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Program: Division or Agency:	4: MDBA	**Question No:**	105
Topic:	Murray-Darling Basin Plan		
Proof Hansard Page and Date or Written Question:	Written		

Senator Birmingham asked:

1. What discussions has the MDBA had with the state governments since the release of the proposed basin plan?

2. How many times has Mr Knowles met with representatives of each of the Basin state governments since July 2011?

3. Have state governments requested any changes or any further work on any aspects of the proposed basin plan?

Answer:

1. The Authority has had over 30 meetings with state governments since the release of the draft Basin Plan. In addition to the regular meetings and workshops of the Basin Plan Working Group (a standing forum for consulting with all Basin States and the Commonwealth about the draft Basin plan), numerous bilateral meetings have been held covering a range of subjects across the scope of the proposed Basin Plan.

2. Mr Knowles has met with representatives of each state as follows:

   ACT - 1

   NSW - 2

   VIC - 4

   SA - 3

   QLD - 6

   Joint Ministerial meetings (Ministerial Council and Forums which included all states) - 3

3. Yes. The Authority has held discussions with states on a range of issues pertaining to the proposed Basin plan and through the forum of the Basin Plan Working Group states have made numerous suggestions for the Authority's consideration.

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Program: Division or Agency:	4: MDBA	**Question No:**	106
Topic:	Surface water modelling		
Proof Hansard Page and Date	31		
or Written Question:	(14/2/12)		

Senator Xenophon asked:

Senator XENOPHON: ...Has modelling been done by the authority on the impact on surface water of taking out 2,600 gigalitres of ground water?

...

Dr Dickson: The reason I have referred you to the document—and I am happy to provide the detailed answer to your question on notice as well—is that there are many different types of ground water resources. A lot of those do not have any connection with surface water. Some are fossil; some have quite shallow connections; some have very rare connections. There is quite a range of categories, and all the categories in the broad number you are talking about include all those categories. So there is not a simple answer to that broad question, but there is a complex analysis which has been done and which we can refer you to and provide on notice.

Answer:

See answer to Question Number 126.

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Program: Division or Agency:	4: MDBA	**Question No:**	107
Topic:	Export of salt from the Murray-Darling Basin		
Proof Hansard Page and Date	31		
or Written Question:	(14/2/12)		

Senator Xenophon asked:

Senator XENOPHON: ...I want to go very quickly to the issue of exporting salt from the basin. I think the target is two million tonnes a year.

Dr Dickson: Yes.

Senator XENOPHON: That is the target in order to keep a healthy river, particularly in South Australia.

Dr Dickson: That is a long-term average.

Senator XENOPHON: Yes, it is a long-term average, but that is important for Adelaide's water supply and for irrigators in South Australia. How many tonnes of salt will be exported from the basin with 2,750 gigalitres of surface water—that target—minus the inputs of 2,600 groundwater extraction?

Dr Dickson: I think that is a fairly detailed question, if you are happy for us to take that on notice.

Answer:

It is estimated that more than 2 million tonnes of salt will be exported from the basin (long term average), under a scenario of post basin plan water recovery of 2,750 GL and its use for environmental outcomes.

The Authority has estimated the salt export for three scenarios in which 2,400, 2,800 and 3,200 GL were recovered. The long term average salt export from these scenarios was 1.91, 1.96 and 2.00 million tonnes/year respectively. These studies are documented on page 211 of the report: 'Hydrologic modelling to inform the proposed Basin Plan: Methods and results', which is available on the Authority's website http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf.

These salt load export estimates do not include the future increase in salt mobilisation estimated by the Salinity Audit (Murray-Darling Basin Commission, 1999), nor the uptake of Basin Salinity Management Strategy salinity credits. When these are included it is expected that the recovery of 2,750 GL proposed in the Basin Plan will be sufficient to meet the salinity export target of 2 million tonnes of salt per year from the basin.

The models used to determine the surface water Sustainable Diversion Limits (SDLs) implicitly account for potential impacts of groundwater extraction on surface water resources. In valleys where surface water-groundwater connections were found to be significant, groundwater extraction is included as one of the losses in surface water models.

The increase in the proposed groundwater SDL, since the publication of the Guide to the proposed Basin Plan, is not expected to result in a change in salt being exported from the Basin.

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Program: Division or Agency:	4: MDBA	**Question No:**	108
Topic:	Modelling and calculations of extraction from non-renewable groundwater and aquifers		
Proof Hansard Page and Date	31		
or Written Question:	(14/2/12)		

Senator Heffernan asked:

Senator HEFFERNAN: Could we be provided, on notice, with the modelling and the calculations of extraction from non-renewable groundwater and the limit and the life that that will give to the non-renewable aquifers? Take it on notice.

Senator Conroy: We can take on notice whether we can do that.

Answer:

In determining the Sustainable Diversion Limit (SDL) for SDL areas with non-renewable groundwater resources, the Authority carried an assessment of the current extraction limits under the relevant State water management plans. Under these plans it has been calculated that the non-renewable groundwater resource in these areas will be depleted by approximately 15 per cent in 200 or more years. The Authority assessed that these limits would not compromise the productive and environmental characteristics of these systems within the time frame of the Basin Plan which is reviewed every ten years. The limits were subsequently adopted as the SDLs for the draft Basin Plan.

Detailed information on the SDLs for non-renewable groundwater are available on page number 18 of "*The proposed Groundwater Baseline and Sustainable Diversion Limits: methods report*" which is available on the Authority's website (http://download.mdba.gov.au/proposed/Proposed-BP-GW-BDL-SDL.pdf).

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Program: Division or Agency:	4: MDBA	**Question No:**	109
Topic:	Recommendations from the states on extraction of groundwater		
Proof Hansard Page and Date	34		
or Written Question:	(14/2/12)		

Senator Birmingham asked:

Senator BIRMINGHAM: Did any of the states provide recommendations of what the groundwater SDLs should look like to you?

Dr McLeod: There were some views expressed by some states as to what the appropriate level of sustainable diversion limit for the groundwater resources in those states was—that is correct.

Senator BIRMINGHAM: Which states?

Dr McLeod: I would have to check whether it was every state; certainly some states did.

Answer:

The Authority discussed the groundwater Sustainable Diversion Limits (SDLs) with all Basin states as part of the development of the draft Basin Plan. The Authority, used its own methods and assessments to determine the proposed groundwater SDLs.

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Program: Division or Agency:	4: MDBA	**Question No:**	110
Topic:	Groundwater extraction		
Proof Hansard Page and Date	35		
or Written Question:	(14/2/12)		

Senator Birmingham asked:

Senator BIRMINGHAM: This is the last thing from me on groundwater. Can I give you an example that is put by the Wentworth Group of Concerned Scientists in their submission of the Gunnedah-Oxley Basin, where they indicate that the draft plan increases the potential level of extraction from zero gigalitres to 300 gigalitres a year. They have highlighted a 2010 NSW Office of Water report into groundwater from the Gunnedah-Oxley Basin which assessed the risks of potential extraction of 371 gigalitres—so a little bit more than you have proposed but not that much more—and apparently that report identified a high overall risk to aquifer from groundwater extraction, high risk to groundwater dependent ecosystems from declining groundwater levels, and high risk of increasing frequency and duration of low flows in rivers. So we are only a year and a bit away from 2010. Whose science was right there: the New South Wales government's analysis in 2010 or what you proposed late last year in the Basin Plan?

