



Australian Government

**Department of Agriculture,
Water and the Environment**

Supplementary submission by the Department of Agriculture, Water and the Environment and the Murray-Darling Basin Authority:

Senate Select Committee inquiry into the Multi-
Jurisdictional Management and Execution of the
Murray-Darling Basin Plan

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Introduction

The Department of Agriculture, Water and the Environment and the Murray-Darling Basin Authority (MDBA) welcome the opportunity to provide a supplementary submission to the Senate Select Committee for their inquiry into the Multi-Jurisdictional Management and Execution of the Murray-Darling Basin Plan.

The Committee has requested *'feedback on the quality of the data that is available on the BoM's website through the Australian Water Resources Information System (AWRIS). In particular, whether there are any gaps in the information available on the AWRIS, the information that should be available on the AWRIS, and what works well?'*

The BOM has statutory responsibility for collecting, compiling, and disseminating Australia's water information under Part 7 of the *Water Act 2007*. The AWRIS is one of the tools BOM uses in discharging this statutory responsibility. It has proven to be a useful tool in bringing together and making available water information for entitlement holders, Commonwealth and state governments, and the broader public.

The AWRIS collects over 15,000 water data files a day from around 200 organisations across Australia through automated data transfers. This includes information about river flows, groundwater levels, water volumes in storage, water quality in rivers and aquifers, water use and restrictions. BOM transforms the data collected through this system to deliver water information services and products like water data online, the water storages dashboard and mobile phone app, and the water markets dashboard.

AWRIS is complemented by a range of other products and services available on BOM's website, as set out at Attachment A. This includes:

- The National Groundwater Information System – Groundwater Explorer
- The Urban Water Database
- Bureau Models and Forecasts and Analysis Tools – including 7-day streamflow forecasts, seasonal streamflow forecasts, design rainfalls, and water restrictions portal.

The department and the MDBA use these water information services to perform their respective roles. This submission accordingly extends to all these services. The BOM maintains the AWRIS and complementary products and services, working with stakeholders to improve the quality and comprehensiveness of data, and to make sure water information is collected, compiled and disseminated in a timely way. The department, MDBA and BOM are working in partnership to deliver a range of initiatives to improve the service.

This submission is in two parts:

- Section 1: Outlines how the department and the MDBA use the AWRIS and complementary water information and suggests areas for improvement.
- Section 2: Provides information on Commonwealth initiatives to improve the availability and transparency of water information.

This submission is provided further to Departmental submissions of October 2019 and February 2020 responding to the terms of reference and issues paper, and the MDBA's submissions of September 2019, March 2020, and 5 February 2021 letter to the Committee.

Section 1 – BOM’s water information services

Use of AWRIS and other water information services

The department and the MDBA regularly use the AWRIS, along with the suite of other national water information available on the BOM’s website. This includes the:

- Water data online
- Water storages dashboard
- Water markets dashboard
- Groundwater explorer
- Urban water database
- Models and forecasts (landscape water balance, streamflow forecasts, seasonal streamflow forecasts).

Both agencies rely on these systems to perform their respective roles and utilise these systems across the breadth of their portfolios.

Within the department, these products and services are primarily used across the water, environment, agricultural, science, and biodiversity conservation areas of the portfolio. They are used extensively by the Australian Bureau of Agricultural and Resource Economics and Science (ABARES) and to a lesser extent by one of the department’s portfolio agencies, the Australian Pesticides and Veterinary Medicines Authority (APVMA). Usage informs policy development, research and forecasting activities, decision-making processes, including in relation to environmental approvals and the assessment of development and planning applications, and water valuations.

Within the MDBA, BOM’s water information products and services are primarily used to understand historical and current hydrological conditions across the Basin, to develop water availability scenarios, understand water trade within and across trade zones to assist with policy development, understand market insights, resource planning, river operations, flood operations, water take monitoring, and forecasting.

Adequacy of services

The department and the MDBA consider that the AWRIS and the Bureau of Meteorology’s complementary products and services are generally adequate and of appropriate quality.

BOM’s water information provides centralised access to a suite of current and historical data that is relatively comprehensive.

