who proposed the wetland for listing and declaration - - -

25 PROF PATON: Yes.

THE COMMISSIONER: In the ways that captured its dynamism and variability.

30 PROF PATON: Absolutely, and I think if you wrote it in 1985 you would never have thought it would go through a four to fivefold salinity regime in the South Lagoon.

35 MR BEASLEY: Mr O'Flaherty just tells me he has found a 300 page report on the ecological characteristics of the Coorong for Ramsar, so no doubt he will have read and absorbed that report during the course of Professor Paton's - - -

PROF PATON: So it might be

40 THE COMMISSIONER: If I could have a precis of it by quarter past 4, please.

MR BEASLEY: Yes. I will expect a document.

45 PROF PATON: Can I just ask one question. What is the date of that report? 2006? So as far as I know - - -

MR BEASLEY: Yes, it is.

PROF PATON: - - - there should have been an update of that produced by the state government, but I have not seen it.

5 MR BEASLEY: That will be a 500 page report, so hopefully he can look through that as well.

THE COMMISSIONER: Right.

10 MR BEASLEY: Just following along, on the document that I was referring to, so it suggests here that:

15 *The salinity management target range to support a healthy ecosystem in the Coorong south is between 60 grams a litre and the maximum of 100 grams a litre. Keeping salinity below 100 grams a litre supports an ecosystem optimal for its distinct water bird community by supporting the insect component of the macroinvertebrate community, Smallmouth Hardyhead –*

20 etcetera. And then there's a table on page 33 of the lethal and preferred maximum target salinities for biotic indicators, and it's also suggested 32 over to 33 that the target minimum salinity of 60 grams a litre has been selected so as to – so as not to favour a competitor species, ie, green algae.

25 PROF PATON: So my view would be that that was probably the intent, but we know that this green algae – certainly you can find it in reasonably good condition, and we know it can grow – the research has shown that it can grow in salinities of 80 grams per litre, so it's a combination of high salinity increasing in summer, plus increase in water temperatures – and again, never have an absolute concentration that drives these things - - -

30 MR BEASLEY: Yes.

PROF PATON: - - - that then causes that algae to perform poorly.

35 MR BEASLEY: And at page 84 of this document the summary is that:

The assessment that has been done by the government of potential impacts to the Coorong has identified no significant adverse impacts to the ecological character of the site.

40 And:

45 *Helping to maintain a healthy salinity gradient the South East Flows Restoration Project is expected to benefit areas of wetland being destroyed by, or substantially modified, habitat or life cycle of native species and water quality, ie, salinity. Primary determinant of ecological character is salinity.*

Now, that's not something, obviously, that you agree with.

PROF PATON: No. One of the things is if you put in fresh water at the saltiest end of the Coorong, essentially fresh water, then the first thing you do is destroy the thing which they talk about, which is the salinity gradient.

5 MR BEASLEY: And what's the – just explain the importance, then, of the salinity gradient.

PROF PATON: The salinity gradient enables the Coorong to have a range of different types of food sources at different ecology as you go from the north down into the south, and then further south, and so that gradient then is actually enabling a suite of species that would struggle at the lower salinities to compete, for example Smallmouth Hardyheads might be able to exist at the lower salinities and do well at them, but at those lower salinities the suite of other predatory fish that then dampen their population size, or have the potential to do that. *Ruppia tuberosa* does not perform well at those lower salinities. It can grow in them, but it actually often gets outcompeted, for example, by algae and so forth.

MR BEASLEY: It's preferred maximum is over 100, isn't it? 110?

20 PROF PATON: Well over 100. In fact, people have actually found up to salinities up to 200 grams per litres, but whether it can actually grow and reproduce at that salinity is not known.

THE COMMISSIONER: You referred to the sea bank for *Ruppia*, but I take it that asexual reproduction is as or more important?

PROF PATON: It can be. The issue is that if you have little or no ability for the plants to grow through spring then (a) you don't get any seeds and you don't get any of these turions. The research we've done - - -

30 THE COMMISSIONER: The turions are the asexual reproduction?

PROF PATON: That's right.

35 THE COMMISSIONER: Yes.

PROF PATON: And the issue with the turions – and you've got to appreciate the other feature of the Coorong is it has a fluctuating water level, which is seasonal. Historically, before we took water out, the actual low waters would have occurred in late summer and into autumn. What happens now, because the flows are reduced and the water arriving at the Mouth is actually usually curtailed, sometime in spring – the water levels drop in spring. That immediately stops that plant from reproducing, it immediately stops that plant from producing turions. If it produced turions, and they're sitting now in the sediments, they won't survive a period of two to three months out in the open in the sun. They get cooked, and they're not going to come back, so the seed is actually the resilient part of this system because it enables that plant to re-establish.

THE COMMISSIONER: It will lie around without degrading?

PROF PATON: It can lie around. It's taken by birds, if there's birds there, so thank God there weren't too many. But the seed abundances in the 1980s were around
5 20,000 per square metre.

THE COMMISSIONER: No. I saw that. Yes.

PROF PATON: They've been sitting at 200 per square metre for the bulk of the last
10 probably 15 years.

THE COMMISSIONER: Well that to me – my inexpert eye, it looks like a disastrous sort of crash.

15 PROF PATON: Yes, absolutely. It has got no – it has got no – the next drought, the system – the next system we have where we have no – that could be the end, because what happens is irrespective of the flows – you can have no flows, the Coorong still fills up in winter. It floods over those mud flats. Some of those seeds – not all –
20 germinate in that year. Every year when you have the plants germinating, not setting seed, you're just quietly reducing that seed bank and then suddenly it disappears.

THE COMMISSIONER: Yes. What's the viability of the seed? How many seasons?

25 PROF PATON: That's a good question. Normally when you run these things, depending on the salinity that you that you germinate them at, it normally germinates best at about 30 to 40 grams per litre but it certainly goes up to 90 grams per litre to germinate. You're typically getting maybe 30 per cent of what we think are viable
30 seeds germinating at a time, but it could be lower.

THE COMMISSIONER: All right.

MR BEASLEY: Let's – can we just – I will come back to it, but leave aside for a
35 moment concerns about water level.

PROF PATON: Yes.

MR BEASLEY: Which you say are fundamentally important. Am I right and – I'm
40 looking at paragraph 9 of your submission of 3 November 2017, or point 9 which is behind tab 2. Your other main concern about this project is by introducing freshwater into the South Lagoon when salinities hit 60 grams a litre, that is – it runs the real risk of favouring algae.

45 PROF PATON: Absolutely.

MR BEASLEY: And I know algae is bad but why don't you explain, for the record, why it's bad for the environment of the Coorong.

PROF PATON: Okay. So this time, the types of algae that are here are various types of green algae. The one that's causing the problems at the moment is Ulva. It's actually – there's a combination of two things happening here. Dropping the salinity favours that plant, but you've got to bear in mind, the water that is coming in that's changing the salinity is coming off agricultural land and it contains nutrients.
5 So nutrients and lower salinities favour algae over other angiosperms.

THE COMMISSIONER: Are these algae endemic?

10 PROF PATON: I think they're certainly endemic. I don't think anyone has brought them in, but I think they're widespread; they could even be cosmopolitan.

THE COMMISSIONER: I should think of them as opportunistic, should I?

15 PROF PATON: Absolutely. They're opportunistic. They will swoop in and wherever there's things – look, it's well known you can even have marine bays covered in algae at times.

20 THE COMMISSIONER: But something that's well known may have escaped me. In general terms, what are the conditions that favour the algae?

PROF PATON: In the conditions for the Coorong are the lower salinities and access to really small amounts of nutrients.

25 MR BEASLEY: By lower salinities we're talking about, for example, about 60 grams a litre. Yes.

30 PROF PATON: That's right, this plant, this particular thing, as far as I know, can grow from freshwater all the way up to about 60, 70 grams per litre – maybe up to 80 grams per litre. And we've certainly found it in the South Lagoon at salinities around 80 grams per litre.

35 THE COMMISSIONER: Now, the nutrients, are they largely a result of returned water carrying residues of fertiliser?

PROF PATON: Let's not talk about returned water because that has a vexed meaning. Water being drained off agricultural land is flowing out to some other outlet – it might be the sea or to the Coorong – surplus phosphate - - -

40 THE COMMISSIONER: Or into the river.

PROF PATON: Sorry?

45 THE COMMISSIONER: Or into the river.

PROF PATON: Or to the river, yes.

THE COMMISSIONER: Yes.

PROF PATON: Wherever it might be. That is – most of that is actually nutrients
5 which we've put onto agricultural land that has been washed into the waterways and
washed down the system to wherever it ends up.

THE COMMISSIONER: Because, in a sense, there is always something I will call
10 nutrient that is washed into a watercourse simply because plant material, say, is
decaying.

PROF PATON: There may be some, but these are elevated – this is an elevated
level of bioavailable nutrients and also often – if it's a consequence of
superphosphate going on, there's often impurities there, so you could have heavy
15 metals and a whole range of other potential pollutants coming down that system as
well.

THE COMMISSIONER: Why shouldn't I say return water?

