

## **Technical Report**

# *FBA Interim Water Quality Target 2007*

*Developed, implemented and delivered with funding provided by:*

***National Heritage Trust 2  
National Action Plan for Salinity and Water Quality and  
Department of Environment and Heritage – Coastal Catchments Initiative***



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## **BACKGROUND**

This paper has been prepared to provide supporting and background information pertaining to Interim Water Quality Target **RA11**.

### ***The Central Queensland Strategy for Sustainability - 2004 and Beyond***

In June 2004 Fitzroy Basin Association (FBA) released the regionally owned and endorsed 'Central Queensland Strategy for Sustainability - 2004 and Beyond' (CQSS2). This plan articulates the collective aspirations and targets of all regional stakeholders. Target negotiations between stakeholders were rigorous and thorough but now ensure that the collective aims within the CQSS2 are backed by a 'grass roots' unified commitment to plan delivery.

### **Delivering Reef Water Quality Protection Plan objectives through the CQSS2**

The Reef Water Quality Protection Plan (ReefPlan) is a policy document with unanimous organisational and agency endorsement. The main objective of the ReefPlan revolves around a commitment to 'halt and reverse the decline in water quality entering the Great Barrier Reef (GBR)'. Section H1 of the ReefPlan charters Regional NRM Bodies with the responsibility to set water quality improvement targets based upon on-ground actions. The remainder of this document will outline the process FBA followed to set interim water quality target **RA11** and how this target is based upon on-ground actions.

## **REGIONAL ON-GROUND ACTION FOR WATER QUALITY IMPROVEMENT**

### **Regional Investment Strategy (RIS)**

Through National Action Plan for Salinity and Water Quality (NAPSWQ) and National Heritage Trust (NHT2) the FBA have been able to direct a large amount of funds on-ground. This has resulted in a water quality improvement. Although the RIS is not the sole financial source available to fund on-ground activity, it is the primary delivery mechanism critical for FBA's past, current and future success. The RIS supports the CQSS2 and provides stability for continuous and seamless regional delivery. Recent funding through the Coastal Catchment Initiative (CCI) has enabled FBA to fast-track water quality target setting activities outlined within the CQSS2.

### **Prioritisation**

The FBA NRM region works with five subregional partner groups – Central Highlands Regional Resource Use Planning (CHRRUP), Dawson Catchment Coordination Association (DCCA), Boyne/Calliope Interim Steering Committee (BC), Fitzroy River and Coastal Catchments (FRCC) and Three Rivers. These subregions have been further divided into 200 Neighbourhood Catchments (NCs). The prioritisation of NCs is conducted in collaboration with these subregional partner groups to aid in focussing on-ground investment in hot-spot areas.

NC prioritisation uses the best available regional NRM data layers to develop a matrix. NCs are then scored using this matrix. Finally a local expert panel (usually the subregional committee) reviews the scores and then selects NCs accordingly using a

combination of expert input and the matrix scores. This prioritisation process is conducted yearly, providing FBA with a good balance of stability while allowing for adaptive management.

It is important to note that water quality is just one of a series of NRM assets considered in the prioritisation process.

### **FBA's Neighbourhood Catchment Action Plan Process**

To work effectively in selected priority Neighbourhood Catchments (PNCs) FBA have developed a Neighbourhood Catchment Action Plan (NCAP) process. This provides a clear and transparent step by step procedure for on-ground project development, documentation, technical verification, approval, contracting, delivery and reporting.

Guidelines have been developed for the NCAP process. These provide information on ineligible and eligible on-ground activities and percentage of funding applicable to each activity given the relative private vs. public benefit. Field officers from each subregional group use these guidelines as they work with landholders.

### **FBA on-ground actions in the 2005/06 financial year**

In the 2005/06 financial year 14 PNCs were selected for targeted actions with fourteen FBA and subregional field officers working with landholders to develop 281 NCAP Property Action Plans (PAPs). These NCAP plans were reviewed by four FBA technical experts with technical comments incorporated. These NCAP plans were then assessed by five subregional committees. In the 2005/06 Financial Year 179 NCAP plans delivering on-ground actions were approved and contracted.

## **USING MODELS TO ESTIMATE SUCCESS OF ON-GROUND ACTION ON WATER QUALITY IMPROVEMENT**

All NCAP project areas were mapped and stored in an FBA GIS database. 2005/06 financial year project areas relating to water quality improvement were packaged ready for entering into SedNet. There are five broad on-ground activities within the NCAP investment package directly related to sediment reduction - Cropping, Biodiversity, Grazing, Salinity and Riparian/Wetland. This data was provided as a GIS layer to SedNet Modellers.