Dr McLeod: This resource you mention is the one that we did not actually tackle in the guide. It was not so much that we went from zero to 300; we did not have any view on it in 2010. We looked at the information associated with that particular resource in 2011 and thought it was best to actually specify a sustainable diversion limit—or, at this stage, a proposed sustainable diversion limit—for that particular resource. We took on board all the information available for this particular resource and made a judgment about the level of take that is sustainable from that system. It is what we have done everywhere in the system.

Senator BIRMINGHAM: Okay. On notice, can you provide me with an analysis of that particular—

...

Senator BIRMINGHAM: I can. I was asking if you could provide on notice an analysis of that one.

Answer:

The Authority carried out a risk assessment of the information provided by NSW Office of Water in determining the Sustainable Diversion Limit (SDL) for the Gunnedah-Oxley Basin. A similar assessment was carried out for all SDL areas in the Basin that did not have numerical groundwater models. Further information on the SDL of the Gunnedah-Oxley Basin can be found on page 16 of *The proposed Groundwater Baseline and Sustainable Diversion Limits: methods report* available at http://download.mdba.gov.au/proposed/Proposed-BP-GW-BDL-SDL.pdf.

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Program: Division or Agency:	4: MDBA	**Question No:**	111
Topic:	Salinity and water-quality target for Lakes Alexandrina and Albert		
Proof Hansard Page and Date	36		
or Written Question:	(14/2/12)		

Senator Hanson-Young asked:

Senator HANSON-YOUNG: Can I get an answer to the other question which was: is there a salinity target and water-quality target for Lake Alexandrina and Lake Albert that has been factored into your 2,750 gigalitre target?

Dr McLeod: There are salinity targets. In the modelling we have done for the entire basin we have included salinity thresholds that we would seek to see not exceeded in the Lower Lakes and also in the Coorong. I do not have that information with me in detail.

Senator HANSON-YOUNG: Can you take that on notice, please.

Dr McLeod: Okay.

Answer:

Salinity was modelled under the post Basin Plan flow regimes including at Milang. This analysis indicates that under Basin Plan conditions a salinity target of 600mg/L at Milang would be achieved 99 per cent of the time.

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Program: Division or Agency:	4: MDBA	**Question No:**	112
Topic:	Consideration of groundwater salt interception in the salinity target		
Proof Hansard Page and Date	37		
or Written Question:	(14/2/12)		

Senator Heffernan asked:

Senator HEFFERNAN: Could I seek a clarification: in the calculations for the good points the senator is making for the two million tonnes, is the groundwater salt interception considered to be a constant in that?

Dr McLeod: I would have to check, Senator. We could take that on notice.

Answer:

Groundwater salt interception has been considered in the calculation of two million tonne salt export from the Basin. The calculation used to develop the two million tonne salt export incorporated the influence of the existing Salt Interception Schemes (SIS). In that the modelling assumed that the SIS operate as per current practices. As such it could be seen that the SIS was a “constant” in the comparison of with and without the Basin Plan.

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Program: Division or Agency:	4: MDBA	**Question No:**	113
Topic:	Increase of groundwater extraction		
Proof Hansard Page and Date or Written Question:	37 (14/2/12)		

Senator Hanson-Young asked:

Senator HANSON-YOUNG: ...Was there a specific request put to the authority from the New South Wales government?

Dr Dickson: I will have to check on that, Senator, if I can take that on notice.

Answer:

The New South Wales Government made a request to the Authority for it to include higher Sustainable Diversion Limits (SDL) in the draft Basin Plan for a number of SDL resource areas. The Authority has had numerous meetings and discussions with all of the Basin states since December 2009 as part of an ongoing process to review the information and methods used by the Authority to determine groundwater SDLs for the Basin Plan.

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Program: Division or Agency:	4: MDBA	**Question No:**	114
Topic:	Groundwater usage		
Proof Hansard Page and Date	38		
or Written Question:	(14/2/12)		

Senator Hanson-Young asked:

Senator HANSON-YOUNG: Were there any details in the discussions that you had with the states—as has already been discussed—in relation to what that groundwater would be used for?

Dr Dickson: We have not discussed the use. As Dr McLeod made clear, our focus is on the sustainability of the extraction limits that we propose, not the use of the water.

Senator HANSON-YOUNG: Can you confirm whether there was any indication of what that water would be used for in any documentation between the authority and the New South Wales government?

Dr Dickson: I would have to take that on notice.

Answer:

The New South Wales Government wrote to the Authority in August 2011 noting that groundwater in a number of groundwater resource areas represented the only potential source of water for future mining requirements in these areas.

The range of possible uses for water in any system is a matter for states to determine through their allocation arrangements, and bears no relation to the Authority's determination of Sustainable Diversion Limits.

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Program: Division or Agency:	4: MDBA	**Question No:**	115
Topic:	The 'Without development scenario'		
Proof Hansard Page and Date	38-39		
or Written Question:	(14/2/12)		

Senator Fisher asked:

Senator FISHER: Put it this way: you could suggest that of all the rain that falls, say, about five per cent makes into the Murray anyway and then you might also suggest, for example, that of the water that makes it into the Murray, if that water was 'shepherded' all the way down—if that is the term; Senator Joyce thought it might be, but I do not know—so without human intervention, a best case scenario would be that only five per cent of that would make its way to the Murray.

Senator Conroy: Is it possible to be that precise?

Dr Dickson: I think what we could do is give you the data on the modelling we have done on what is called the 'without development scenario', which has been modelled as our comparison to current day which removes all the irrigation, diversions and dams from the river and looks at what the flows are under that scenario. If that is what you are after, we could probably provide that to you on notice unless—

Senator FISHER: What would that show for South Australia?

Dr Dickson: We have something to hand.

Dr McLeod: I am sorry, Senator, but I do not have the data to hand. As Dr Dickson has been saying, we have done a, what we call, 'without development scenario' to create a best estimate of the flow regime that would have existed in the rivers of the Basin over the last 114 years had there been no development. It is not a perfect measure of natural flow conditions, which some people use as a shorthand, because there are a range of things that have happened in the Basin, most notably changes in land use, that are caught up in the numbers that we're actually using. Nonetheless, we have used it as the best measure of 'without development' flow regimes in the Basin would have been. As to the part of your question that goes to what that would have meant for South Australia, we have estimated what that flow would have been at the SA border and also at that sea.

Senator FISHER: Can you recall?

Dr McLeod: I do not recall off the top of my head, I am afraid.