PROF PATON: Well, because the return water has a range of things – it suggests
20 you're returning water to a place that you have taken it from and that's not the case
here. This is water which has fallen from rainfall and onto properties and which is
then draining to a point. It's not being returned to something.

THE COMMISSIONER: Thank you.
25

MR BEASLEY: I see. It's not water taken for consumptive use under an allocation
and part of a - - -

THE COMMISSIONER: Well, some of it may be, but - - -
30

PROF PATON: Well, that's - - -

THE COMMISSIONER: Some of it may be but you mustn't equate it with it.

MR BEASLEY: Yes.
35

PROF PATON: Yes. I'm not sure that there is any – there may well be water, but it
might be coming from a pipeline that comes from the river to these places and then
40 using it, but I don't think any of this water is actually coming from that source.

THE COMMISSIONER: Thank you.

PROF PATON: Yes.

MR BEASLEY: In relation to the supply measure project we're talking about,
45 whilst it can add fresh water to the Southern Lagoon, it doesn't have much impact on
water levels in the Coorong; correct?

PROF PATON: That is correct.

MR BEASLEY: The only way, I assume, of raising water levels to the Coorong is actually simply to have more flow down the Murray?

5

PROF PATON: Absolutely. That's the one which seems to trigger it, so when you close the barrages, you can actually see a fall in water levels within the next two weeks.

10 MR BEASLEY: And is that – the matter I've just identified, is that the reason you've raised, in your submission to the Commissioner on page 3, the issue of the original modelling under the guide to the Basin Plan calling for a recovery of water for the environment between about 3,800 and 6,800 gigalitres on average?

15 PROF PATON: Yes, that had the potential. But bear in mind the modelling that was done did not include the amount of volume of water that had to be put back to enable you to keep the water levels higher in the South Lagoon for the critical time of this plant.

20 MR BEASLEY: Can you just explain that, because I don't quite follow.

PROF PATON: Okay. Because the notion is that you need more than – it's pretty clear we've got 2,000 – supposedly 2,000 gigalitres of the 2,700 gigalitres down here and we've still got problems. And the barrage is closing in some time – maybe
25 October, November, depending on the flow, which is a month or two months too early for *Ruppia tuberosa*.

MR BEASLEY: Sorry, the barrages are closing this year?

30 PROF PATON: They close this year. It will not be a good year for *Ruppia tuberosa* because the plants aren't getting stimulated to grow now on the ephemeral shorelines, which have water over them. By the time you get to November many of the beds that have *Ruppia* on them will actually be high and dry based on what has happened in previous years.

35

MR BEASLEY: And that means?

PROF PATON: That means you won't be producing – adding to the seedbank. You won't be producing turions. You won't have resources to feed waterfowl if it
40 coincides with a period of drought where the Coorong becomes increasingly important. It's not going to have the quality food that those waterfowl might depend on.

45 THE COMMISSIONER: Can I just ask I just ask about the modelling. Please correct me as to any element of what I'm putting to you if it's wrong. The general approach took what ecological science proposed as "flow", in which I include inundation patterns. So volume, duration, location and time, seasonality, following

work done on a wide range of the biota in question, a wide range being designed, among other things, to capture the value of biodiversity. So far correct?

PROF PATON: Yes.

5

THE COMMISSIONER: Then, by some alchemy I won't pretend to understand and I suspect I never will understand - - -

PROF PATON: And you're not alone there.

10

THE COMMISSIONER: Not really. These – I'm going to just call them flow indicators – it's a crude summary for what I'm trying to describe – produce, hydrologically speaking, what then become – point estimate style, as it were – described in annual long-term average flows. Hence the much talked of figures of so-called “recovery for the environment” – say 3,200 gegalitres, which is in South Australia's national anthem, and 2,700 gegalitres which is what the Basin Plan first promulgated, correct?

15

PROF PATON: Yes. And, look, the key to appreciate here is that modelling might be as good as it could at the time.

20

THE COMMISSIONER: Yes, you may be anticipating me, but just so – so far that's correct, is it?

PROF PATON: That's correct.

25

THE COMMISSIONER: Now, does your last answer to Mr Beasley mean that, so far as you understand it however, that modelling didn't have in what I will call its for production of the ticks in boxes – that is, the achievement of so called environmental outcomes at different scenarios, which is flows and constraints – present or relaxed – didn't include anything that took account of Ruppia's seasonal inundation requirements.

30

PROF PATON: That is absolutely correct.

35

THE COMMISSIONER: How did something so significant for the Coorong's ecosystem come not to have any place at the table for the critical modelling?

PROF PATON: I hoped, Commissioner, that would be something you would actually find out in your program of investigation, but I think there are two things to note.

40

MR BEASLEY: The people that know won't talk to us, so - - -

PROF PATON: Look, the notion is that it was no one. I can find – I actually reported to the state government that one of the key ingredients for having reasonably good healthy Ruppia tuberosa, in the early 1990s, was maintaining the

45

water level. Water level challenged that plant when it dropped. Of course it does; aquatic plants don't live out of water.

5 THE COMMISSIONER: Really?

PROF PATON: Absolutely.

THE COMMISSIONER: I'm sorry, I was - - -

10 PROF PATON: That's good. They might stay there. And again - - -

THE COMMISSIONER: Well, but the importance of *Ruppia tuberosa* doesn't seem to be challenged in any of the material I've heard or read. Is that – is that fair?

15 PROF PATON: I – no, I - - -

THE COMMISSIONER: That is, there is consensus that you – this is a really important element of the ecosystem.

20 PROF PATON: Absolutely, there's a consensus, and I think the even Murray-Darling Basin Authority would agree this is one of their key reportables. They've got targets to get it back to being healthy.

25 THE COMMISSIONER: What do you mean by “even the MDBA”?

PROF PATON: Well, the MDBA has it as one of their Basin-wide reportables, as far as I know, so it's actually important for them, and so you might argue they would be looking at ways in which you would facilitate good recovery of this plant, not promoting things which might do the opposite. And I will continue with two
30 additional pieces of information.

THE COMMISSIONER: Please.

35 PROF PATON: I announced the water level thing at a public meeting in which the Minister of the time and Craig Knowles, who was the Chief Executive, pointing out that water level was not being delivered in this system. And the third piece of - - -

THE COMMISSIONER: Is Mr Knowles Chief Executive or Chairman?

40 MR BEASLEY: Chairman.

PROF PATON: Chairman, it might have been, sorry. And the other component of this was that – you've lost my train of thought now.

45 THE COMMISSIONER: I'm sorry.

MR BEASLEY: Public meeting.

PROF PATON: The Murray-Darling Basin Plan doesn't actually give an allocation to the Coorong. It gets what's left over, largely. So – you know, there's that side of issues. So for me, if you wanted to fix the water level issue, it's not going to happen with water. You've got to look at something else. You probably needed something
5 more like 5,000 gigalitres being delivered back to the system to give you a chance, with good engineering, to actually sustain water levels long enough for that plant to do well.

10 THE COMMISSIONER: Well, now - - -

MR BEASLEY: The enhanced environmental outcomes in the Basin Plan, I just thought I would look at those, for a – they - - -

15 THE COMMISSIONER: This is from the upwater?

MR BEASLEY: This is – no – well, yes.

THE COMMISSIONER: The wording - - -

20 MR BEASLEY: In schedule 5, yes.

THE COMMISSIONER: They're for the upwater. Yes.

25 PROF PATON: To be pursued under the program to increase the volume of water by getting the extra 450 gigalitres, yes, you're right, but the environmental outcomes sought are in relation to salinity for Coorong south is to keep it less than 100 grams per litre. And there's – there doesn't seem to be any water levels for the Coorong, but for the Lower Lakes it's above 0.4 metres AHD 95 per cent of the time, and increasing flows through the barrages to the Coorong. I'm not sure what - - -
30

THE COMMISSIONER: Increasing flows from the barrages to the Coorong will contribute to alleviating the risk of unseasonal low levels for Ruppia. Is that right?

35 PROF PATON: It has to be a reasonable amount.

THE COMMISSIONER: Quite.

PROF PATON: Because it has to build the thing up and I reckon - - -

40 THE COMMISSIONER: Volume and time is critical.

PROF PATON: I reckon my ballpark figure would probably – you've got to be letting out 30 gigalitres a day, 100 gigalitres a month, and you need to be doing that from right through to probably December and some years maybe even into January
45 to get the best return for that. I can't see that happening other - - -

THE COMMISSIONER: That's – so that's not going to happen with 2,100 gigalitres. No.

5 PROF PATON: No. It's not going to happen. The only times it's going to happen is when you get unregulated flows. And, sure enough, the Ruppia can start off doing really well there, but the irony is when you've got those water – that water down – level up, the salinity is a bit lower and that then just gives algae that chance to go. And algae – were not in that system, you know, back in the '80s and '90s and so forth. This is a modern problem and, as far as I can see, because that algae grows in 10 the creeks that let the water in, the source of it is actually these drainage schemes that we're promoting as saving the Coorong.

THE COMMISSIONER: I'm not sure I can see it in the picture, but I can read in the caption to one of your photos "algae being washed into the Coorong".

