

Managing floodplain watercourses

Floodgate modifications – water exchange has allowed the rehabilitation of Alipou Creek near Grafton.



Support from Landholders in actively managing the systems is central to the success of the project.

LOCATED in northern NSW, the Clarence River is the largest coastal catchment in the state. It covers more than 22,000 square kilometres. Its floodplain is characterised by low-lying flat alluvial plains, intersected by a network of lagoons, channels and creeks.

The floodplain of at least 800km² supports the largest commercial river fishery in the state as well as significant sugar cane, timber and beef cattle industries.

Pristine beaches, national parks and the largest river on the eastern seaboard have seen a flourishing tourism industry develop. Water-based activities such as recreational fishing are a significant drawcard.

The numerous yearly floods shape the unique ecosystems and activities of the Clarence Coast area. The floodplain is transected by more than 700km of public and private drainage channels and is underlain with extensive deposits of high-risk acid sulfate soils.



Combined with acidic soils, the floods pose a substantial risk to the environmental, social, cultural and economic values of the Clarence Valley.

In 1997, as a result of industry and landholder concern about the effect of floodplain drainage on river health and water quality, the Clarence River County Council (now Clarence Valley Council Floodplain Services) began to co-ordinate management of floodplain watercourses.

They established the Clarence Floodplain Project. At the time the concept was unique, as a project based with the local council responsible for managing public floodgates and drains, with a steering committee of major stakeholders, including industry and landholders.

The project funded a dedicated officer to work with landowners to develop on-ground demonstration projects. This model has since been adopted in many other coastal catchments in NSW.

Important research and on-ground works have been undertaken with funding from the Clarence Valley Council Floodplain Services, the Australian Government's \$3 billion Natural Heritage Trust, the NSW Environmental Trust, the Department of Land and Water, and the Fisheries Research and Development Corporation.

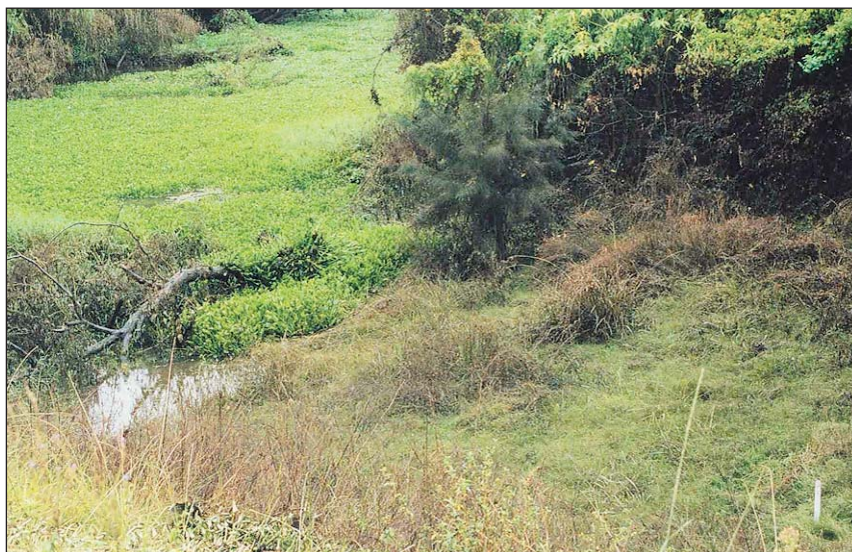
Forty-two creek and drain management plans have been developed with more than 200 landholders actively managing their waterways. Five former wetland areas have been re-inundated and restored, and the passage of fish has substantially increased.

More than 20km of fish habitat have been opened. Results indicate a reduction in acid discharges and fish kills.

The project has developed and tested new technologies, including tidal floodgates. These provide flood protection but allow regular controlled water exchange. They facilitate fish passage, increase oxygen levels in drain water and limit odours that occur in some drains from rotting vegetation.

The Universities of New England and Southern Cross are undertaking research to examine pasture response to changed water regimes. They are also focusing on fish passage into wetlands via tidal floodgates and hydrological changes.

All sectors of the community have benefited from the project. An



Water hyacinth at Alipou Creek.

improved environment, better water quality, increased fish passage and improved relationships between various sectors of the community are just some project achievements.

The project has also had a large positive impact on the local economy. Improvements in back-swamp management have led to improved habitat.

The NSW Fisheries has estimated the monetary value of restoring fish breeding areas to be in the order of \$8000 a hectare. Tourism and recreational fishing industries have also been enhanced.

The next priority is to consolidate completed works and develop management plans for other priority areas. These will then be extended to catchment-based plans. Back-swamp management will also be improved and monitoring programs developed.

The Clarence Valley Council Floodplain Services also intends to investigate partnership opportunities with the local Catchment Management Authority.

The success of the Clarence Floodplain Project has been due largely to the support of landholders and their willingness to help develop and commit to management plans.

Landholders are actively involved in planning management of their waterways and types of modifications undertaken to flood mitigation struc-



Water quality testing at Notts Drain.

tures. Essentially, they own the land, do the work, monitor changes and have a vested interest in flood control and drainage management.

The Clarence Floodplain Project was commended in the 2004 Awards for Local Government for opening more than 80km of waterways to tidal exchange. This has improved water quality in the floodplain creeks and Clarence estuary.

It also allows for better management of acid discharges. Exchange with saline estuarine water, which has a higher buffering capacity, helps to neutralise sulfuric acid from acid soil run-off in drains.

By working together, government, the community and landholders will continue to demonstrate best-practice floodplain management and flood control. Water quality and wildlife habitat areas will benefit, resulting in a more sustainable recreation industry for this area.

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Photographs courtesy CVCFS staff.