Answer:

The Authority has estimated that rainfall in the Murray-Darling Basin averages about 500,000 GL/year. An estimated 32,553 GL/year (long term average) of this ends up in river systems across the basin. Under 'without development' conditions, 16,386 GL/year would have flowed into the Menindee Lakes and the River Murray and 12,377 GL/year would have flowed to the Coorong and the sea.

The details of water balances across the basin are available in a report “Water Resources Assessment for Without Development and Baseline conditions, Supporting information for the preparation of proposed Basin Plan, MDBA, Technical Report 2010/20 Version 2, November 2011”. This report is available on the Basin Plan Knowledge and Information Directory (BP-KID) which can be accessed on the Authority’s web site.

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Program: Division or Agency:	4: MDBA	**Question No:**	116
Topic:	Identification of water resources		
Proof Hansard Page and Date	43		
or Written Question:	(14/2/12)		

Senator Heffernan asked:

Senator HEFFERNAN: Can you provide to this committee the salinity? You can go to Grong Grong and you can barramundi farm out of the ground water. It is a fantasy, isn't it, if you have not identified what it is good for, even though you have identified the water to extract it? It is either good for agriculture, mining licences or for barramundi farming.

Dr Dickson: We have not determined, for any of the water, what it is used for.

...

Dr Dickson: It is not our responsibility to determine the use of the water. In fact, it is like telling irrigators what crops they are going to grow.

Senator HEFFERNAN: Thanks for that. You have identified the water. You have allowed a certain extraction of the water. You do not know what the water is good for, though.

Dr Dickson: We have identified the water and the nature of the resource, including the highly saline resources but the decisions about what that water can be used for—

Senator HEFFERNAN: So you will give me the breakdown to inform the committee on where the water is—the 300 gigs or whatever it is—and what the status of the water is in the various establishments you have identified. Thanks.

Dr Dickson: We will identify the assessment that we have done of the different water resources in line with the previous question that we said we would take on notice.

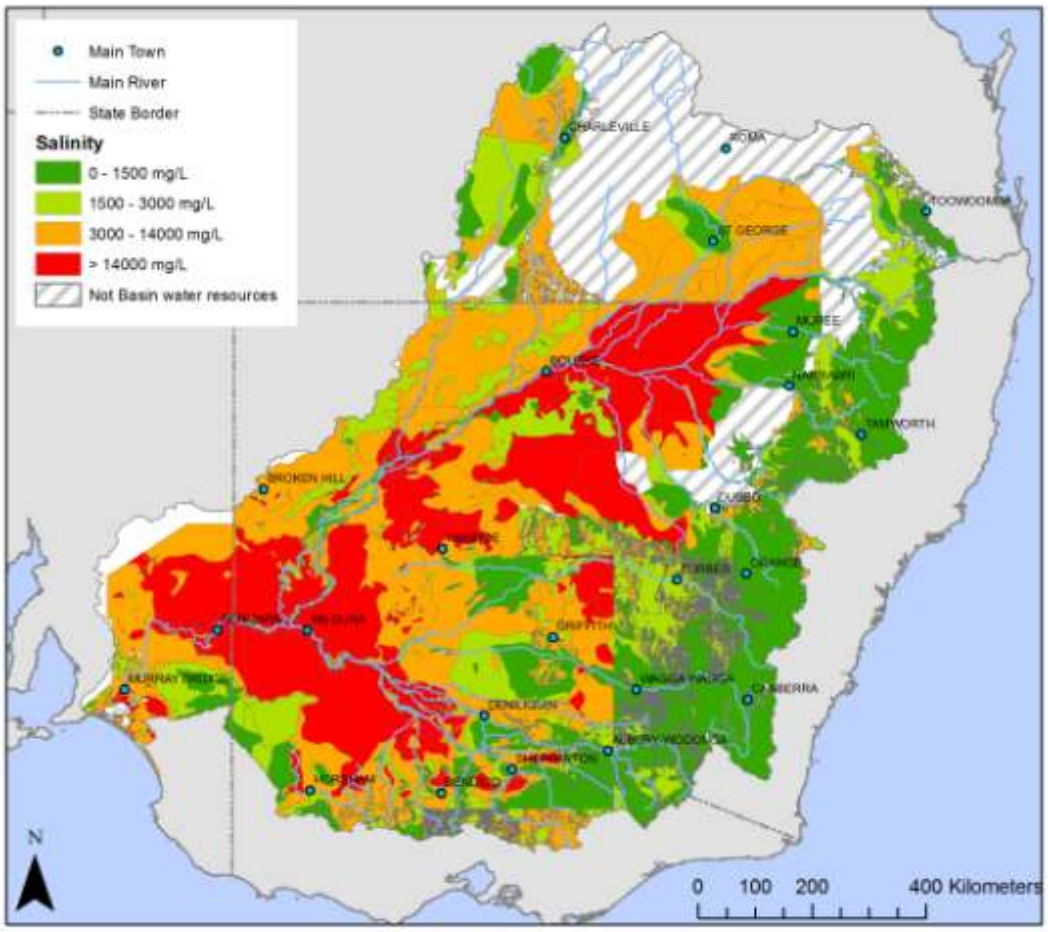
Answer:

Groundwater quality varies greatly over the Murray-Darling Basin. Maps of each groundwater Sustainable Diversion Limit resource units displaying salinity can be found at: http://www.mdba.gov.au/files/bp-kid/1050-SDL-summary-report-cards.pdf

Attached is a map displaying salinity at a Basin scale (**Attachment A**).

Attachment A

Murray – Darling Basin Salinity Map



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Program: Division or Agency:	4: MDBA	**Question No:**	117
Topic:	Inflows into the Murray-Darling Basin		
Proof Hansard Page and Date	44		
or Written Question:	(14/2/12)		

Senator Joyce asked:

Senator JOYCE: What have been the inflows into the Murray-Darling Basin for the years 2009-10, 2010-11, and do you have any figures for 2011-12?

Dr Dickson: We do have that data but we would have to take that on notice. I do not think we have it here.

Answer:

There are many individual pieces of data which need to be collated in order to update the calculated inflows to the Murray-Darling Basin. Most of this information is held only by the states. The data currently held by the Authority only covers the period 1895-2009. The Authority has requested the states to update this data but this process may take some weeks to complete.

In the absence of the final figures, the Authority has made preliminary estimates of inflows based on the observed downstream flows. Using this approximate method, the estimated inflows for 2009-10 and 2010-11 are 23,000 GL and 47,000 GL respectively. These compare with the mean annual inflow for the period 1895-2009 of 32,553 GL/year. No estimate has been prepared for 2011-12.

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Program: Division or Agency:	4: MDBA	**Question No:**	118
Topic:	MDBA - budget		
Proof Hansard Page and Date or Written Question:	Written		

Senator Birmingham asked:

1. I refer to the budget breakdown provided in answer to Question 121 from Supplementary estimates. Funding for the River Murray program drops from 96 million in 2012-13 to $70 million in 2013-14 – how does it get cheaper to manage the River Murray's operations over time?