15 PROF PATON: Absolutely.

THE COMMISSIONER: Right. Well now, one of the alternatives you describe as being desperately needed, by way of an example, you talked about a structure across 20 the Coorong. Can you just elaborate that for me?

PROF PATON: Yes. So one way in which we were thinking you might be able to solve this problem, because we can see this is a wetland of international importance, just going to deteriorate, is to put a low structure across the Coorong at the southern 25 end of the North Lagoon, near where The Needles are, and what this would do, it would sit, the sill of it would be at about .3 metres AHD, and the idea for this was that in the wintertime, when water levels were much higher, water is moving through, organisms can move through, but as that water level drops when the barrages closed, particularly in spring, give those plants just a little bit of extra time 30 to do some reproduction and actually put some seeds in the ground or produce some turions.

THE COMMISSIONER: Every time you do something like that you have a hydraulic effect, don't you?

35 PROF PATON: I can't – I'm not a hydrologist, so I can't comment on that.

THE COMMISSIONER: No, not – hydraulic, that is the movement and pattern of - - -

40 PROF PATON: You could change them. So one of the things which intrigued – and believe it or not there's – people have actually suggested this as well back in the 1970s. Noy did, saying maybe that's what we should do to try and stop this falling water level, but he also made a comment that at this point you often get a build-up of 45 water not being able to get its way through. So, in fact, it's almost like a natural sill; it's just not high enough.

THE COMMISSIONER: I haven't seen that as a proposal other than in your submission. Has it been on the agenda of any of the - - -

5 PROF PATON: Yes, it has been on the agenda, at least in the sense that the state government did a pretty shoddy job of assessing it, and that they wanted to put it at a different place. I wanted to do it as an experiment, the Environmental Water Holder – who I think has already presented here – could see merit as doing it as an experiment. So if you could find a system you could put in and take out. If it didn't work you could then test this system – and to me this is a much better way of
10 managing an asset going forward – than to continue to invest in modelling, and that's what they do largely, is investing in modelling.

Modelling is as good as the data it's based on. It has to make lots of assumptions and simplifications to generate stuff. This would have provided a way of seeing whether
15 you could do that. And there was certainly the potential for technology, new plastic pole type things you could build in and pull out and lock together, and that would actually have made a difference to this system. But, you know, we live at a time when governments have a risk averse attitude to anything out there; they just put too many hurdles in the place. They reviewed it very quickly and hurriedly, said, "It's
20 not on. We're not going to do that now." We're now more worried, believe it or not, about algae than we are about water level. And you've got to fix the algae and the water level if you want to get an outcome for Ruppia now. Just - - -

THE COMMISSIONER: What you describe as the governmental approach is rather
25 at odds with that aspect of the precautionary principle found in the Water Act.

PROF PATON: Absolutely.

THE COMMISSIONER: Which is you shouldn't defer doing something to avoid
30 degradation just because of a lack of so-called full scientific certainty.

PROF PATON: Well, you might argue – and you would argue that's also a tenet within the environmental EPBC Act, and Ramsar, and that talks about the precautionary principle, and I've got to say: why isn't the precautionary principle
35 being put against this SDLAM, which is putting water in, when there's already obvious evidence that the water that is going in from a previous approval causing damage? And I will add, this previous approval for the Upper South East Drainage Scheme required the government to actually monitor the potential outcomes through the '90s, even in 2000, it's a review of what's happening with this upper south-east,
40 the one that is currently in place produced by boom.

And it highlights the fact that there are serious and grave concerns about the release of fresh water which may water nutrients in causing algal blooms. Lo and behold, what has happened? It has gradually appeared: an algal bloom. We have a
45 government now that is completely dishonouring that.

THE COMMISSIONER: You're referring to the South Australian Government?

PROF PATON: I'm referring to the South Australian Government. They were paid by the Federal Government to put in monitoring programs. The monitoring program for this – they started releasing the water in 2001, I think it was, the monitoring programs for this – there might have been others, but the only one I've seen, sort of
5 intensive one for a short period of time, started in 2013. They were meant to monitor birds, they were meant to monitor the ecological responses for that water going in. There has been no specific monitoring of that particular program and how it might influence the South Lagoon. And when the actual risks - - -

10 THE COMMISSIONER: Has there been any explanation to you as to why there hasn't been?

PROF PATON: You could argue – look, in the 1980s they even had a moratorium on doing anything until more investment and research was done. I will tell you why:
15 governments at the moment do not invest in science, full stop. They want to find cheap ways of doing it, and I suspect they're scared what science will tell them, and tell them what they can't do.

THE COMMISSIONER: I wanted to ask you in particular about the first part of the
20 last paragraph on page 3 of your submission to me. Mr Beasley directed your attention to it. It commences with the words, "The original modelling".

PROF PATON: Sorry, just let me find it.

25 THE COMMISSIONER: Page 3 of your submission, tab 1.

PROF PATON: Tab 1. Thank you. Changes to the ecology. So which one are you looking – "The original modelling indicated".

30 THE COMMISSIONER: Yes.

PROF PATON: Yes. Of water needing to be returned to the river.

THE COMMISSIONER: I just wanted to know, because I may end up quoting that,
35 is there anything in that paragraph that you have reconsidered since you wrote it?

PROF PATON: Can I have a few minutes just to read it.

THE COMMISSIONER: Yes, take your time.

40

PROF PATON: Thank you.

THE COMMISSIONER: It goes over the page, too.

45 PROF PATON: Yes. I'm very happy with that statement in that paragraph.

THE COMMISSIONER: It deals with both the original ESLT, or SDL, and then the subsequent SDL adjustment, which is why it may be very useful for my purposes. If the 3,200 was inadequate, if the 2,800 modelled was inadequate, if the 2,750 promulgated was inadequate, if the – say 2,100 as adjusted was inadequate, why
5 should the public care about whether the Plan is implemented or not?

PROF PATON: I think there are two things here. One of them is that - - -

10 MR BEASLEY: The Australian public or the South Australian public?

PROF PATON: It could be either. I think - - -

15 THE COMMISSIONER: Particularly the South Australian public, which is why I started with 3,200.

PROF PATON: Yes. So to me the – one of the great dilemmas we have is that many people no longer connect to the environment.

20 THE COMMISSIONER: Many people?

PROF PATON: Many people no longer connect to the environment. People don't fund it. But for me the reason why South Australians should care is that we have a moral obligation to look after those assets, that are important globally, and we have a requirement to manage and live our lives in ways that we do not affect the
25 environment beyond what is reasonable, and for those special assets that we've set specific legal protection over then we're required, I believe, to follow and make sure that we actually do the right job, or we should be held accountable internationally by other countries.

30 THE COMMISSIONER: Now, I'm - - -

MR BEASLEY: The moral requirement is a – also joined by a legal requirement under the Water Act.

35 THE COMMISSIONER: Absolutely. I was about to say I don't have any difficulty with this being framed morally or ethically, and will probably accordingly report, but as Mr Beasley has pointed out – to the credit of those who enacted the Water Act and promulgated the Basin Plan – all of that seems to be contained within and advanced by the terms of the Water Act and the Basin Plan. My question was not directed to
40 why should we care – which is a more profound inquiry, I agree – although it may have a very simple and attractive answer. As you have just given it, I also agree.

No, I'm asking – one of my terms of reference, or several of my terms of reference, direct my attention to the prospects of successful implementation of the Plan and I've
45 chosen to interpret success as meaning fulfilling the objects of the Act, which range from very general to rather specific, all the way down via the Basin Plan itself into Water Resource Plans for particular areas, with environmental watering

requirements, all of which are tied to environmental outcomes. So thinking about implementation in that ramified fashion, I ask again: if 3,200 recovery was inadequate, if 2,800 as modelled was inadequate, if 2,750 promulgated was inadequate – is inadequate – if 2,100 say, after adjustment, is inadequate, what does
5 it matter if a Plan at, say, 2,100 or indeed 3,200 if you believe in fairies and you think the 450 is going to be got.

PROF PATON: Look – so - - -

10 THE COMMISSIONER: What does it matter if they are implemented? Because they will be inadequate.

PROF PATON: So to the – okay, so the key ingredient to think here is that the Plan is actually better than not having a Plan.

15 THE COMMISSIONER: Now, that’s what I’m – and that’s what I’m actually testing. Why is that so?

PROF PATON: Because you could say – they can have all the water for irrigation, well, you won’t have a river. You can have other ways of arguing this case that
20 some of this water back might give you a period of time where you can actually recover a bit of something along the way and keep it in place.

25 THE COMMISSIONER: But that’s just a – it’s still on a gradient of decline.

PROF PATON: Absolutely, but the gradient of decline is slower than it would be if you didn’t have it, and you know, if - - -

30 THE COMMISSIONER: Might it not be better, socially, to let it rip?

PROF PATON: Well, yes. You might argue that. But you might also argue wouldn’t it have been far better if we took all the water off the irrigators and let them
rip, and get a - - -

35 THE COMMISSIONER: No, I understand. I’m trying to test these ideas. What I don’t quite understand at the moment - - -

MR BEASLEY: Good luck with that.