Portfolio users appreciate geographical interfaces, where available, that can be used to filter and delve into further details. The ability to download data is of great value for analytical purposes.

Recent improvements to AWRIS and the BOM’s service offering, such as the catchment summaries, provide an overview of water currently in storage and commitments made for this water to different users including the environment. This more detailed information assists

water users make decisions based on a clearer understanding of how water is distributed and the potential effect of those decisions on water users.

BOM presents water information in a way that is consistent and generally aligns with state-based water information.

Opportunities for improvements

The department and the MDBA recognise that improvements can always be made. The improvement opportunities outlined below have been gathered from line areas in the department and MDBA who actively use BOM's water information.

There are essentially three key areas identified for improvement:

1. Improving user interfaces.
2. Increasing timeliness and availability of data.
3. Improving transparency by enhancing the comprehensiveness and quality of data.

In bringing these suggestions forward, we recognise that some improvements would be challenging to implement because they depend on various third-party organisations that collect and hold data—an issue of direct interest to this committee. This includes state governments and other third parties like irrigation infrastructure operators and water brokers.

Improving user interfaces

To enhance the speed by which certain products load and their responsiveness, departmental and MDBA users have indicated that there would be merit in the BOM offering a choice of data navigation tools to support services with map interfaces. This includes offering map, tabular and direct entry navigation tools for the Groundwater Dependent Ecosystem (GDE) Atlas and Water Markets Dashboard. Systems supporting these services can be slow to load and become unresponsive, forcing users to exit and re-enter multiple times. Providing alternative navigation tools may provide a way around this problem, for informed users. The optimal solution is a faster system in the background.

Increasing timeliness and availability of data

To increase the timeliness and availability of data on BOM's information services, departmental and MDBA users have indicated that there would be merit in making a number of improvements. These improvements would enhance decision-making relating to planning, impact and development applications. They would also help broaden the use of available data for further climate, flood, water resource planning and operations, and agricultural applications. They include:

- Requiring development proponents to provide their data to the BoM so it can be made available through the GDE Atlas and National Groundwater Information System (NGIS).
- Making all model outputs available for the Australian Water Resources Assessment Landscape model (AWRA-L), climate data and seasonal streamflow forecasts.
- Automating data transfers (for example modelled data) currently only available by special request or subscriptions.

- Accessing and publishing state water trade data in as close to real-time as possible.

We acknowledge that there are issues of scarcity or gaps in time-series and other data that heavily affect the BoM's ability to program widescale reports and access arrangements into their system.

Some data, including that relating to water trade and water availability data is not made public in a timely way. This can mean that in some situations, sources such as Waterflow and water broker websites provide more comprehensive and timely data than that available through BoM. Users are then driven to access multiple state and independent sites to access data and compile information of their own. Individual and business data processing and interpretation should be supported by readily accessible data, and circumstances where data is not available in a timely fashion or accessible manner can confound these attempts to improve productivity.

Improving transparency by enhancing data comprehensiveness and quality

To increase the comprehensiveness and quality of data, departmental and MDBA users have indicated that there would be merit in:

- Consolidating water quality data to better enable reporting obligations against the water-related United Nations sustainable development goals to be met. This includes data in relation to salinity, oxygen, nitrogen, phosphorous and acidity.
- Addressing inconsistencies in catchment labelling, including in relation to water trade data.
- Investing resources to work with the states to fill data gaps using appropriate statistical methods.

There are currently some data types, like water trade and water quality data, that could be improved from a quality and comprehensiveness perspective. The Australian Competition and Consumer Commission's Murray-Darling Basin Water Markets Inquiry Interim Report (2020) into the water markets has examined some of these issues in relation to trade data accessibility and is due to provide its final report with recommendations shortly.

In relation to water trade data in particular, the data currently available through AWRIS and BOM's complementary water information products and services does not:

- Include tagged trade and trade within irrigation infrastructure operator networks.
- Identify the reasons for trade including environmental trade and leases.
- Accurately report pricing information – often incorrectly reporting zero-dollar trades.
- Identify current water products such as carryover parking and leases.