Answer:

1. The reduction in expenditure of $26 million from 2012-13 to 2013-14, is due to the completion of various infrastructure projects under the Environmental Works and Measures Program during 2012-13.

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Program: Division or Agency:	4: MDBA	**Question No:**	119
Topic:	Carp monitoring		
Proof Hansard Page and Date or Written Question:	Written		

Senator Birmingham asked:

1. Please provide details for the last 3 years on carp numbers and carp removal.

2. How much has been expended by the MDBA on carp monitoring and carp programs. Please provide details for each program.

Answer:

1. Numbers of individual carp observed in monitoring projects undertaken by the Authority including The Living Murray, the Murray River Fishways Assessment Program and the Sustainable Rivers Audit are summarised for the last three years in **Attachment A**.

   Although the relevant Murray-Darling Basin states are responsible for carp within their areas of jurisdiction, the Authority is closely involved with the State jurisdictions in carp removal at several weirs. Whilst the states would be better placed to provide a fuller description of carp removal activities, relevant information is presented in Table 4 at **Attachment A**.

2. Costs for carp monitoring and programs undertaken by the Authority are provided in Table 5 at **Attachment B**. The prominent expenditure from a carp control point of view is on strategic initiatives such as funding to the Invasive Animals Cooperative Research Centre, integrated pest control and the draft Basin Pest Fish Plan.

The Living Murray (TLM) monitoring program

Numbers of carp sampled in Condition Monitoring (an annual snapshot of fish populations) at the TLM Icon Sites is presented in Table 1 below. Sampling effort and efficiency varies both between sites and between years depending upon amount of habitat available for sampling.

Table 1. Number of carp samples at TLM icon sites 2008–2009 to 2010–2011.

Year	**TLM Icon site**				
	Barmah Millewa Forest (number of carp)	Gunbower Koondrook Forest (number of carp)	Hattah Lakes (number of carp)	Chowilla, Lindsay-Wallpolla Islands (number of carp)	Coorong, Lower Lakes and Murray Mouth (number of carp)
2008–2009	392	357	17	704	88
2009–2010	632	185	38	756	4655
2010–2011	2885	3252	121	11602	2796

Carp sampled during the Murray River Fishway Assessment program as part of a long-term assessment of fish accumulations below Locks 1, 2 and 3 is presented in Table 2 below.

Table 2. Numbers of carp sampled from 2008–2009 to 2010–2011 at specified locations under long term assessment of fish accumulations below Locks 1, 2 and 3.

Year	**Location**			
	5km Below Lock 1 (number of carp)	Lock 1 (number of carp)	Lock 2 (number of carp)	Lock 3 (number of carp)
2008–2009	4,110	23,307	6,201	3,209
2009–2010	4,350	33,008	7,293	3,226
2010–2011	6,314	40,662	10,464	5,711

There are several other TLM monitoring projects that sample carp as a by-catch during their sampling work. Whilst the numbers of carp sampled are reported, the sampling for these projects is specific to the aims and objectives of each monitoring project. These projects do not represent a long-term assessment of fish abundance, nor meet a specific carp monitoring objective, hence results have not been presented (some data however may be included under the heading “Fish sampling by State fisheries agencies” in Table 4).

Sustainable Rivers Audit program

Table 3 below presents the number of individual carp and the weight in kilograms recorded in fish samples where relevant, and aggregated for each of the 23 river valleys within the Murray-Darling Basin from 2007–2008 to 2009–2010 (being the most recent three full years of fish data). Data on fish is collected on a three year cycle.

Table 3. Number and weight of carp sampled by river valley in the Murray-Darling Basin from 2007–2008 to 2009–2010.

		(IP4) 2007–2008		**(IP5) 2008–2009**		**(IP6) 2009–2010**	
Valley	**Zone**	**Number of Individual carp**	**Weight (kg)**	**Number of Individual carp**	**Weight (kg)**	**Number of Individual carp**	**Weight (kg)**
Avoca	Lowland			95	59		
	Slopes			53	47		
Border Rivers	Lowland	57	11				
	Slopes	34	33				
	Upland	21	27				
Broken	Lowland	109	99				
	Slopes	60	19				
Campaspe	Lowland					53	82
	Slopes					18	8
	Upland					1	<1
Castlereagh	Lowland					258	7
	Slopes					68	1
	Upland					24	5
Central Murray	Lower	85	93				
	Middle	135	81				
	Upper	23	15				
Condamine	Lowland					1607	58
	Slopes					4	3
Darling	Lower	124	62				
	Middle	67	16				
	Upper	53	31				
Goulburn	Lowland			25	52		
	Slopes			3	5		
Gwydir	Lowland					773	36
	Slopes					91	107
	Upland					7	5
Kiewa	Lowland			33	71		
	Slopes			26	49		
Lachlan	Lowland			43	36		
	Slopes			63	15		
	Upland			72	22		
Loddon	Lowland	95	106				

Lower Murray	Lower	126	143				
	Middle	203	275				
	Upper	120	89				
Macquarie	Lowland			50	24		
	Slopes			23	31		
	Upland			23	30		
Mitta Mitta	Slopes	164	267				
	Upland	1	<1				
Murrumbidgee	Lowland					32	28
	Montane					48	38
	Slopes					91	20
	Upland					129	117
Namoi	Lowland			57	21		
	Slopes			85	94		
	Upland			113	36		
Ovens	Lowland					38	69
	Slopes					11	27
Paroo	Lowland			81	10		
Upper Murray	Slopes	39	61				
Warrego	Lowland			143	16		
	Slopes			104	19		
Wimmera	Lowland					155	30
	Slopes					2	<1
TOTALS		**1516**	**1428**	**1092**	**637**	**3410**	**641**

Carp numbers from general fish sampling

Weir staff have undertaken sampling at Yarrawonga and Torrumbarry Weirs, over the last three years, each using a trapping cage. In addition, staff from the NSW, Victorian and SA State fisheries agencies, operating together as part of the Authority's Murray River Fishway Assessment Program, and using trapping or electro-fishing techniques, have selectively collected fish over the last three years at five weir sites. This information is presented in Table 4.

Carp quantities from specific trapping

Innovative cages, designed to allow carp to separate themselves from other species, have been used in the fishways at two of the River Murray weirs. The quantities (kilograms) obtained over the last three years are also summarised in Table 4 below (refer to lower part of Table 4).

Table 4. Numbers of carp observed in traps and quantity of carp removed by calendar year 2009 to 2012 (to mid February 2012).