40 THE COMMISSIONER: I don’t – I’m not sure I did understand, however initially attractive it is, that something is better than nothing. It’s like many of these homely sayings; it’s not always true, frankly.

PROF PATON: The environment along the system will be much worse off without
45 just that inadequate amount of water.

THE COMMISSIONER: If I'm told that I have a choice between starving over two weeks to death, or starving over four weeks, but death is still going to occur, I might prefer two weeks, rationally.

5 PROF PATON: Well, that's true, we can probably argue that there's lots of things that have already been lost in this system as well, so it has already been deteriorated. It's a shadow of itself, and that's where we sit, but it's a better outcome than not having the water being returned, I can assure you.

10 MR BEASLEY: Can I give an answer, even though I'm not sworn.

THE COMMISSIONER: So long as you understand the credibility will be judged accordingly. Yes.

15 MR BEASLEY: I will give an affirmation.

THE COMMISSIONER: You've got to say "sincerely".

20 MR BEASLEY: One answer might be is that the long-term Basin-wide sustainable diversion limit under the Basin Plan is only – it is the core aspect of it, but the Plan is bigger than that, and if you have a Plan that could always be changed.

THE COMMISSIONER: Yes. Quite. I agree.

25 PROF PATON: Thank you.

THE COMMISSIONER: That's a way – and with lawyers talking to each other there, that's a way of saying, "Eventually, somebody may obey the law."

30 PROF PATON: I can't – I think the notion is that - - -

THE COMMISSIONER: We live in the hope.

35 PROF PATON: - - - you keep – I live in that hope, I'm positive. I teach to environmental students, some of them in the audience here, and they say, "How can you tell us all these depressing stories about the environment?"

THE COMMISSIONER: Yes.

40 PROF PATON: And they say "But you don't look depressed." And I say, "No, because there are immense challenges here." And we should be investing in finding the solution that gets the best outcome from the water that South Australia gets in terms of the environmental outcomes that we can get. And we're not doing that. We're simply saying this is going to be delivered by the water, you've got the
45 Murray-Darling Basin Plan adamant that, give it time, it will be good once all the water is returned. Well, we know that already that it's not going to be good. So what else are we doing?

THE COMMISSIONER: I can't see at the moment – for the life of me, I can't see where their own material supports that idea.

5 PROF PATON: I'm not sure which is the idea you're talking about now. The fact that they think it's going to be good?

THE COMMISSIONER: The MDBA sponsored notion – Mr Glyde says it from time to time, “Be patient, give it time.”

10 PROF PATON: That's right.

THE COMMISSIONER: At the moment, at least, it seems their own modelling says - - -

15 PROF PATON: It's not going to happen.

THE COMMISSIONER: - - - no amount of time with this amount of water is going to do the trick.

20 PROF PATON: That's right. And this – this needs to be called out and it needs to then be – well, if it's not going to deliver, what else can you do to deliver those outcomes?

25 THE COMMISSIONER: I guess that's what my – my multipronged question is about: why bother about distinguishing between 3,200 and 2,100 when they're all failures?

PROF PATON: Can I ask his learned Counsel to - - -

30 MR BEASLEY: There's gradients of failure, surely.

PROF PATON: It's a failure, absolutely. No, no, it – the - - -

35 THE COMMISSIONER: You're still going to starve to death.

PROF PATON: And you will still have loss of species or loss of systems as a consequence.

40 THE COMMISSIONER: Well now if, in the national interest as the first of the objects in section 3 of the Act invokes – if it's in the national interest that we will do what we can to prevent and ameliorate these threats to biodiversity, is it not still the case – that is speaking now, that it's critical to focus on that original ESLT determination and to say, in effect, “I'm sorry, the foundation is rotten, the edifice won't stand up.”

45

PROF PATON: Absolutely. I have no qualms that we've short-changed the environment because of other issues driving the decision-making process on the water to be returned.

5 THE COMMISSIONER: But if you were to take an – if one – or the system with were to take an appropriately scientifically humble approach to the possibility of error, which is always a good idea in relation to ESLT, then remodelling could include, for example, an appropriate flow indicator calibrated, or estimated, or judged for the purposes of seasonal wetting of reproductive zones for Ruppia.

10

PROF PATON: Yes. And, to be honest with you, I think if you did that and put it in there, it will push it towards the highest volume of water.

15 THE COMMISSIONER: You anticipate my next question. Which would produce an answer which, according to the history which has been pressed upon me from many quarters, would lead to – I don't know, people marching in the streets or more of these reprehensibly offensive bonfires that occurred.

20 PROF PATON: I suspect that will be the case, and I don't think you should argue that that conspicuous behaviour isn't going on behind the scenes right at the moment with people manipulating and bullying various components that might be able to respond positively to the need for the environment, but they are being bullied to either keep quiet or not actually act.

25 THE COMMISSIONER: Is there not then something salutary in saying there's no use professing the science and the sustainable development principles in the Water Act unless you're prepared to – ugly word – enforce that?

30 PROF PATON: I'm not a lawyer, but that would be exactly the place where I would be sitting and saying - - -

THE COMMISSIONER: I'm actually interested in your views as a scientist and a concerned citizen.

35 PROF PATON: I would argue that we have done science, we have got the best available science available. It has said that the take of water is 3,800 to 6,800 gigalitres too much. The probability is really low of getting an environmentally healthy system at the 3,800, it's really high at 6,800. The law of averages says we should have set it on something which is around 5,200 gigalitres, whatever the middle point is in that range, and to me that was the logical place to be going, not
40 half of that volume.

45 THE COMMISSIONER: Well, that's why I'm – that's why I'm wondering about the platitude, "Something is better than nothing." That would mean 500 gigalitres would be better than nothing.

PROF PATON: 500 gigalitres would be better than nothing.

THE COMMISSIONER: Five gigalitres is better than nothing.

PROF PATON: Five gigalitres might be better than nothing.

5 THE COMMISSIONER: Why would we spend any public money on it - - -

PROF PATON: Because - - -

10 THE COMMISSIONER: - - - in the name of science and recovery and protection?

PROF PATON: This is – this is all about that opportunity to say, for all we know we might suddenly go into a very wet period, in which case the system might recover. It’s all about having a system that could cope with change going forward. You kill it off now, it gives it no opportunity, and the notion is that a little bit of extra
15 water – these systems have got a little bit more resilience than we think they have, they hang in there a little longer than we think they might, this just gives you that opportunity, that chance, of actually having and restoring something in the future that you might not have.

20 THE COMMISSIONER: It’s not necessarily a linear relationship, is it? There may be some critical point, drop off points.

PROF PATON: No. There’s points. You know, we’ve already done sort of what you call triage, we’ve only chosen some of the wetlands to water. So, you
25 know, we’ve already downsized that environmental asset substantially.

MR BEASLEY: I just thought I would remind us of what’s in the ESLT report that – what we’ve called it anyway, November 2011 MDBA publication, which is exhibit RCE6 dealing with site specific ecological targets and salinity and lake level
30 indicators and site specific flow indicators for the Coorong, Lower Lakes and the Murray Mouth. Yes, that’s the report. If you go to page 217, Commissioner. Just get the witness’ views on this. So the site specific ecological targets for Coorong, Lower Lakes and Murray – you’ve got a copy of it there. Yes, page 217, if you want to have a look. Yes. So we’ve got – does the blue mean something again? It does
35 doesn’t it? I will come back to it. That means achievable, I think. Doesn’t have to rain as much. I will come back to it. So:

40 *Maintain a range of healthy estuarine marine and hypersaline conditions of the Coorong, including healthy populations of keystone species such as tuberosa in the South Lagoon and megacarpa in the North Lagoon.*

South Lagoon salinity, they’re looking for:

45 *An average long-term salinity of less than 60 grams a litre, maximum salinity less than 100 grams a litre in 95 per cent of the year, maximum salinity less than 130 grams a year in 100 per cent of years.*

And then it has got the barrage flow aims. Is that – do you agree with that target of long-term average of 60 grams a litre?

5 PROF PATON: No, no, it wasn't long-term average of 60 grams. It was long-term average of less than 60 grams.

MR BEASLEY: Less than 60 grams.

10 PROF PATON: Which means it could be zero grams per litre, it means it could be a fresh system, not a hypersaline system.

MR BEASLEY: Right. And that's – you say that's a problem for the growth of - - -

15 PROF PATON: Absolutely.

MR BEASLEY: - - - algae in combination with run-off.

20 PROF PATON: It's good for – when you have lower salinities and nutrients available, the algae is now there, it will do well in those – under those conditions. And remember that earlier we talked about the optimum range being 60 to 100 grams a litre, suddenly it changes to something like less than – less than the actual target range. That doesn't make sense to me. This seems – to me, this is about finding a way to give you - - -

25 MR BEASLEY: It's a long time since I've done maths. That does say less than 60 grams a litre, doesn't it? Yes.

30 MR BEASLEY: It does say less than. And – you know, to me, this is the issue, is that the target is quietly shifting to make it ever so much easier for them to simply put in fresh water into the South Lagoon without considering the key requirement of maintaining that hypersaline/hypermarine system that it naturally is.

