



Australian Government



# Explanatory summary of practice notes – floodplain harvesting

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The Murray–Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray–Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.



# Explanatory summary

## Background

The Murray–Darling Basin Compliance Compact (Compact) commits Basin governments to develop and implement work plans that commit to improving transparency and accountability of surface and groundwater management in the Basin. All Basin states have agreed to manage water resources based on the best available data, and to take advantage of emerging technology such as remote sensing for measuring non-metered take, modelling and hydrometrics. Metering and measurement is essential for comprehensive water accounting.

The Compact includes the requirement for the Murray–Darling Basin Authority (MDBA) to ‘publish a practice note on floodplain harvesting measurement’ (MDBA Compact Action 3.4).

Historically it has been very difficult to accurately measure how much floodplain water has been ‘harvested’; that is, captured for use. In the northern Basin, on-farm storages are typically used to store water from multiple sources, such as streams, groundwater and floodplain harvesting. The same storage and distribution infrastructure (such as pumps, pipelines and channels) are then used for both harvesting and using the stored water. Consequently, water measurement and accounting in this context is highly complex and several lines of evidence are required to measure floodplain harvesting.

Where direct measurement of floodplain harvesting take is problematic, hydrologic modelling is one approach that is used to estimate the take and such modelling will be used to support compliance. A community of practice, already established to develop [hydrologic modelling practice notes](#), has incorporated guidance on accounting for floodplain harvesting in models. Use of improved models developed utilising this guidance will contribute to improved transparency, consistency and compliance in water management across the basin.

The [Floodplain harvesting and overland flows](#) page on the MDBA website provides further background on floodplain harvesting. It also provides the status of current reforms occurring in both NSW and Queensland to improve the estimation and measurement of floodplain harvesting for accounting and management purposes.

## Incorporating Floodplain harvesting into the practice notes

The practice notes provide high-level principles to follow when developing models. Improved modelling, supported by these practice notes, will assist in producing models which are able to more accurately estimate floodplain harvesting take with improved transparency and consistency. While the practice notes address river system models developed using the eWater Source modelling platform, they are relevant and applicable to model development and application in other modelling environments.

Scoping of the existing practice notes identified that to represent floodplain harvesting take in hydrologic models is complex and it needed to be considered in four of the practice notes. These are:

- 1) Reach conceptualisation (identification of key fluxes)
- 2) Modelling of reach water balance
- 3) Estimation of unmetered irrigation diversions
- 4) Calibration of crop models.

The additional work required to complete the four practices notes has meant that the delivery date has changed for this Compact commitment. The first two practices notes on reach water balance were published in December 2018, with the remaining two practice notes to be published by April 2019.

The two reach water balance notes are provided below.

## Reach conceptualisation

The reach conceptualisation practice note provides advice on the features and fluxes of a reach that need to be considered during model calibration. It focuses on the key processes involved in conceptualisation, including decision-making on how the different fluxes, particularly irrigation demands, will be represented in the final reach model.

## Modelling a reach water balance

The modelling a reach water balance practice note details how to calibrate a reach water balance model to allow alternative water management strategies or policies for water sharing to be evaluated. This note details the different components of the reach water balance that should be considered when modelling; and provides guidance on fluxes that should be represented in all reaches and those that are only required for particular reach types (such as floodplain harvesting). The components of the water balance that are important will vary between reaches and the fluxes included on a reach will be determined by data availability and processes that are important for water management decisions.

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