	2009		**2010**		**2011**		**2012 (to date)**		
	Trap days	**No. Carp**	**Trap days**	**No. Carp**	**Trap days**	**No. Carp**	**Trap days**	**No. Carp**	**Fate of carp**
Fish sampling by weir staff									
Yarrawonga Weir	6	4	6	0	86	370	20	224	All removed
Torrumbarry Weir	183	349	203	28197	80	7236	31	2897	All removed
Total	**189**	**353**	**209**	**28197**	**166**	**7606**	**51**	**3121**	
Fish sampling by State fisheries agencies									
Wentworth Weir (Lock 10)	0	0	1	213	0	0			Some tagged, released. Some removed
Murtho Weir (Lock 6)	0	0	8	13	4	299			Some tagged, released. Some removed
Renmark Weir (Lock 5)	0	0	12	96	8	23			Some tagged, released. Some removed
Overland Corner Weir (Lock 3)	3	5	4	42	0	0			Some tagged, released. Some removed
Blanchetown Weir (Lock 1)	0	0	4	306	4	635	5	276	Some tagged, released. Some removed
Total	**3**	**5**	**29**	**670**	**16**	**957**	**5**	**276**	
Carp separation by weir staff and commercial operators									
Overland Corner Weir (Lock 3)	---	Not in Op	---	2620 kg	---	---			All removed
Blanchetown Weir (Lock 1)	---	10110 kg	---	91538 kg	---	104903 kg	---	18410 kg	All removed

The Living Murray (TLM) monitoring program

The Living Murray monitoring program has not expended any funds on projects which specifically monitor carp during the last three years (including 2011/12). There are a number of projects that monitor fish communities at the icon sites, however these projects do not target carp specifically.

The Native Fish Strategy program

Expenditure under the Native Fish Strategy on carp and pest fish programs from 2008–2009 to 2010–2011 is set out in Table 5 below.

Table 5 Expenditure on carp and carp-related programs under the native Fish Strategy program

Description	**Full Year Expense $**		
	2008–2009	2009–2010	2010–2011
23105 - Invasive Animals CRC*	750,000	750,000	591,287
23117 - NFS - Integrated Pest Management	127,595	322,217	114,285
23119 - NFS - Regional Carp Control Plans	7,000	50,000	0
23129 - Basin Pest Fish Strategy**	42,608	314,278	754,814
TOTAL	**927,203**	**1,436,495**	**1,460,386**

* Expenditure on the Invasive Animals Cooperative Research Centre includes a suite of long term research and development projects on carp and other pest fish species.

** Not all pest fish are carp. The draft Basin Pest Fish Plan deals with a range of pest fish such as gambusia and threats from species that have potential to establish in the Murray-Darling Basin such as tilapia.

Sustainable Rivers Audit and other programs

Expenditure is not presented for the Sustainable Rivers Audit program because although data on carp is collected, it is a small component of a comprehensive assessment of the health of river ecosystems in the Murray-Darling Basin.

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Program: Division or Agency:	4: MDBA	**Question No:**	120
Topic:	Water quality targets		
Proof Hansard Page and Date or Written Question:	Written		

Senator Birmingham asked:

1. What targets are set for water quality at different monitoring points along the river in the proposed Basin Plan? What targets have been set for the Lower Lakes and Coorong?

2. If the MDBA is taking an adaptive, outcomes based approach to the Basin plan – doesn't it need to know what the quality of water is at key sites?

Answer:

1a. The Water Quality and Salinity Management Plan within the draft Basin Plan proposes targets for salinity at various locations, for:

- end-of-valley targets set out in the Murray–Darling Basin Agreement, Schedule B, Appendix 1, including the Basin salinity target at Morgan, South Australia, and
- salinity operational targets set out in section 8.18 of the draft Basin Plan.

The Water Quality and Salinity Management Plan does not set monitoring points. Chapter 12 of the draft Basin Plan will be developing technical and operational guidelines for monitoring and evaluating the effectiveness of the Basin Plan. It is the Murray-Darling Basin Authority's (the Authority) intention that these guidelines will identify appropriate methodologies and monitoring points along the river to assess progress towards achieving the objectives and targets set out in the Water Quality and Salinity Management Plan (Chapter 8 of the draft Basin Plan).

Outside of the legal construct of the Basin Plan, some water quality indicators have been set to inform the environmentally sustainable level of take. These have predominantly been in the Coorong and are summarised in the technical reports released by the Authority (The proposed 'environmentally sustainable level of take' for surface water of the Murray-Darling Basin: Method and outcomes, 2011; Hydrologic Modelling to Inform the Proposed Basin Plan: Methods and Results, February 2012.

1b. Schedule 9 provides detail to supplement Chapter 8, identifying specific water quality target values for water-dependent ecosystems including declared Ramsar wetlands.

Schedule 9 identifies water quality targets for target application zones. Target application zones are water-dependent ecosystem areas in which water quality targets apply. For each target application zone, targets have been set for the following water quality parameters:

- turbidity;
- total phosphorus;

- total nitrogen;
- dissolved oxygen;
- pH;
- salinity – applies to zones for which end-of-valley targets are included in the Murray–Darling Basin Agreement, Schedule B, and uses those end-of-valley target values;
- temperature – for all zones, the target is to have the monthly median value fall between 20 per cent and 80 per cent of the natural monthly water temperature range; and
- pesticides and other contaminants – for all zones, the aim is to fulfil the requirements of the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines for Fresh and Marine Water Quality; there are two separate target values, one applying to declared Ramsar wetlands and one applying to other water-dependent ecosystems.

  The Lower Lakes and Coorong are located within the Murray Valley (lower) target application zone. Specific targets for this zone can be found in Schedule 9 of the draft Basin Plan.

  Note: It should be noted that for Ramsar wetlands such as the Lower Lakes and Coorong, the Basin Plan states that, if an ecological character description which sets out the limits of acceptable change for water quality exists for that wetland then the only target values are those that correspond to those limits.

  At the time of writing, limits of acceptable change for water quality did not exist for the Lower Lakes and Coorong. Therefore the targets identified for the Lower Murray target application zone in Schedule 9 apply to the Lower Lakes and Coorong.

  Outside of the legal construct of the Basin Plan, some water quality indicators have been set to inform the environmentally sustainable level of take. These have predominantly been in the Coorong and are summarised in the technical reports released by the Authority (The proposed 'environmentally sustainable level of take' for surface water of the Murray–Darling Basin: Method and outcomes, 2011 http://download.mdba.gov.au/proposed/ESLT_MDBA_report.pdf; Hydrologic Modelling to Inform the Proposed Basin Plan: Methods and Results, February 2012 http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf.

2. Under the Murray-Darling Basin Agreement, water quality data is collected, which will be used to inform the Authority about progress towards meeting objectives identified in the Basin Plan. The Authority's Water Quality Monitoring Program (established in 1978 by the River Murray Commission) currently has 36 sites which extend along the length of the River Murray, in the tributaries at or near the confluence with the River Murray and in the stored waters. Up to 20 physico-chemical parameters are measured at each site with either weekly or monthly frequency, depending on the class of station.

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Program: Division or Agency:	4: MDBA	**Question No:**	121
Topic:	Murray-Darling Basin Plan		
Proof Hansard Page and Date or Written Question:	Written		

Senator Birmingham asked:

1. Please outline the indicative forward timeline for the development of the Basin Plan.

2. What discussion or instructions have been given to states regarding the development of environmental watering plans?

3. What impact do you expect including 2010 and 2011 in the MDBA's dataset for modelling have on the model's results? How difficult would it be to amend the modelling to include these years?

