Science and the River
- a political perspective

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INTRODUCTION

- Science is a key part of good policy
- Managing the River Murray is a complex public policy challenge.
- Difficult decisions will need to be made when it comes to future management of the River Murray – science will inform these decisions.

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River Murray Drought – what does the science tell us?

- Three distinct drought periods:
  - Pre Federation – average inflow 4 900 GL/ year
  - WWII – average inflow 5 600 GL/year
  - Current – average inflow 3 800 GL/ year
- Long-term average inflow is 8 900 GL/year
- The current drought is the most severe - impact exacerbated by 'human induced' drought of past 20 years due to over-allocation.

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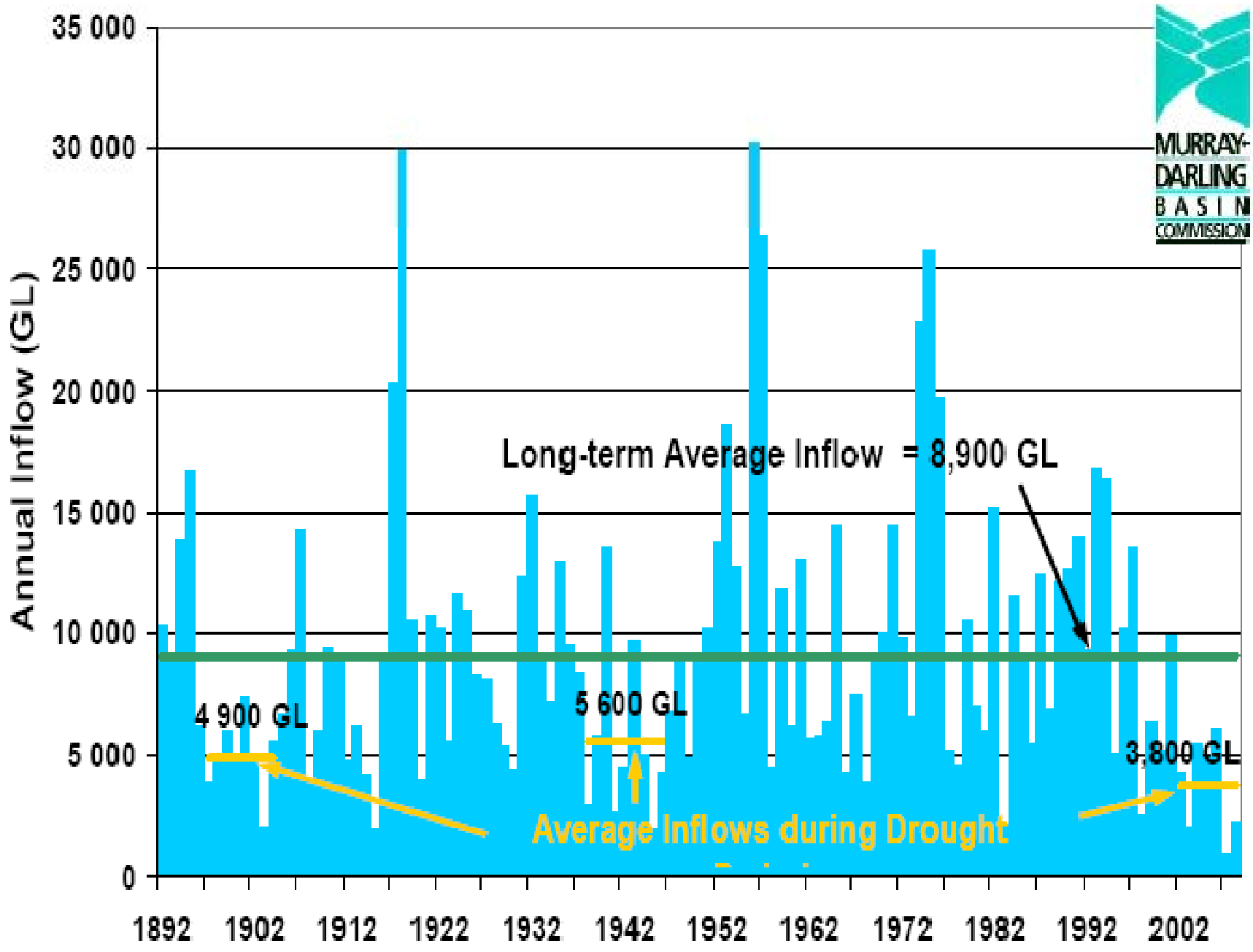
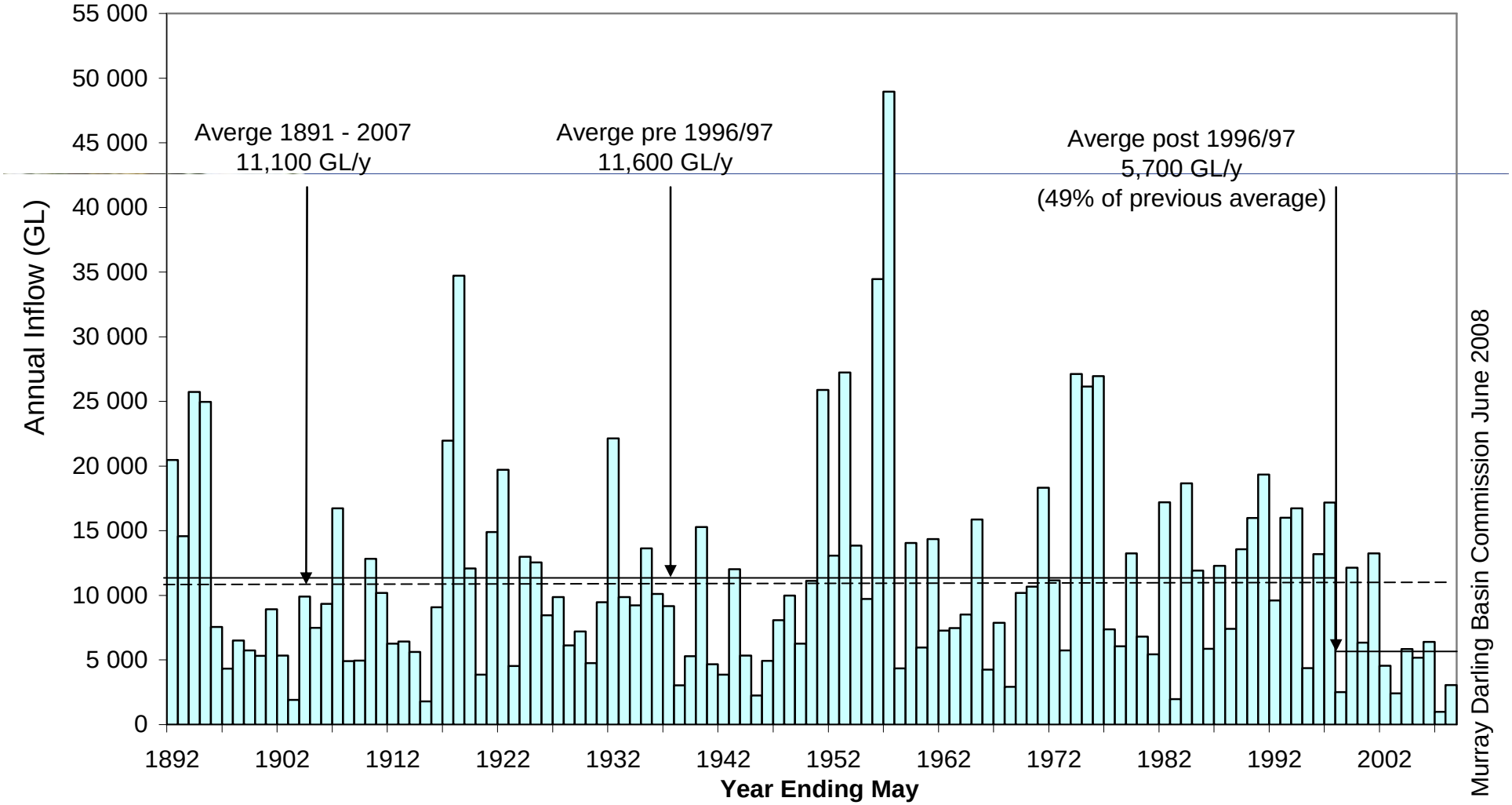
Figure 1. Murray system annual inflows (excluding Darling inflows and Snowy releases)



River Murray System Inflows 1891 - 2008



2007-08

- In 2007-08 inflows were only 2 230 GL.
- 2006-07 and 2007-08 were the driest two years on record. Total inflows of 3 270 GL (37% of previous two-year min of 6 020 GL).
- MDB storages peaked in early October 2007 at 2 130 GL (23% capacity).
- Drought conditions have required changes in river management and water allocation priorities.
- Securing critical human needs in each state is a priority.

