**Robust Science an Essential Part of the Murray Darling Basin Journey**

Not unexpectedly, there has been significant public commentary in recent days about the Murray Darling Basin Authority’s proposed Basin Plan.

There have also been plenty of sensationalist headlines relating to the science that has supported the development of the Plan and in particular, the scientific sufficiency upon which the Plan is built.

Many of these views, especially those pertaining to the role and perspectives of my own organisation – CSIRO – have significantly misrepresented reality.

CSIRO has provided some - but not all - of the underlying research, models and data to help inform the development of the Murray-Darling Basin Plan.

Earlier this year and at the invitation of the MDBA, CSIRO led a review of the environmental and hydrologic science, modelling and analyses used by the Authority to help determine proposed Sustainable Diversion Limits (SDLs) for the Basin.

Socio-economic analyses have also informed the determination of SDLs and these were not considered in the CSIRO-led review.

What the review found is that there is sufficient science available to make an informed decision on an environmentally sustainable level of take in the Basin. In other words, the science and evidence base is clear – the improvements in environmental flow regimes achievable under the proposed SDLs would deliver significant environmental benefits.

It also found that the substantial body of work undertaken by the MDBA represents a sufficient basis to begin an adaptive process of managing the level of take in the future and that the methods of modelling and analysis used by the MDBA were generally robust and defensible.

In August of this year, the review team was also asked to consider MDBA modelling results for one “2800 gigalitre per year (GL/yr) reduction scenario”. The results show which flow targets for specified ecological outcomes are likely to be met under this scenario.

Under the modeled 2800 GL/yr reduction scenario many of the achievable flow targets for ecological outcomes are met and for most of the remaining achievable flow targets, there are major improvements relative to current flow conditions. For example, one of the flow targets (16 gigalitres per day for 30 days) for the Gunbower-Koondrook-Pericoota Forest in the Murray, shows an improvement from being met in 32 per cent of years currently, to up to 69 per cent of years under the proposed Basin Plan compared to a target of 70 per cent of years.

Several of the flow targets cannot be easily met because of constraints in the regulated river system related to major water infrastructure and river operational rules. An example of this is on the Goulburn River where releases from Lake Eildon are limited to 10,000 megalitre (ML) per day to prevent inundation of private properties.

Of course, in a system as large and as complex as the Basin, some gaps remain in the scientific knowledge base. It is important for all stakeholders engaged in shaping the future of the Basin to acknowledge that an absence of perfect scientific knowledge does not provide a reasonable basis for not embarking on the journey that is needed to secure the long term future of one of Australia’s most economically, socially and ecologically important assets.

Indeed, the science review identifies areas for continuous improvement in scientific understanding and the application of scientific method. For example, the review recommended that the Authority publish a coherent and comprehensive description of the technical methods that they used to develop the proposed Plan. This will greatly improve the transparency and clarity of the Authority’s technical work.

The review also recommended enhanced investment in ecological research and monitoring to ensure that the ecological outcomes gained from every ML of environmental water are maximized.

Looking ahead, science will continue to be one of many inputs that will need to be considered in navigating the complex and contested national journey that the proposed Murray Darling Basin Plan seeks to frame.

Ultimately, whatever happens in Basin will be informed not only by good science, but by rigorous socio-economic analyses and diverse community views.