Answer:

1. The steps the Murray-Darling Basin Authority (the Authority) must follow are set out in the *Water Act 2007*. The draft Basin Plan was released for public comment on 28 November 2011.

   The formal consultation period has been extended from the 16 weeks required by the Act to 20 weeks, in order to account for the New Year holiday period. This consultation period ends on 16 April 2012.

   After considering the submissions received during the formal consultation period, the Authority must provide the draft Basin Plan (including any revisions made in light of the public consultations), a report on the public submissions, and a report on the likely socio-economic implications of any reductions in water availability as a result of the proposed long-term average sustainable diversion limits, to members of the Murray-Darling Basin Ministerial Council.

   Ministerial Council then has six weeks within which to respond with any comments and, if needed, a further three weeks to respond with comments on any changes the Authority makes to the Basin Plan in light of their comments.

   After considering any comments from the Ministerial Council, the Authority will submit a final Basin Plan to the Commonwealth Water Minister for consideration and tabling in Parliament.

2. The development of Environmental Watering Plans has been discussed with states in the context of discussions on Chapter 7 of the draft Basin Plan http://www.mdba.gov.au/draft-basin-plan/draft-basin-plan-for-consultation. There have been 26 discussions with Basin states in the period commencing January 2011 to the present. There have been no instructions issued to states about the environmental watering plans.

3. The Authority does not expect any impact on the modelling results from including the 2009-2010 and 2010-2011 inflow data. Although expressed as long term averages, the Sustainable Diversion Limits (SDLs) have been determined using detailed and sophisticated modelling techniques which allows comparison of the environmental outcomes of different SDL reduction scenarios when assessed over a very large range of climate and inflow sequences.

   The Authority used the historic climate record (the 114 year period between 1895 and 2009, which included the millennium and federation droughts as well as very high flow periods in the mid 1950s and 1970s) to model the environmental outcomes of different SDL reduction scenarios (2,400 GL, 2,750 GL, 2,800 GL and 3,200 GL) compared with the current baseline and the 'without development' scenario.

   Please refer to the following reports which are located on the Authority's website: http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf and http://download.mdba.gov.au/proposed/ESLT_MDBA_report.pdf.

   The final data for 2009-10 and 2010-11 is not yet available but in the absence of the final figures, the Authority has made preliminary estimates of inflows based on the observed downstream flows. The estimated inflows for 2009-10 and 2010-11 are 23,000 GL and 47,000 GL respectively. These inflows are within the variability of the 1895-2009 historic record, with the floods of 1956 (132,138 GL) and 1974 (69,855 GL) for example recording high inflow levels. These compare with the mean annual inflow for the period 1895-2009 of 32,553 GL/year.

   Including these years would increase the long term average inflow to 32,595 GL/yr which is an increase of 0.13 per cent.

   In order to update the model to include the last two years inflow data, the model would also need to include data on the water recovery from 2009 to 2010 and each of the five scenarios would have to be re-run and re-analysed, each statistic recalculated and each graph replotted. This task would take close to a year.

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Program: Division or Agency:	4: MDBA	**Question No:**	122
Topic:	Capped water entitlements of New South Wales		
Proof Hansard Page and Date or Written Question:	Written		

Senator Fisher asked:

1. If water taken by NSW irrigators from unregulated streams 'will be counted' and won't allow NSW to take above its cap, how will water taken from unregulated streams be measured, when it is largely unmetred?

Answer:

1. The draft Basin Plan includes requirements that the determination of actual take must be done using the best available method (Cl 9.20(1)(b)) http://www.mdba.gov.au/draft-basin-plan. It also includes provisions relating to states specifying in water resource plans, measures for maintaining and, if practicable, improving the proportion of take that is measured (Cl9.49).

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Program: Division or Agency:	4: MDBA	**Question No:**	123
Topic:	Salt export from the Murray-Darling Basin		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. When will the MDBA release the full modelling and data that demonstrates how much salt will realistically be exported from the system per year (not the long-term projection given at Estimates) with the returned water volume of 2750GL as currently anticipated in the Draft Plan?

Answer:

1. The modelling carried out to date has been documented and a report titled “Hydrologic modelling to inform the draft Basin Plan: Methods and results” summarising the methodology and results has been available on the MDBA web site since 17 February 2012 http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf. This report includes a description of estimated long term average salt export under different scenarios.

   Any more detailed data with respect to annual estimates of salt loads or salinities can be provided on request.

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Program: Division or Agency:	4: MDBA	**Question No:**	124
Topic:	Receipt of correspondence from NSW Government		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Did the MDBA receive correspondence from the NSW Government asking for an increase groundwater SDLs in order to supply water to the mining industry?

Answer:

1. The potential use of the water in any system has not influenced the Authority's determination of the proposed groundwater Sustainable Diversion Limits (SDL).

   The New South Wales Government wrote to the Authority in August 2011 indicating that groundwater in a number of groundwater SDL resource areas represented the only potential source of water for future mining requirements in these areas.

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Program: Division or Agency:	4: MDBA	**Question No:**	125
Topic:	Impact of increase of groundwater extraction		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. For alluvial aquifers that are known to be highly connected to surface water for which the MDBA Draft Plan proposes increases in SDLs, such as the Lachlan Alluviums, what modelling has been done showing the impact of increased groundwater extraction on surface water?

Answer:

1. Detailed numerical groundwater modelling that considered groundwater-surface water interaction was carried out in 13 alluvial aquifers including the Lachlan Alluvium. In non-modelled Sustainable Diversion Limit areas the MDBA used a recharge risk assessment methodology that considered groundwater-surface water interaction.

   Further information on the Authority's assessment of groundwater-surface water interaction is on page 19 of "*The proposed Groundwater Baseline and Sustainable Diversion Limits: methods report*" which is available on the Authority's website at (http://download.mdba.gov.au/proposed/Proposed-BP-GW-BDL-SDL.pdf)

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Program: Division or Agency:	4: MDBA	**Question No:**	126
Topic:	Sustainable Diversion Limits – Lachlan Alluvium		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. For the Lachlan Alluvium, can the MDBA provide an explanation for why it changed the proposed SDL from a reduction of 57GL in the Guide to the Plan to an increase of 26GL in the draft Plan?

Answer:

1. In the draft Basin Plan, the Lachlan Alluvium has been divided into two Sustainable Diversion Limit (SDL) areas: the Upper Lachlan Alluvium; and the Lower Lachlan Alluvium.

   Upper Lachlan Alluvium

   The SDL for the Upper Lachlan Alluvium SDL area in the Guide to the Basin Plan was 63.0 GL/y. Additional information, including the reports and outputs from a new numerical groundwater model and updated entitlement and stock and domestic use data, was supplied by New South Wales and assessed by the Authority after October 2010. The information provided a better understanding of the Upper Lachlan Alluvium than was available at the release of the Guide. The SDL has been set at 94.1 GL/y, which is the current Baseline Diversion Limit (BDL), as it is the Authority's assessment that any further extraction above the BDL would have an additional impact on surface water resources.