35 THE COMMISSIONER: Well, more to the point, put it in from down near the Coorong rather than starting at - - -

PROF PATON: Salt Creek you mean, is that what you're trying to get to?

THE COMMISSIONER: Yes. Rather than - - -

40 PROF PATON: Well, Salt Creek is part of the Coorong.

THE COMMISSIONER: Yes, I know.

45 PROF PATON: Yes.

THE COMMISSIONER: What I'm saying is you're talking about an approach whereby fresh water can come in via Salt Lake – Salt Lake - - -

PROF PATON: Salt Creek.

THE COMMISSIONER: Salt Creek from the immediate – the adjacent drainage, rather than attention to a length of system, seasonal, appropriate flow.

5

PROF PATON: Yes, you could do that. You could also look at those figures and say, “South Lagoon, 50 kilometres long in the wintertime maybe 40 kilometres long in the summertime, with salinity gradient down it.” Where exactly does this? How do you actually calculate the 60 grams per litre for a system where the salinity changes along its length and changes during the year? This is a very sloppy way - - -

10

THE COMMISSIONER: I think I’ve – I think I’ve been taught to say – just say “average long term” and that will do the trick; isn’t that right.

15

PROF PATON: Yes. But – that could be what they’re doing but they don’t say that, do they?

THE COMMISSIONER: Don’t – isn’t that – they say average long term - - -

20

PROF PATON: Average long term salinity less than 60, so - - -

THE COMMISSIONER: They do say average long term.

25

PROF PATON: Salinity less than 60 grams per litre. That is not going to do anything to help that plant.

MR BEASLEY: Do you note that it’s blue that box?

30

THE COMMISSIONER: That just means that can be done.

MR BEASLEY: No. But that’s my point. If you go to 199, this is what I’m not understanding at the moment.

35

THE COMMISSIONER: Deliverable is mostly regulated flows under current - - -

MR BEASLEY: So why do you need this supply measure?

40

THE COMMISSIONER: I don’t know that this here is relevant to supply measures at all, is it?

MR BEASLEY: No. But why – the supply measure is to keep salinity under control, isn’t it? Aren’t they saying here, “We’ve already got it under control under regulated flows already, under current operating conditions in 2011”?

45

THE COMMISSIONER: I don’t think this table indicates a modelled tick. It indicates three classes of outcomes: flow elements, deliverable as mostly regulated flows.

MR BEASLEY: Yes.

THE COMMISSIONER: And then, yellow, you will need tributary inflows or unregulated flow events and brown, it's only when it's in flood.

5

MR BEASLEY: Yes.

THE COMMISSIONER: This doesn't answer the question at what level of ESLT these will be achievable.

10

MR BEASLEY: 2,750.

THE COMMISSIONER: Well, I'm not sure that that's what this table is doing.

15

PROF PATON: No.

THE COMMISSIONER: I'm not sure.

MR BEASLEY: I think that this is saying, under a 2,750, under current operating conditions, this is what is achievable.

20

THE COMMISSIONER: I don't think so.

MR BEASLEY: No. I will go back and – hang on.

25

THE COMMISSIONER: It's part of that inquiry. It's setting – it's describing the things, I think. In any event - - -

MR BEASLEY: It's setting out the targets that are sought.

30

THE COMMISSIONER: Yes.

MR BEASLEY: And I thought, I have read that as blue means under a 2,750 recovery of water for the environment – when you've got blue we can do it under current operating conditions.

35

THE COMMISSIONER: You might be right. It could have been said more plainly, if that's what they intended.

MR BEASLEY: I can't think of any other logical intent but anyway, we will come back to that. But it's just curious to me, if my interpretation is right, and you've got a 2,750 Plan, well, I suppose they're saying it's environmental equivalency, aren't they?

40

THE COMMISSIONER: They're saying they can get the same outcome as with a lower flow.

45

MR BEASLEY: Because if I can come to that now – I turned away from it. It’s part of your submission to the Commissioner. At – yes. No, sorry, it’s not. It’s part of your submission of 3 November 2017, Professor Paton. In paragraph 11 you’ve said – you’ve pointed out the environmental equivalency criteria for a supply measure project and you’re saying, at the top of page 3 in paragraph 11:

There is no ecological equivalence for the southern Coorong by delivery of water through the SEFRP.

10 Now, can you just expand on that – why you’re saying that?

PROF PATON: Okay. My reason is that we have a current drainage scheme which is putting water into the system that is doing ecological harm as shown by lower salinities and algal blooms.

15

MR BEASLEY: Yes. Just pause there, I don’t mean to interrupt you giving an answer but I’m going to. When you say it’s doing “ecological harm”, this is – you’re basing that – that opinion is based on your long term and fairly regular observation

- - -

20

PROF PATON: Absolutely.

MR BEASLEY: - - - of the condition of the Coorong over many years.

25 PROF PATON: Yes, and I can understand it because this is about algae and how algae then affects the biota, so first *Ruppia tuberosa* flowers by producing flowering stalks that float on the surface where they shed their pollen, which flows on the surface across to female flower heads and that’s how they reproduce. These heads sitting – and the plants – algae, once it’s there, catches on them and the algae then, when you get a bit of wave action – which anyone being in the Coorong appreciates you get wave action – it’s simply the extra load on it simply pulls the heads off and they wash ashore. They don’t reproduce. So it affects algae that way.

30

35 It also affects migratory shore birds by covering the shoreline and the shallow water, preventing them from accessing the food underneath. And it also affects them because one of the key resources there, which is little tiny larvae from a known as a chironomid – it is an aquatic invertebrate. During its non-adult stages, it cannot emerge through these dense layers of algae and so your access and your food supply is reduced by the presence of algae. To me, that is ecological harm to key characteristics of the south lagoon.

40

MR BEASLEY: And - - -

PROF PATON: And then - - -

45

MR BEASLEY: Go on, sorry.

PROF PATON: - - - the next one is to say why would you then want to put more of this sort of water on top of what is already causing a problem. And to me that is why I argue that the proposal with its 25 gicalitres – on average, double what’s currently going in – will just exacerbate an already existing problem that occurred in the last 10 years or so post the beginning of that upper south-east drainage scheme – the one that is in existence now.

MR BEASLEY: And - - -

10 THE COMMISSIONER: I’m sorry, can I just – in order to understand this evidence – you’ve got it open in front of you, your SDL adjustment submission to the MDBA, paragraph 11, and you’ve just been taken beforehand in the ESLT report to page 217. Have you got that page 217 before you still?

15 PROF PATON: Yes, I do.

THE COMMISSIONER: The – under the heading ‘Salinity and Lake Level Indicators’, the third of the site-specific ecological targets says:

20 *Indicative average lake water levels in figure B16.7.*

PROF PATON: I’m getting lost now. I don’t know where you are.

25 THE COMMISSIONER: Page 217 of the ESLT report.

PROF PATON: Yes. I’ve got that here but I don’t know where you are on this page.

30 THE COMMISSIONER: There’s a column.

PROF PATON: Down the bottom. Indicative - - -

35 THE COMMISSIONER: There’s a column headed ‘Salinity and Lake Level Indicators’.

PROF PATON: Yes, and it’s the bottom paragraph.

40 THE COMMISSIONER: In that column for the third of the site-specific ecological targets, which is the variable lake level regime – see?

PROF PATON: I’m still not, sorry, I’m not there. You might have to just - - -

MR BEASLEY: Bottom of page 217.

45 PROF PATON: Yes, bottom of page 217.

THE COMMISSIONER: There’s a column: ‘Site-specific ecological targets’.

PROF PATON: Site-specific ecological targets. Yes. Yes.

THE COMMISSIONER: There's a column. The third of those is the variable lake-level regime.

5

PROF PATON: The third of those – that's in the bit about the very top section or is it one of the others?

THE COMMISSIONER: There's a column headed site-specific ecological targets.

10

PROF PATON: I've got it. No, I've got it. Yes. Site-specific flow indicators. Yes.

THE COMMISSIONER: The third of those, counting from the top – the third of them is a variable lake-level regime.

15

PROF PATON: Okay. Okay. So this is in the lakes. This is not in the Coorong.

THE COMMISSIONER: And that's the question. It is your complaint and observation, isn't it, that though they've turned their mind to variable levels, it is not for the Coorong?

20

PROF PATON: The lake levels will vary anywhere in the Coorong. The problem is that they're varying at inappropriate seasonal times.

25

THE COMMISSIONER: Right. Now that, variable lake-level regime - - -

PROF PATON: Has - - -

THE COMMISSIONER: - - - do you understand that as including the Coorong or not?

30

PROF PATON: No, it makes it quite clear that it's lake – this is to do with the lakes.

35

THE COMMISSIONER: That's fine. That's what I wanted to know.

PROF PATON: I do not see that as being part of what they're talking about.

THE COMMISSIONER: Right. So it means - - -

40

PROF PATON: They talk about levels and changes of them in the Coorong, full stop.

THE COMMISSIONER: So it means that on the face of their site-specific ecological targets and the indicators that they derive for the purposes of reaching

45

them, they have left out something that you say is critical to a so-called keystone species in the South Coorong, being *Ruppia tuberosa*.

