

# Impacts of water trade on agricultural ecosystems

A Sustainable Irrigation Program R&D Project

2006/07

## Background

Water markets have created opportunities for trading large volumes of irrigation water both between regions and between States. Managing irrigation induced salinity is fundamental to ensuring that irrigated land remains productive and that the environmental impacts of irrigation are minimised. Research over many years has improved our understanding of the impacts of existing irrigation activities. However, we are yet to develop a system to account for the salinity impacts of rapid spatial and temporal changes in irrigation water use in the Riverine Plains.

The Basin Salinity Management Strategy 2001-2015 (BSMS) is a commitment by the Commonwealth and the governments of Victoria, New South Wales, South Australia, Queensland and the Australian Capital Territory to an integrated approach for salinity management of the Murray River. The BSMS has identified assessment of the impacts of water trade as a priority (MDBMC 2005).

Victoria currently accounts annually for the salinity impacts of permanent irrigation water trade into the Mallee region. The salinity impacts of permanent water trade into and out of other regions is not currently accounted for, nor are the impacts of any temporary

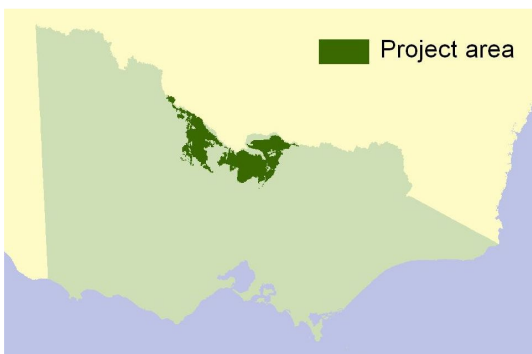
trade.

This project will deliver new information and technical support to guide State and regional policy. Work has been initiated by the Murray Darling Basin Commission to develop a conceptual framework for estimating salt credits and debits arising from trade in water allocations in the Mallee and Riverine Plains Zones. This project will align with that work and in particular develop an improved understanding of the landscape and farm processes that drive irrigation induced salinity impacts. This information will also help Catchment Management Authorities meet their accountability requirements for management of salt credits.

## Objectives

The outcome that the project is seeking to achieve is coordinated management of the salinity impacts of irrigated agriculture on the Murray River and its major tributaries in Victoria. This is essential in order to balance productivity and environmental outcomes.

The project will achieve this by creating new knowledge and tools that enable Victorian regional and State policy stakeholders to confidently assess the salinity impacts of future changes in irrigated land use and management wrought by agricultural commodity and water markets.



# Impacts of water trade on agricultural ecosystems

A Sustainable Irrigation Program R&D Project

## Outputs

This is a three year project in its first year of implementation. Anticipated outputs from the project include:

- A review of the existing models of water trade impacts on salt mobilisation used in the Mallee region. Lessons learnt from the development of Mallee water trade impact models will be captured and used to guide development of a system representation of water trade on salt mobilisation in both the Kerang and Shepparton Irrigation Regions.
- A review of the current reporting requirements and available models for assessing water trade impacts on salinity. This will involve discussions with all relevant agencies to ensure consistency in understanding and interpretation of the current guidelines and information requirements.
- Defining the linkages between agricultural productivity, water trade and salt mobilisation for the Kerang Irrigation Region and the Shepparton Irrigation Region.
- Development and documentation of unit response functions that will provide the best current estimates (including uncertainty) of the key processes that drive water trade impacts on salt mobilisation.
- A discussion paper to support Catchment Management Authorities developing and implementing approaches and policy to meet MDBC requirements for reporting salinity impacts arising from water trade.
- A discussion paper that outlines the potential for site use licences and other policy mechanisms to be used for managing the salinity impacts of water trade.

## Implications

Drought and the implementation of new water reform policies are causing rapid changes in the pattern of irrigation water use and land use across northern Victoria. This provides opportunities to increase the adoption of management practices that reduce the impacts of irrigation on ecosystem services. An improved understanding of the nature of salinity impacts arising from changes in irrigation development will underpin regional and State policy on irrigation development. This will help to ensure that new developments move irrigation to greater sustainability and smaller environmental footprint.

## Stakeholders

Victorian Department of Sustainability and Environment  
Victorian Department of Primary Industries  
Goulburn Broken Catchment Management Authority  
North Central Catchment Management Authority

## Contact

Mike Morris  
Statewide Leader, Hydrology  
Primary Industries Research Victoria  
Tatura Centre, Ferguson Road, VIC, 3616.  
P: (03) 5833 5243  
E: [mike.morris@dpi.vic.gov.au](mailto:mike.morris@dpi.vic.gov.au)



Published by: Department of Primary Industries  
Primary Industries Research Victoria  
Tatura, Victoria, Australia  
December, 2006

© The State of Victoria, 2006  
This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

### Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

For more information about DPI visit the website at [www.dpi.vic.gov.au](http://www.dpi.vic.gov.au) or call the Customer Service Centre on 136 186.