   Lower Lachlan Alluvium

   The Lower Lachlan Alluvium is one of seven New South Wales alluvial aquifers that is part of the Achieving Sustainable Groundwater Entitlements program (ASGE). The program, funded by the Australian and New South Wales governments, was introduced to achieve the sustainable use of groundwater resources in seven alluvial aquifers in New South Wales. For the draft Basin Plan, the Authority adopted the current New South Wales plan limits for all the ASGE areas to allow the reduction program to be completed and the outcomes determined before any further changes to the SDL are considered.

   The Authority considered that reduction program should be allowed to be completed given:

- the additional uncertainties associated with modelling groundwater systems that are undergoing a reduction program;
- the large groundwater storages (a minimum of 200 years at current levels of use); and
- the low risk of depleting the volume of stored groundwater (and hence overall risk to the resource) for the period until the first review of the Basin Plan.

The BDL revision between the Guide and the draft Basin Plan in the Lower Lachlan Alluvium is due to the inclusion of stock and domestic water supply that was not included in the Guide.

Lachlan Alluvium BDLs and SDLs

SDL area	Guide BDL (GL/y	Guide SDL (GL/y)	Draft Basin Plan BDL (GL/y)	Draft Basin Plan SDL (GL/y)
Upper Lachlan Alluvium	77.1	63.0	94.1	94.1
Lower Lachlan Alluvium	108.0	64.8	117.0	117.0

Further information on the development of the proposed SDL for these areas in the draft Basin Plan is available on page 19 (Upper Lachlan) and page 22 (Lower Lachlan) of the Proposed Groundwater Baseline and Sustainable Diversion Limits: methods report available at http://download.mdba.gov.au/proposed/Proposed-BP-GW-BDL-SDL.pdf.

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Program: Division or Agency:	4: MDBA	**Question No:**	127
Topic:	CSIRO Science Review		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. The CSIRO Science Review states that the 2,800GL/yr reduction scenario does 'not meet the majority of the hydrologic targets: they meet 55% of the 'achievable' targets'? Do you accept that target achievement of only 55% of environmental targets is acceptable? What does this mean in terms of projected loss environmental assets? Does this meet the requirements of the Water Act?

Answer:

1. The CSIRO-led review relied on a set of results for a 2,800 GL model run completed in July 2011. The results assessed by the review team were the simple statistical reports from the modelling run. This initial statistical output had yet to be interrogated and analysed against ecological targets. Hence, the data counted close but not completely achieved targets as failures when in fact the desired flow regime would have been achieved because the output was within the bounds of the model uncertainty, or was accounted for by calculation error. For example, one of the flow indicators (16 gigalitres per day for 30 days) for the Gunbower-Koondrook-Pericoota Forest in the Murray, shows an improvement under the draft Basin Plan, from the current achievement of 32 per cent of years, to up to 69 per cent of years. Yet this event is counted as a fail against the desirable flow indicator of 70 per cent of years even though the ecological outcome has been achieved.

   The Authority undertook further modelling and analysis since July 2011, refining the delivery of the available environmental water, and including a more rigorous assessment of the results, analysing each flow event separately to identify the likely outcomes. Further information on each catchment in the Basin is available in Section 5 (pages 36 to 260) of the Hydrologic modelling to inform the proposed Basin Plan: Methods and results report which is available on the Authority's website http://download.mdba.gov.au/proposed/Hydro_Modelling_Report.pdf

   The achievement of flow indicators is a performance measure to compare scenarios not a minimum standard.

   The Authority has prepared the draft Basin Plan consistent with the requirements of the *Water Act* 2007 (Commonwealth).

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Program: Division or Agency:	4: MDBA	**Question No:**	128
Topic:	Impact of climate change on surface water flows		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Can the MDBA advise what the predicted impact of climate change will be on surface water flows in the southern Murray-Darling in 2030? Given that the Basin Plan will be in effect from 2019 – 2029, how does it manage the risk posed by these impacts?

Answer:

1. The predicted impacts of climate change on surface water flows in the southern Murray-Darling Basin in 2030 is highly uncertain, ranging from a decrease of 26 per cent for the Dry scenario, through to 10 per cent for Median climate change scenario to an increase of 12 per cent for the Wet scenario (MDBA2010). The impact is expected to be greater in the south of the basin. A region-by-region summary of the projected impact of climate change by 2030 of surface water inflows for the southern Murray-Darling Basin is shown in Table 1 below.

Table 1 – Summary of without development inflows for historical climate and estimate change (per cent) for Dry, Median, and Wet Climate Change Scenarios.

	Historical climate – Total inflows (GL/y)	2030 Climate		
		Dry (per cent)	Median (per cent)	Wet (per cent)
Murrumbidgee	4236	-24	-13	0
Murray	16566	-28	-11	5
Ovens	1753	-31	-12	1
Goulburn-Broken	3378	-32	-13	-2
Campaspe	290	-38	-16	-4
Loddon	255	-45	-15	-9
Wimmera	248	-45	-14	-3
Whole of Basin	28574	-26	-10	12

This information is sourced from the report Water Resource Assessments for Without Development and Baseline Conditions – Murray-Darling Basin Authority Technical Report 2010/20 Version 1 (refer pages 61-63). The report is available on our website (http://www.mdba.gov.au/bpkid/bpkid-view.php?key=yYwsBnGLSc4VQrHGEAqDviQmAfWf1/YV4EE/1ZKRWxo=).

The Basin Plan will be implemented through state water resource plans, which will be required to describe how water will be managed should climatic extremes occur, such as a prolonged dry period. In addition, current state water management arrangements generally accommodate large variations in water availability in the way annual allocations are determined. Such arrangements will continue under the Basin Plan.

The Murray-Darling Basin Authority (the Authority) is committed to increasing our knowledge of the effects of climate change on environmental water needs, other water requirements and water availability. We are doing this in a number of ways, including through a partnership with the South Eastern Australia Climate Initiative.

Any new information and analysis will be considered in the proposed 2015 review of Sustainable Diversion Limits. Also, the Basin Plan will be reviewed on a cycle of at least every ten years.

Further Information on how the Authority has addressed the risk of climate change is summarised in a fact sheet on Climate Change and the Basin Plan available on the Authority's website (http://www.mdba.gov.au/draft-basin-plan/fact-sheets).

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Program: Division or Agency:	4: MDBA	**Question No:**	129
Topic:	Basin Plan – ecological targets		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Were any ecological targets adjusted because of system constraints, and by how much? Why ecological targets were adjusted?

Answer:

1. Many of the rivers of the Murray-Darling Basin are highly regulated and together with urban and agricultural land use this regulation places constraints on the delivery of environmental flows. The Authority's objective of a healthy working basin recognises these limitations, and consequently the ecological targets sought by the Authority are intended to be within the scope of management and within existing constraints.