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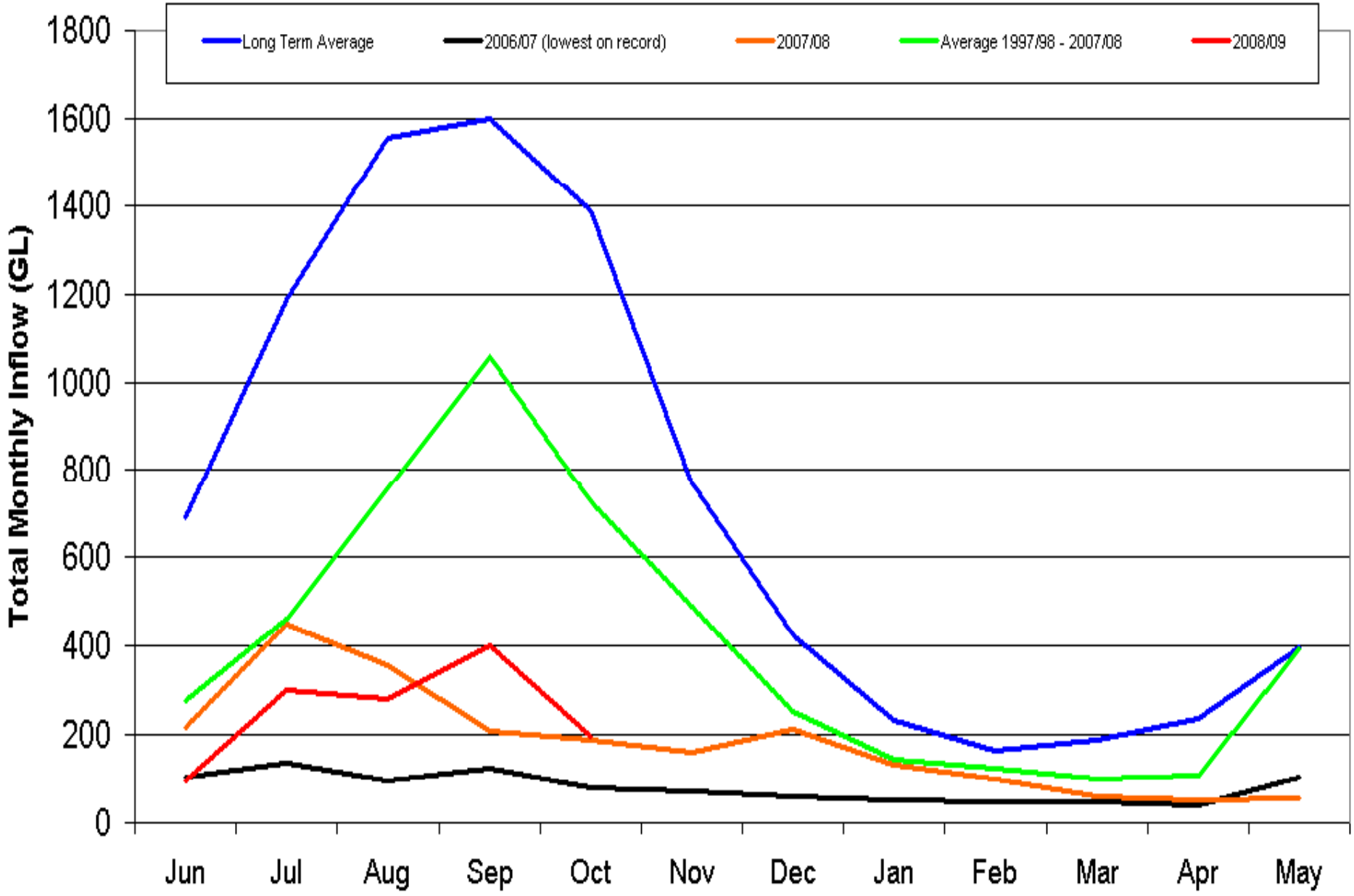
Inflows to the River Murray (excluding Menindee and Snowy)