**Table 1** Landholder on-ground actions in the 2005/06 financial year

<b>FBA NCAP Activity</b>	<b>Length of Riparian Zone Protected</b>	<b>Area of land with improved management</b>
Riparian/Wetland	150km	14,097Ha
Biodiversity	-	73,101Ha
Land type	-	13,505Ha
Salinity	-	956Ha
<b>Total</b>	<b>150km</b>	<b>101,659Ha</b>

**Modelling assumptions for scenario**

The Short Term Modelling Project (STM) produced a SedNet model for the FBA region. This base model is known as the ‘Fitzroy STM’. Fitzroy STM principals, design, inputs and assumptions can be found in more detail within the ‘*Fitzroy Short Term Modelling Report*’, 2006, Dougall *et al.* This base model was used by FBA to run a scenario on a change in practice for project areas contracted in the 2005/06 financial year.

Other assumptions related to this scenario included:

- Universal groundcover increase from base (55% in Fitzroy STM) to 70% for all project areas.
- One hundred and fifty kilometres of riparian treatment were lumped together and evenly distributed between all sub-catchments. There was an assumed increase from 67.5% to 100% riparian cover for this area.

**Scenario Outputs**

Outputs from the scenario provided long term annual average sediment reduction figures resulting from on-ground projects developed in the 2005/06 financial year. These figures were calculated for delivery to catchment and delivery over the Fitzroy River Barrage.

**Table 2** Modelled sediment reduction estimates for the FBA NRM region resulting from one year of on-ground actions

Estimated reduction of contaminant – tonnes/yr	Sediment to Barrage	Sediment to waterways
2005/06 FY	53,490	79,445

**Calculations**

Modelled sediment reduction to catchments was estimated at 79,445tonnes/yr. For the purpose of setting targets, this sediment estimate was rounded down to 75,000 tonnes/yr. Assuming sustained continued investment and on-ground activity into the next ten years, sediment loads delivered to catchments may be reduced by an estimated 4.1 million tonnes total (4.125million tonnes rounded to 4.1million tonnes). A table is provided below to depict the simple process used to calculate this figure.

**Table 3** Table depicting calculations for estimated cumulative reduction of sediment (tonnes) assuming continued effort and investment over a ten year period.

2005/06	75000	75000	75000	75000	75000	75000	75000	75000	75000	75000
2006/07		75000	75000	75000	75000	75000	75000	75000	75000	75000
2007/08			75000	75000	75000	75000	75000	75000	75000	75000
2008/09				75000	75000	75000	75000	75000	75000	75000
2009/10					75000	75000	75000	75000	75000	75000
2010/11						75000	75000	75000	75000	75000
2011/12							75000	75000	75000	75000
2012/13								75000	75000	75000
2013/14									75000	75000
2014/15										75000
<b>Cumulative Total</b>	75000	225000	450000	750000	1125000	1575000	2100000	2700000	3375000	<b>4125000</b>

## **TARGET DEVELOPMENT, CONSULTATION AND APPROVAL**

### **Target Definition**

Ideally targets need to be Simple Measurable Achievable Realistic and Timely (SMART). Running this scenario using on-ground activities in 2005/06 allowed FBA to propose a SMART interim water quality improvement target. The proposed interim water quality target was: **RA11** *Cumulatively reduce sediment delivered to in-stream aquatic habitats by 4,100,000 tonnes over 10 years*

### **Consultation and Approval**

This target has been set using principals within the FBA document '*Progress on the water quality target setting and monitoring process*', provided to JSC in 2006. This target has been set following a three year consultation period with Regional Stakeholders; the Regional Implementation Group and Science Advisory Panel of the Reef Partnership; Researchers; and a wide range of other Government interests.

The target was first released and overwhelming accepted by regional landholders and stakeholders at FBA's 'Neighbourhood Catchments Muster' in September 2006. As a result, resource condition target RA11 was developed. This target was put forward and endorsed by the Stakeholder Council's Special General Meeting held in Emerald on 2nd March where over forty members of the community attended. Finally, on 23rd March 2007 FBA's Board endorsed RA11 for inclusion in the CQSS2.

### **Monitoring and Reporting of Progress**

Setting this SMART interim water quality target will allow FBA to report progress towards this target in years two and three and is hoped reporting will continue pending funding. Monitoring of progress will be calculated using modelling of on-ground actions as discussed previously.

### **Future transfer of water quality targets to Great Barrier Reef (GBR)**

Coastal CRC developed a Receiving Waters Model for Fitzroy Estuary, Keppel Bay and the GBR reef lagoon. CSIRO used the FBA 2005/06 financial year scenario to run a receiving waters scenario. However, due to different time-steps between the two models results weren't representative. FBA are working with NRW and CSIRO to improve linkages between the Fitzroy SedNet and CSIRO receiving waters model. This may allow FBA to set targets based on load reductions to Keppel Bay and GBR.

## **REFERENCES**

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