



REGIONAL GOALS

Biophysical B1, B5

Knowledge K2, K3

## Slowing the flow: helping our farmers, waterways and wetlands

### *The Jenkins Weir Project*

In winter, a large network of drains help farmers in the Mayfield Catchment battle waterlogged conditions. But in spring, as the land dries out, those drains funnel away much-needed water as well as valuable nutrients. This nutrient-rich water flows into downstream environments, polluting rivers, wetlands and ultimately the Peel-Harvey Estuary.

Changing the way the drainage system functions to protect the environment and enhance agricultural production has been a priority for farmers and the PHCC for decades. The placement of adjustable weirs on rural drains is likely to be one of the changes needed to enable the drainage system to deliver greater benefits to the environment and agriculture, while maintaining flood protection.

As part of the Filtering the Nutrient Storm Program, the PHCC worked with landholders Mike and Melva Jenkins to build a small weir on a local drain at their property near Waroona to hold back water at critical times of the

year. In a three-year study to assess the effectiveness of the weir, UWA researchers measured a “remarkable” increase in water quality as well as the reinstatement of the hydrological and ecological functions of the wetland that once occurred at the site. Meanwhile, the weir increased the amount of water available in adjacent paddocks to grow pasture, with no added risk of flooding.

The Jenkins Weir Project provides strong evidence to show the placement of adjustable weirs in the right locations on artificial drains in the Peel-Harvey Catchment is a key tool to improve environmental water quality, restore wetlands and increase farm productivity. On the back of the project’s success, the State Government has supported the construction of other small weirs in the Catchment as part of the Regional Estuaries Initiative.

The PHCC continues to work with stakeholders to maximise the performance of adjustable weirs and streamline approvals processes.

#### FUNDING PROGRAM

Australian Government’s Caring for Our Country (CfOC)

#### PHCC PROGRAM

*Filtering the Nutrient Storm II*

#### PHCC PROJECT

*Jenkins Weir Project*

#### FUNDING

Australian Government (CfOC)      \$70,000

#### REGIONAL COVERAGE

Coastal Plain



#### PROJECT MANAGER

Juan Luis Montoya

#### STEERING COMMITTEE

Jan Star, Bob Pond, Rob Summers

#### STAKEHOLDERS

Mike and Melva Jenkins, Mayfield Catchment landowners and farmers, University of Western Australia, Murdoch University, Water Corporation, Department of Water

#### BENEFICIARIES

Mayfield Catchment landowners and farmers, Ramsar Wetlands, Science Community



*“The wetland is going ahead in leaps and bounds. There’s lots more birds and frogs and the ecology of the area looks great”*

~Landowner Mike Jenkins~

#### KEY ACHIEVEMENTS

- Construction of a 0.86 metre high adjustable weir on the Mayfield ‘K’ Drain
- Total Nitrogen (TN) annual load reduced by up to 76 % and Total Phosphorus (TP) annual load reduced by up to 90 % in 2014<sup>i</sup>
- Estimated 235 kg TN and 60 kg TP prevented from moving downstream in 2014 through weir construction<sup>ii</sup>
- 8.8 hectare wetland restored, including 2.0 hectares of wetland revegetation
- Greater pasture production due to increased paddock water availability and extended growing period
- Reinstatement of natural wetland hydrological functions including reduced peak flows, and capture of first runoff events at break of season
- Reduced downstream flooding and erosion due to more natural flow regimes
- Improved water storage capacity for the local catchment
- Transfer of drain control from Water Corporation to landowner
- Research papers including:  
<sup>i</sup>Carlos O Campo, Daniel Kidd & Megan Ryan (2015) *Weir Trial in a Wetland to Reduce Nutrient Movement into Estuary*; Paper presented to 36th Congress of the International Association for Hydro-Environmental Engineering and Research

#### LOCATION

Jenkins property near Waroona, Mayfield Catchment.  
32° 48' 28.65" S, 115° 51' 55.73" E

#### FUTURE ACTIVITIES

- Five year review in 2018 including vegetation and water quality check-up.
- The Jenkins project is the basis for a new four-year \$850,000 project as part of the Regional Estuaries Initiative to construct similar weirs in other farm drains across the Peel-Harvey Catchment

#### PUBLIC AWARENESS

Workshops and on-site field days through and following construction with local farmers including talks from researchers and landowner Mike Jenkins.

#### COLLABORATION

The PHCC contracted the University of Western Australia to undertake research to determine the efficiency of the constructed weir and wetland. The program gathered information on hydrology, water quality and nutrient levels. Results have been used to successfully influence further investment for similar projects in the Peel-Harvey.

<sup>ii</sup>Estimate based on average 1997 – 2007 nutrient loads from the Mayfield Catchment used in Hydrological and nutrient modelling of the Peel-Harvey Catchment (Department of Water, 2011).