Current situation

- Catchments drier than same time last year, resulting in low inflow responses from recent rainfall.
- As at end October 2008, rainfall across the shared resource areas was below average.
- As at end October 2008, inflows were about 200 GL (long-term average ~ 1390 GL).
- About 65% of total annual inflow is usually received between July to October.
- MDB storages currently hold 2346 GL (25% capacity) including Menindee Lakes. Compared to 1963 GL (20% capacity) at same time last year.

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Salinity

- Salinity levels above Lock 1 remain fairly low due to good quality water from Hume and Dartmouth Reservoirs.
- In 2008-09, South Australia requires minimum regulated flow of at least 896 GL to maintain salinity below 1 400 EC at Murray Bridge.
- Salinities in Lake Alexandrina remain high although upstream of the Goolwa barrage they had improved in recent months as a result of inflows from the Finniss River during winter.

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2008-09 River Murray Water Availability Projections

Probability	Projected regulated flow to SA (in GL)	Projected available water to SA above 897 GL (in GL)
100% chance*	1 096 (+ late season trade)	199 (+ late season trade)
95% chance	1 109	209
90% chance	1 117	220
85% chance	1 130	233
75% chance	1 157	260
50% chance	1 204	307

*Distribution of available water will be determined on a monthly basis as a resource availability becomes known. Priorities will include irrigation, accumulating water for critical needs for 2009-10, and critical environmental needs

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2008-09 River Murray Water Allocation Projections

Scenario	End December 2008	End February 2009	End April 2009
100% chance	15%	15%	15%
95% chance	15%	15%	15%
90% chance	15%	15%	15%
85% chance	15%	15%	15%
75% chance	15%	15%	17%
50% chance	21%	25%	35%

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CSIRO Sustainable Yields Report

- Current development along the River Murray has already reduced end-of-system flows by 61%.
- Climate change is projected to reduce surface water availability in the River Murray in 2030 by a further 12%, average diversions by 4%, and end of system flows by a further 24%.
- Flows required to maintain water quality and critical human needs in South Australia may not be available in 3% of years if the recent climate (1997 to 2006) continues.

Implications of the CSIRO report

- Existing sharing arrangements may not provide security for South Australia's basic water requirements to maintain water quality and critical human needs in extreme dry events under future climate change scenarios.
- Significant changes to current water sharing arrangements in the Murray-Darling Basin will be required.
- The report will also provide key input into the development of the Basin Plan, which is to be developed under the Commonwealth *Water Act 2007*.

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MDB Risks Strategy

- Risks include: climate change, afforestation, bushfire, farm dams, irrigation return flows and groundwater extraction.
- Early research suggests that these factors could reduce stream flow by approximately 2570 GL per year by 2023 and by up to 4690 GL per year by 2053.
- Risks strategy provides a framework for assessing and responding to current and potential risks to the shared water resources of the MDB.

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Science and policy in action – some examples

- Wetlands Baseline Survey.
- High salinity impact zone line.
- Prioritisation of areas for salt interception scheme works.

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The Government's commitment to science

- Establishment of the independent Murray-Darling Basin Authority to manage the river system as a whole.
- The Water Act 2007 establishes a number of Commonwealth responsibilities in relation to water information.
- $450 million for improving water information.

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The Government's commitment to science cont.

- Premier's Science and Research Council which - chaired by Mike Rann and Dr Ian Chessell, Chief Scientist.
- Water is at the top of the Council's agenda in the next year.
- The SA Government supports the Murray-Darling Freshwater Research Centre and eWater CRC.

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CONCLUSION

- The demand for quality science is increasing.
- Science provides us with the evidence needed to negotiate better outcomes for the River.
- Any decisions need to be made on a triple-bottom line basis.

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