Section 2 – New water information initiatives

The department, MDBA, and BOM continue to improve the availability and transparency of national water information. In addition to the work already underway by the BOM to address some of the opportunities for improvement identified in Section 1, the department, the MDBA and the BOM are implementing several initiatives to further enhance the availability, accessibility and transparency of national water information.

All of these initiatives have been informed by the outcomes of recent reviews identifying the need to improve the availability, timeliness, comprehensiveness, and transparency of information. This includes the:

- *Independent assessment of the 2018-19 fish deaths in the lower Darling* (Vertessy report) 2019, available at: mdba.gov.au/managing-water/drought-murray-darling-basin/fish-deaths-basin/fish-deaths-lower-darling
- *Impact of lower inflows on state shares under the Murray-Darling Basin Agreement* (Interim Inspector-General report) 2020, available at: igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf
- Productivity Commission's Murray-Darling Basin Plan: Five-year assessment 2018, available at: pc.gov.au/inquiries/completed/basin-plan#report
- *Independent assessment of social and economic conditions in the Basin* (Sefton report) 2020, available at: mdba.gov.au/publications/independent-reports/independent-assessment-social-economic-conditions-basin
- *Northern Basin Review: Understanding the economic, social and environmental outcomes from water recovery in the northern Basin*. MDBA 2016, available at: mdba.gov.au/sites/default/files/pubs/Northern-basin-review-report-FINAL.pdf

Single Source Water Information Platform

On 4 September 2020, the Commonwealth committed \$5.4 million to support the establishment of a single source water information platform. This platform proposes to bring together a breadth of water information from various sources and provide a coherent entry point for end-users trying to access data that is currently spread across state and Commonwealth web portals. This includes information on stream flows, water storage and trade information available through:

- The AWRIS and BOM's complementary water products and services.
- State water agencies websites.
- The \$5 million near real-time information portal which BOM is funded to deliver by the end of 2022
- Data collected by improved networks and remote sensing technology under the \$34.7 million hydrometric networks and remote sensing program for the northern Basin which is to be delivered by June 2023.
- A range of other potential sources being explored as a part of the work.

The platform is intended to be delivered by mid-2024 and the department, MDBA and BOM are currently undertaking market research to better understand user needs. This will assist in ensuring the platform is fit for purpose and delivers outcomes for users.

Near Real-time Information Portal

The BOM's near real-time information portal will deliver near real-time information on water availability in the Murray-Darling Basin. It will standardise, generate and combine data from range of sources including state agencies, dam operators, the MDBA and the Commonwealth Environment Water Holder and present it in a consistent format that users can understand and use more easily. It will improve the availability and timeliness of much of the existing BOM water data.

The initiative consists of two phases with the first delivering fortnightly, PDF-based reports of Murray-Darling Basin catchments throughout 2019-20 and 2020-21. The second phase aims to transition these during 2021-22 into a more interactive, near real-time, web-based information portal. The portal will provide relevant information at the river reach and individual storage scale that users can aggregate to catchment and Basin scales.

Providing access to the portal through the single source water information portal will ensure that there is centralised access to this useful water information tool.

Hydrometric Networks and Remote Funding Program

This program will deliver 4 projects that will improve data collection in the northern Basin through the rollout of hydrometric and remote sensing technology in northern New South Wales and Queensland. While the program is administered by the department, project delivery involves various government agencies, including the MDBA, BOM, GeoScience Australia, the NSW Department of Planning, Industry and Environment, and Qld Department of Natural Resources, Mines and Energy.

Data collected through this initiative will be available for incorporation into the single source water information platform.

Conclusion

As regular users of AWRIS and other water information products and services, the department and the MDBA can attest that these tools are useful in enabling both agencies to perform their respective roles. While these tools can always be improved, work is underway to do this and this submission proposes some areas where those improvements can be made. The BoM is aware of these ideas, as the department and MDBA work closely with the bureau and the feedback has been passed on directly.

The department, the MDBA and BoM are also working in partnership and with the states to deliver a range of other Commonwealth funded initiatives which will improve the availability and transparency of water information more generally. These initiatives will go some way to addressing many of the opportunities for improvement identified in Section 1, and otherwise complement the work the BOM already has in train to improve its water information products and services.

Attachment A – Overview of BOM’s water information services