5 PROF PATON: That's correct. They have not included water levels and the need to have the water levels high during spring for that plant to reproduce adequately.

THE COMMISSIONER: And the advent of this increased local fresh drainage – fresh nutrient-laden drainage - - -

10 PROF PATON: Yes.

THE COMMISSIONER: - - - which you say threatens, seriously, to increase the algal problem has another defect, namely that it won't assist in appropriately - - -

15 PROF PATON: Raising the water level.

THE COMMISSIONER: - - - affecting levels - - -

PROF PATON: Yes.

20

THE COMMISSIONER: - - - because water flows downhill.

PROF PATON: Out to the sea. That's right.

25 THE COMMISSIONER: Yes. Thank you.

PROF PATON: Yes.

30 THE COMMISSIONER: Thanks. So you can only lift the water levels if there's enough water coming over so that - - -

PROF PATON: That's right.

35 THE COMMISSIONER: - - - there's no gradient to the Mouth because it's pretty much even.

PROF PATON: Yes. So I think – with changes of sea levels – so there's a suite of things that change it, but in the principle of this is that when you let water over the barrages – and enough of it – it builds up behind the - - -

40

THE COMMISSIONER: Yes, I understand. Yes.

PROF PATON: And then it just holds that water from coming out.

45 THE COMMISSIONER: It's the difference between whole of system flow across the barrage – holding levels in the Coorong, including the South Coorong – and a

very small localised entry of inappropriately fresh and nutrient-laden water which might fix the level and will introduce algal bloom. Is that – that’s your thesis?

5 PROF PATON: That’s a reasonable thing. Just bear in mind that 25 gicalitres is probably about 20 per cent of the volume of the South Lagoon.

THE COMMISSIONER: Yes. I shouldn’t say very small. I mean localised - - -

10 PROF PATON: Yes localised. Yes.

THE COMMISSIONER: - - - in the sense that it’s not affecting the level of the whole of the Coorong in a way that would bring about the - - -

15 PROF PATON: The most - - -

THE COMMISSIONER: - - - beneficial - - -

PROF PATON: That’s right.

20 THE COMMISSIONER: - - - manipulation of levels in the south.

PROF PATON: Absolutely.

25 THE COMMISSIONER: Thank you.

PROF PATON: It will lift it by 5 centimetres; it probably needs to be lifted by at least 30 centimetres - - -

30 THE COMMISSIONER: Thank you very much.

PROF PATON: - - - and only under certain circumstances.

THE COMMISSIONER: Thanks.

35 PROF PATON: Thank you.

40 MR BEASLEY: We’ve been provided with a range of papers that you have either authored or co-authored in relation to monitoring Ruppia, birds, etcetera, in the Coorong. The papers we’ve been provided are mainly dated in 2017 but – I think you probably already answered this – monitoring things like Ruppia, birds and other biota in the Coorong has being a career-long project for you.

PROF PATON: It has been part of my career, yes.

45 MR BEASLEY: And that’s how you’ve been able to express your concerns about what you consider to be the impacts of the additional 12 gicalitre flow that you’ve talked about from the previous project before this.

PROF PATON: Absolutely. And I should add that, you know, this was actually predicted by other consultants who were reviewing it. It's not like this should not have been something that we should have been thinking wasn't going to occur. They had a high probability of occurring.

5

MR BEASLEY: Now, just on that – and this doesn't have to be done now – but is there – are there any papers or journal articles that you think we should be referred to in relation to the issue we've just discussed?

10 PROF PATON: I think I could probably send you some documents. You probably have one already because I think you've interviewed Anne Jensen about her original proposal about flows coming in.

15 MR BEASLEY: You're 100 per cent right although that wasn't me; that was Mr O'Flaherty.

PROF PATON: That's fine.

20 MR BEASLEY: I'm sure he did a thorough job, though.

PROF PATON: The other features which might be good is simply to give you one or two of those documents which flag the risks, including the EIS for the upper south-east, that the likelihood is that if you put this water in, you've got to be aware, you've got to monitor, the risk is nutrification, lower salinities, leading to algal blooms.

25

MR BEASLEY: Yes.

30 PROF PATON: And that is exactly what has happened. And you've got to say, where has the state government been - - -

MR BEASLEY: No, well, see, I was just about to ask you that.

35 PROF PATON: - - - in terms of its monitoring for that.

MR BEASLEY: I mean, I would be grateful and we can do this out of hearing - - -

PROF PATON: Thank you.

40 MR BEASLEY: - - - you can provide this to us at any – well, not at any time, but it doesn't have to be today.

PROF PATON: Some time – at some time in the near future.

45 MR BEASLEY: Yes, but I was going to ask - - -

THE COMMISSIONER: I want it in full and on time, please.

MR BEASLEY: In full and on time, but I haven't – have I missed it? I haven't read anything in this business case for the South East Flow Restoration project identifying as a risk the matter that you've raised with the Commissioner. Have I missed it or

- - -

5

PROF PATON: That's absolutely right. In fact, they're submissions because you've got to get approval to do this to the federal Environment Department.

MR BEASLEY: Yes.

10

PROF PATON: Actually puts against this – this release of water, "There is no risk".

THE COMMISSIONER: Tell me, when did you first see the business case that you had unsuccessfully sought last year?

15

PROF PATON: I actually ended up finding someone in the Federal Government who responded to a letter I wrote to them about, you know, "What's going on here?" and they said, "You can find this business case" – heavily redacted, by the way – "on this – at this site on the environment department – the federal Environment Department's thing." And that's the only place where I found that.

20

THE COMMISSIONER: Doing your best to guess, did the redactions trouble you in terms of examining a business case for the matters that interested you?

25 PROF PATON: It's interesting to know where the funding came and how much was put forward to it. I think that was important.

THE COMMISSIONER: Leave aside finding – leave aside funding questions.

30 PROF PATON: Leave aside the funding. I think the thing that really concerns me is that I had a sense, by the way I was treated or people working for me were treated in trying to find out information about this, that some deal had been done between the federal and state governments that, "You will do this and we will be able to claim it as a whatever" and it had already been a fait accompli that this was going to be introduced. In fact - - -

35

THE COMMISSIONER: Well, now, you've – sorry, I've cut you off.

40 PROF PATON: In fact, you know, you've got to argue this – these SDLAMs were largely approved by the Senate in May but, in fact, this one was well advanced and was, in fact, due to be finished, I think, in - - -

MR BEASLEY: I think they – it's probably correct to say they weren't disallowed.

45 THE COMMISSIONER: They were not disallowed and - - -

PROF PATON: They weren't disallowed. Exactly. Yes.

THE COMMISSIONER: - - - the senators have many merits, but they don't claim to be a scientific conclave. Now - - -

5 PROF PATON: And I don't blame them. I saw a document they might have had to read which was 1,000 pages and you just go, "How can a senator actually assimilate and understand that?"

10 MR BEASLEY: I'm not sure they got those documents before they – the disallowance motion.

THE COMMISSIONER: Tab 5 in your witness bundle – tab 5 – has an exchange – it starts with an exchange of emails.

15 PROF PATON: Correct.

THE COMMISSIONER: Between you and Justine – is it Keuning?

20 PROF PATON: That's right, but, in fact, it was Fiona Paton who did this on my behalf and that's because I experienced a little bit of - - -

THE COMMISSIONER: I see.

PROF PATON: - - - difficulty securing information.

25 THE COMMISSIONER: I'm so sorry. Yes. That's right.

PROF PATON: Yes. It's right. .

30 THE COMMISSIONER: Do you have any understanding of what commercial-in-confidence describes?

PROF PATON: No.

35 THE COMMISSIONER: In this context, I mean?

PROF PATON: No. I do not see how that has got to be something commercial and that's why my concern was there's something else behind this which is making it - - -

40 THE COMMISSIONER: We will ask the South Australian Government.

PROF PATON: You should.

45 THE COMMISSIONER: I'm just wondering – I don't understand this resort to things being commercial-in-confidence - - -

MR BEASLEY: I'm speculating - - -

THE COMMISSIONER: - - - at all.

MR BEASLEY: - - - it might relate to – this infrastructure hasn't been built yet – or it has?

5

PROF PATON: No, it's just about – as far as I know, it's basically done and they could start – as far as I know, they could release the water now, irrespective - - -

MR BEASLEY: When was the infrastructure started to be built?

10

PROF PATON: As far as I know, the infrastructure was probably completed in June. I think they've got a couple of things to do downstream which might be stopping it.

15 MR BEASLEY: The only thing I could think of is quotes to build it from.

THE COMMISSIONER: Well, that wouldn't be in the business case. I've never heard anything so silly in my life.

20 MR BEASLEY: Well, I - - -

THE COMMISSIONER: I mean, I know it's called a business case, but that's just government people fooling themselves that they're in the real world. It's not business. It's a government project we're talking about. It's not a business. They're not presenting - - -

25

MR BEASLEY: I'm just playing devil's advocate. There's no point attacking me.

THE COMMISSIONER: - - - a proposal to a banker whereby they make profit. That's a business case. They're talking about a justification of a project.

30

MR BEASLEY: Yes.

THE COMMISSIONER: Which has to be justified in statutory terms which are entirely environmental, so far as I'm concerned.