   The hydrological indicator site method used by the Authority has specified a range of flow indicators at indicator sites across the Basin. These indicators represent the flows required to achieve certain outcomes. For transparency, the Authority identified those flow indicators that are achievable and those that are unachievable within existing system constraints. This is set out in Appendix D (pages 199 to 219) of The proposed 'environmentally sustainable level of take' for surface water of the Murray–Darling Basin: Method and outcomes report (http://download.mdba.gov.au/proposed/ESLT_MDBA_report.pdf).

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Program: Division or Agency:	4: MDBA	**Question No:**	130
Topic:	Voluntary flood easements		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Regarding the voluntary flood easements that have been recently offered by a number of farmers across the MDB, covering almost 500,000ha of land, has the MDBA contacted these farmers to discuss their offer? Does the MDBA intend to take them up on their offer? Has the MDBA commenced a process to invite additional flood easements from willing farmers? What work, if any, has the MDBA done to negotiate flood easements since its commencement?

Answer:

1. The Authority's approach to easements at relevant locations across the Basin is under consideration.

   Section 6.06 and 6.07 of the *Proposed Basin Plan – a draft for consultation* (Nov 2011) introduces a review of Sustainable Diversion Limits (SDLs) in 2015. Section 6.06 in-particular listing matters the Authority will consider as part of this review including:

- works and measures;
- river management and river operational practices;
- methods of delivering water; and
- new knowledge.

   As a component of the review of SDLs in 2015, the Authority is examining constraints in each valley. Easements, negotiated with individual landholders, are one potential method available to overcome constraints (that limit regulated flows below set thresholds).

   The Authority has previously negotiated easements with landholders, particularly those located between Hume Dam and Lake Mulwala on the Murray River for the purposes of River Murray System operations and not in relation to the Basin Plan.

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Program: Division or Agency:	4: MDBA	**Question No:**	131
Topic:	Sustainble Diversion Limits for the ACT		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Is there a gross SDL for ACT rather than the net SDL which appeared in the Draft Plan?

Answer:

1. In the draft Basin Plan, the ACT's Sustainable Diversion Limit (SDL) (for water that can be taken from watercourses) is based on net diversions (Schedule 3, item 29(a)). Schedule 3 of the draft Basin Plan is available on the Authority's website http://www.mdba.gov.au/draft-basin-plan/draft-basin-plan-for-consultation/schedule03).

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Program: Division or Agency:	4: MDBA	**Question No:**	132
Topic:	Basin Plan – comparisons of period between flow events		
Proof Hansard Page and Date or Written Question:	Written		

Senator Hanson-Young asked:

1. Can the MDBA provide complete comparisons of period between flow events (as per page 91 of the ELST document) for each component of all 18 key environmental assets considered by the Plan in order to enable a proper assessment of the ecological impact of the 2,750Gl/yr scenario?

Answer:

1. The Authority has not undertaken analysis of maximum period between events as presented on page 91 of the Environmentally Sustainable Level of Take (ESLT) document for all of the 18 key environmental assets. The analysis presented within the ESLT report was based on the outputs of the hydrologic modelling framework but was a separate analysis. The objective of this analysis was to assess the ability to reduce maximum dry periods between flow events under each of the three ESLT options tested (2,400, 2,800 and 3,200 GL/y) at a select number of key environmental assets throughout the Southern connected Basin. The analysis indicates that the scenarios tested would improve the ability to break drought periods if this was the primary objective of environmental water management.

   In practice, implementation of the Basin Plan through the Environmental Watering Plan will require balancing multiple environmental objectives and outcomes at many key environmental assets.

   'Maximum dry' statistics for the modelled Basin wide 2,800 GL/y reduction scenario for all of the 18 key environmental assets and for flow indicators specified for in-channel freshes is presented on pages 268-272 of the Authority's report: 'Hydrologic modelling to inform the Basin Plan: Methods and results'. This report is available on the Authority's website (http://www.mdba.gov.au/draft-basin-plan/science-draft-basin-plan). Modelled maximum dry statistics for the Basin Plan scenario are used as performance indicators only and do not necessarily represent potential outcomes in terms of 'breaking the drought'.

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Program: Division or Agency:	4: MDBA	**Question No:**	133
Topic:	South Eastern Australian Climate Initiative		
Proof Hansard Page and Date or Written Question:	Written		

Senator Joyce asked:

1. Will the MDBA ask the South Eastern Australian Climate Initiative to update its climate change work given that the report it relies on does not incorporate any data from the past couple of years?

2. When will Phase 2 of the South Eastern Australian Climate Initiative be complete?

Answer:

1. Phase 2 of the South East Australian Climate Initiative (SEACI) is in its last year of a three year investment. The Authority is one of five investors directing the SEACI work program. Changes to the program would need to be agreed by all investors.

2. Research work under Phase 2 of SEACI is due to be completed by end of June 2012 and program reporting is planned to be completed in 2012.

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Program: Division or Agency:	4: MDBA	**Question No:**	134
Topic:	Sustainable Diversion Limits		
Proof Hansard Page and Date or Written Question:	Written		

Senator Joyce asked:

1. Is the true amount needed for the environment under the proposed plan the difference between the SDL (10,873 GL) and the average annual inflows over the historical period (31,599 GL)? That is, 20,726 GL per year (31,599 – 10,873).

Answer:

1. No. The draft Basin Plan proposes the recovery of an additional long-term average amount of 2,750 GL/yr from 2009 baseline diversion limits for the environment. This long-term average is based on assessments using the 1895-2009 historic climate sequence.
   The baseline inflows and water use are shown in the table on page 127 of the draft Basin Plan. The proposed recovery will increase the water used by the environment, losses and outflows from the Basin from the 18,930 GL per year shown in this table to 21,680 GL per year on average. All these long-term average numbers have been determined using the 1895-2009 historic climate sequence.

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Program: Division or Agency:	4: MDBA	**Question No:**	135
Topic:	Sustainable Rivers Audit report		
Proof Hansard Page and Date or Written Question:	Written		

Senator Joyce asked:

1. Has the Sustainable Rivers audit report been distributed at a Ministerial Council meeting as foreshadowed in your annual report? If not, why wasn't it when it was listed as an action in the MDBA annual report?

2. Have any state governments objected to its release?

3. When is the report due to be released?

4. Will the MDBA incorporate its findings into its final report?

Answer:

1. No. Due to delays resulting from the complexity and technical nature of the report, the deadlines for submission to higher level committees (Natural Resource Management Committee, Basin Officials Committee) were unable to be met as foreshadowed in the annual report.

2. No. Consultations are continuing with the states on the hydrology analysis; this is expected to be completed soon.

3. Currently the timeframe that the Murray-Darling Basin Authority (the Authority) anticipates is that the Sustainable Rivers Audit (SRA) report is will be submitted to the higher level committees in March and April for consideration by Ministerial Council at meeting 7 in June 2012.

4. The SRA Report is a standalone report. The condition of the Basin as described in the SRA assessment is considered by the Authority as one input to Basin Plan deliberations.