35

MR BEASLEY: Well, commercial-in-confidence is better than the Authority which uses this term "Authority-in-confidence" for one of its reports, which is a brand new area of privilege.

40

THE COMMISSIONER: Anyhow, can I just get Mr O'Flaherty to note that I wanted to pursue that with Justine Keuning , please.

PROF PATON: Well, Justine is probably the messenger.

45

THE COMMISSIONER: She puts her name to something, she can be the messenger of the answer as well.

PROF PATON: Poor public service.

THE COMMISSIONER: Well, you shouldn't put your name to something if you disapprove it.

5

PROF PATON: Yes.

MR BEASLEY: I'm not going to say it. I just wanted to ask a question about Mr Glyde's response to your letter of 8 April this year, which is behind tab 14. There's something I don't quite understand about it. I just wonder if you can help. So this is behind tab 14. He thanks you for your letter, says that:

10

The MDBA is committed to a rigorous and transparent implementation of the SDL adjustment mechanism. We value your feedback.

15

Of course, rigorous and transparent implementation doesn't involve releasing the business cases of their own analysis but leaving that aside, next paragraph:

As you would be aware the SEFR project has been notified as a supply measure under the SDLAM by the Government of South Australia and, as such, the design and implementation of the project is their responsibility. It's appropriate, therefore, that any questions about the specifics of the project and its implementation should be addressed to the relevant areas of the South Australian Government.

20

What I don't understand about that is the Basin Plan requires the Authority to be satisfied about the crucial issue of environmental equivalency, not the South Australian Government. It's the MDBA that has to be satisfied about that. So do you understand why Mr Glyde was telling you, "Take all – take your story to the SA Government?"

25

PROF PATON: Because by then they had given out an assessment of all the SDLAMs in a generic sense and said there was no concerns that raised flags – whatever – for them, and passed it back for the state government – passed it back to the - - -

30

MR BEASLEY: I see. So they've already – what he's effectively saying is, "We will tick this off."

35

PROF PATON: That's right and he's saying, "You need to go back to - - -"

MR BEASLEY: "We're not interested in responding so we will just" – yes.

40

PROF PATON: No. Yes.

45

MR BEASLEY: All right. Well, that answers that.

PROF PATON: But it seems odd to me that the state government can be the proponent of a proposal and then be the adjudicator of it. I mean, doesn't that make no sense to you in terms of good governance?

5 MR BEASLEY: Well, no, but I mean under the – that's not how it's meant to work under the Basin Plan. It is meant to be the Authority that determines the adjustment and ultimately the Minister, I think, that makes the final decision, isn't it? Are you still awake?

10 THE COMMISSIONER: In relation to - - -

MR BEASLEY: Yes. It's the Authority makes the final decision? Yes. The Minister. Sorry, the Minister.

15 THE COMMISSIONER: On the second page of that letter of 19 April 2018 from Mr Glyde to you, he refers to an understanding on his part that there's a South Australian Government workshop on 5 June 2018 concerning, among other things, salinity values in the Coorong and Lower Lakes and the – in the Murray Mouth and the source of nutrients for algal blooms. Do you have any knowledge about that?

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PROF PATON: I do have some knowledge. I didn't attend it and there was a prior meeting. I think it was the last day – the last Friday of May – where a group of scientists got together at the government's request to just review the science and everything else about this drainage scheme and other things to do with what are we going to do for the South Lagoon of the Coorong and this was requested by the new state Environment Minister David Speirs. The conclusion at that meeting is that it drew some conclusions, some recommendations of what should be done for the South Lagoon. Amongst them was, you know, understanding what this algal broom was. It also included things like recommendations for stopping the flows for a period of time to see if that would actually help the problem, in other words trying to push the salinities higher by not putting fresh water in for a period of time. And then that document and the outcomes of that was meant to be taken to, basically, a community group.

35 Now, this particular meeting was going to be earlier in May, at other times. I wasn't available for that, I said I wasn't available – no, I said I was available for that one and the River Murray Operations Manager said, "David, we can't have it then because our heavy hitters aren't available." That was the sort of words he had. And that referred to – the situation I've had with government agencies here is that they like to have a consensus, "The consensus opinion is such and such." And usually the position they would like to promote – not necessarily the one that is best from the environmental perspective – and that has been the modus operandi for this organisation for some time.

45 So when I heard about the 5 June meeting, being the time when – that was not as suitable for me, I didn't attend it. I then had a period of – not ill health, but a period of hospitalisation which meant that I didn't go to that particular meeting. But it's a

very normal policy here that government agencies have a lot of people with vested interests and/or opinions not necessarily based on science to actually help them get their view across. And as far as I know, the outcome of that other meeting – I haven't seen it that was the sort of view that came. There were differing opinions to my opinion, and I don't know the basis of those other opinions.

THE COMMISSIONER: Has the outcome – if there be any outcome – of the 5 June meeting been published?

10 PROF PATON: No. In fact even the original document and the science around the actual – the scientists who were investing in providing the state government stuff, that actually hasn't actually been delivered to the Minister yet. There was a contract to the Goyder Institute at the time.

15 THE COMMISSIONER: So the 5 June meeting didn't have the outcome of the May - - -

PROF PATON: It did, but it was given verbally by a number of people who were at that meeting. I wasn't at that, so I can't say whether that was represented or what was decided at that other meeting.

THE COMMISSIONER: So you just don't know what, if anything - - -

PROF PATON: I don't know what the outcome was of that meeting, no.

THE COMMISSIONER: Well, that's something else we should find out about, please.

MR BEASLEY: Yes. Just to clarify the point I was trying to make when Mr O'Flaherty was on Snapchat or Twitter, or whatever he was doing, some other social media site, it's the Basin Officials Committee, under section 7.12 of the Basin Plan, that notifies the Authority of supply measures. No doubt after the South Australia Government has told them, "We want this one." Then it's the Authority that has to be satisfied about the criteria I went to regarding environmental equivalency, and it's the Authority that proposes the adjustment to the Minister under section 23A, and it's the Minister that has the power under 23B to adopt it.

THE COMMISSIONER: But Mr Glyde is right, isn't he, in making a point that there is a special case made in schedule 6 default method for the Lower Lakes Coorong Murray Mouth.

MR BEASLEY: Yes.

THE COMMISSIONER: It's not treated as anything else is, I think.

MR BEASLEY: Well, in terms of the limits of change, that's what I assume he's referring to in 6.07.

THE COMMISSIONER: 6.07(c).

MR BEASLEY: There is a separate section regarding the Lower Lakes and the Coorong.

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THE COMMISSIONER: Have you got that there? The Basin Plan.

MR BEASLEY: Why – see, that’s different again to the – it’s different to the ESLT report, isn’t it? Coorong Salinity, South Lagoon daily average no less than 100 grams per litre for 96 per cent. I suppose it – well, it just doesn’t say anything about 60.

PROF PATON: So I can make a comment here maybe, and that is the assessment that’s done at that federal level has largely been around water quality issues, and only them, and meeting water quality targets. It hasn’t considered – and actually, just getting below certain levels is all that really mattered for them. It failed to do what I thought was part of the EPBC Act, was to actually protect those, you know, listed species under various federal legislation and so forth, and that is what is missing in this whole assessment process, is there is no due care given to the biotic responses to the proposed actions that are likely to be contrary to what the EPBC Act was actually set up to do.

THE COMMISSIONER: Can I just ask you to look at the provisions that I think Mr Glyde was invoking in his response to you, where he said that the Authority was protecting the environment.

PROF PATON: Can you just tell me the page you’re on, sir.

THE COMMISSIONER: It’s page 230, 231 if you’ve got the same print as I have.

PROF PATON: Okay. It has got references down the bottom on 231?

THE COMMISSIONER: Yes.

PROF PATON: Good.

THE COMMISSIONER: You see that – now, this is the method that is used, among other things, to calculate satisfaction of environmental equivalency. So environmental outcomes against benchmarks. So S6.07, the poorly phrased “limits of change” means what are we going to treat as equivalent. Again, it’s not an area that lends itself to actual precision. I accept all of that. And so we’ve got this idea of environmental outcome scores in (a) and then there’s a provision in (b) for reaches.

PROF PATON: Yes.

THE COMMISSIONER: Which has the – what I will call the 10 per cent margin, with a 50 per cent possibility as well. And then we come to paragraph (c), which is

for the Coorong Lower Lakes Murray Mouth, and there we have salinity barrage flows and Mouth openness measures.

PROF PATON: Yes.

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THE COMMISSIONER: How do those – the salinity measure for the Coorong, that's less than 100 grams per litre, it says.

PROF PATON: Yes.

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THE COMMISSIONER: So that there will be a tick in that even if it is considerably less than 60.

PROF PATON: Absolutely.

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THE COMMISSIONER: Which would be you think a disaster.

PROF PATON: Absolutely.

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THE COMMISSIONER: It should be between something and something else, such as 60 and a hundred and – what, 20?

PROF PATON: That would be a reasonable thing. You might push it a bit higher, but something certainly closer to the 100 than to the 60.

25

THE COMMISSIONER: Now, that doesn't suggest any pattern seasonally, does it?

PROF PATON: No. But this is the lack of detail which is often in these general statements, so that's a very deliverable outcome.

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THE COMMISSIONER: Well, that's the point of modelling. Which – I want to have a – I want to make this clear: I have a lot of sympathy for the modellers, because everyone lines up to mock their work or to suggest that it's - - -

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PROF PATON: It's hard to do. It's hard to do.

THE COMMISSIONER: Yes. And I'm sure it is, I'm sure it really is. But they're – if I may say so, they're logicians and mathematicians, they're not biological scientists – they really aren't biological scientists. They may also be, but not by reason of being a modeller they aren't. What's the point of modelling for something which is seasonal, where seasonality is critical, if you don't build in seasonality?

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PROF PATON: Good question. I would argue that the reason it's not there is probably they're trying to simplify it, to make it easier to tick off that certain things are met, but it could well be – you could have it completely the other way around, high salinities in winter, low salinities in summer, which would probably be a very different system to the other. So yes, it's not an accurate way of ticking off.

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THE COMMISSIONER: See – and I do stress – I don't think that's a criticism of the modeller, they devise a model, given sufficient to do it - - -

5 PROF PATON: Their models will actually probably have the salinity tracked on a almost continuous basis, and this is just plucked out to say 96 per cent of the time is expectation.

10 THE COMMISSIONER: So I stress I'm not suggesting the modellers are making an error here, but it's the people who commission the model, isn't it?

PROF PATON: Well, I can't – I don't know what the brief was, but yes, my - - -

15 THE COMMISSIONER: Well, the brief that produces Coorong salinity less than 100 grams per litre for 96 per cent of days doesn't seem to me to say anything about seasonality - - -

PROF PATON: No, it doesn't.

20 THE COMMISSIONER: - - - or variability.

PROF PATON: But that doesn't mean the seasonality wasn't in the model. All it's doing is pulling a summary statement out.

25 THE COMMISSIONER: I understand.

PROF PATON: Yes.

30 THE COMMISSIONER: Sure. But it means that the model will not give an answer - - -

PROF PATON: That's going to help you really manage - - -

35 THE COMMISSIONER: - - - necessary for this adjustment method by reference to seasonality.

PROF PATON: No.

40 THE COMMISSIONER: And all of this is to be remembered is in relation to an environmental equivalency criterion as a prerequisite for an adjustment.

PROF PATON: Yes.

THE COMMISSIONER: I realise – they realise the words are almost devised to.

45 PROF PATON: Make it easy to deliver.

THE COMMISSIONER: To disguise that that's its function but that's what it is. I see. Right. Well - - -

5 PROF PATON: And, you know, to me, you know, where is the nutrient level one in here, where is the water bird one in here. That may be that this is not the MDBA's responsibility, but those characteristics alone are not going to determine what the biotic responses will be, the very environmental assets we're trying to look after. This is simply water quality quantity stuff.

10 MR BEASLEY: We just finished by going back to the document at tab 27, the South East Flows Restoration Project referral under the EPBC Act and commencing at page 86 of that document. So you have to read it the other way around. You will see table 9 'Nature and extent of likely impact of the proposed action on the Coorong'. Second subject is in the second column water levels water regime. As
15 described in section 3.13 the Coorong receives water from multiple sources, the most significant being the River Murray by the barrages, currently, in a median year, the Coorong receives 29.7 gigs from the South East Drainage System. Under the proposed action the Coorong will receive up to an additional 26.5. This represents a total of 56.2 gigs. CSIRO's Coorong Hydrodynamic Model shows this volume is
20 insufficient to significantly impact upon the water level regime in the Coorong. Which you agree with.

PROF PATON: Mmm.

25 MR BEASLEY: And down the bottom of 87:

Additional flows into the Coorong under the proposed action are not anticipated to have any effect upon groundwater levels in the vicinity of the Coorong or lead to any change to groundwater-surface water interactions.

30 Then if we go to page 94:

Significant impact criteria 5, an invasive species that is harmful to the ecological character pre the wetland being established. No significant impact. Rationale: the SEFRP is not likely to result in the introduction of any invasive or harmful species to the Coorong South Lagoon either during construction and post implementation. There are no known aquatic pest species.

40 Then it has got a hydraulic connection between the Coorong and parts of the South East Drainage System where the pest fish species eastern Gambusia occurs already exists. Gambusia are also present in the River Murray. Thus the proposed action does not establish an invasive pathway for this species into the Coorong. The pathway already exists. In the Coorong's South Lagoon, the minimum target salinity of 60 grams per litre has been set to maintain unfavourable conditions for the
45 filamentous green algae.

THE COMMISSIONER: Is that minimum or maximum?

MR BEASLEY: It has got to be the minimum, I think.

THE COMMISSIONER: So where's the minimum of 60 per cent?

5 MR BEASLEY: Well, I thought it was 60 to 100.

PROF PATON: It's page 94, second bottom line, so that's what it does say.

MR BEASLEY: Yes:

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...which is considered a competitor capable of reducing the cover, distribution and seedbank of Ruppia tuberosa. Filamentous green algae is currently relatively abundant in the Coorong South Lagoon. Adherence to the target salinity range is anticipated to prevent that green algae from further

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proliferating. This issue was considered by the water quality risk assessment.

So your concern is that it is, what's proposed, by adding more fresh water is actually going to proliferate the algae; correct?

20 PROF PATON: Correct.

MR BEASLEY: Yes. I think that's – I think that's all the questions I had for Professor Paton. Do you have any further, Commissioner?

25 THE COMMISSIONER: I'm sorry to say I have not read all your published works. I will try and remedy that, but I have read what I will call all your submissions, including to others, and your correspondence. Is there anything, whether by way of emphasis or by drawing to attention something that Mr Beasley and I seem to have passed over that you would like me to bear in mind?

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PROF PATON: I don't think I have anything at this stage, but I think I would make one comment.

THE COMMISSIONER: Yes.

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PROF PATON: And that is that we've sort of had the same issues recurring. You know, this is not new about flows coming in and what the risks are. You know, been suggested since the '70s, some of these proposals. They've been put on hold while new information is meant to be collected, governments were meant to be collecting that information. It hasn't happened and it's like we're just revisiting the same issues time and time again, and the fundamental reason for that I believe is that we have failed to invest in the science to give you the knowledge and the understanding to actually get the best outcome for the Coorong. And that has to stop.

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45 Governments have to start investing in science to solve the problems that they are going to get, which are only going to get worse because the quantity of water coming back is less than what might be needed, and because climate change is very likely to

change that as well. So for me, if I was saying there's a message that people need to appreciate and government agencies need to appreciate, is you've got to start investing in the science. Not doing scientific assessment at the last minute so you can tick off a box that you've done it, and that's what's been going on for not just the
5 last five years, since the Plan – eight years since the Plan has been in. It has been going on for decades.

THE COMMISSIONER: In the very long term, I suppose, the science has been either by gifted and wealthy amateurs on the one hand, in very old days, or in
10 universities; is that right?

PROF PATON: That's correct, and - - -

THE COMMISSIONER: And then more latterly, probably 50 years ago or so, in
15 government departments and agencies dedicated to various endeavours, whether it be irrigation or conservation or work for the environment, yes. So to your knowledge, apart from what I call in-house science with government, is the only place in which science sits now are the universities and institutes of higher learning?

20 PROF PATON: I would agree that's the case and - - -

THE COMMISSIONER: So they're all subject to the usual pressures of grants.

PROF PATON: Absolutely, and they're also likely to have some pressures put on
25 them because they've got certain funding, they might not wish to deliver something that doesn't sound nice to the funding body. So it's open for exploitation. If you're going to drive a research-type program here you would take it out of government. Government is part of it, but you make it independent and you make it independent so the science people can actually report the information and interpret it, not leave
30 the science being interpreted by public servants and then cherry-picked answers being pulled out to actually drive management actions.

And, to me, this is a fundamental flaw that we have inside the system at the moment. You need to get that level of independence, you need that level of independence
35 when you come to audit whether programs have actually delivered what they've said, and you need to start thinking much more complexly around what actually is the outcomes that you want, and it shouldn't be just judged by salinity and something else, it should be around a healthy resilient – still to be well defined healthy, resilient environment has still not been actually clearly defined at any stage within the
40 development of the Murray-Darling Basin Plan.

THE COMMISSIONER: Thank you very much. I read a deal of your work before today. I hope I understand it a lot better now, and I'm much obliged to you.

45 PROF PATON: Thank you.

<THE WITNESS WITHDREW

[4.13 pm]

5 MR BEASLEY: Thank you. That's – we will adjourn now, Commissioner until tomorrow morning at 9.30.

THE COMMISSIONER: 8.30, isn't it?

10 MR BEASLEY: 8.30 – sorry, 9.30. And I think the first witness is Mr Close, who was a modeller for the MDBA.

THE COMMISSIONER: Thank you. Well, I'm glad I've said what I've said about modelling, then.

15 MR BEASLEY: Yes. Thanks.

**MATTER ADJOURNED at 4.14 pm UNTIL
THURSDAY, 6 SEPTEMBER 2018**

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