

5. Stormwater Management Objectives

Stormwater management objectives for the Cooks River have been developed to express the outcomes, stormwater managers and the community seek to achieve in relation to the protection of the catchment values identified in Chapter 4. These objectives are consistent with the overall objectives and long term vision for the Cooks River as determined by existing reports such as the Cooks River Catchment Management Strategy, Healthy Rivers Commission, and the Alexandra Canal Water Environment Plan.

Stormwater management objectives include both long term commitments to a vision for the future of the Cooks River and short term quantifiable measures towards these long term objectives (*Table 5.1*). The short term objectives for stormwater management form the basis for identifying management actions that can be implemented and evaluated within a 3-5 year time period.

5.1 Long Term Objectives

The community vision for the Cooks River, as defined through the consultation process, is a healthy, sustainable waterway that can be enjoyed by everyone. Specific water quality objectives and river flow objectives for the Cooks River have been identified as part of the Government's Water Reform initiative. Objectives for stormwater, as a significant contributor to the water quality of the Cooks River, will need to be consistent with these objectives and the long term vision.

Water Quality Objectives

The community's objectives for water quality in the Cooks River have been identified through the consultation process described in *Section 4.1*. The water quality objectives identified by the community are consistent with the proposed interim environmental objectives for NSW Waters (NSW Environment Protection Authority, 1997). As illustrated in *Figure 7*, water quality objectives for the protection of aquatic ecosystems, primary and secondary contact recreation, and visual quality are proposed for various sections of the River.

The long term stormwater quality objectives aim to be consistent with these water quality objectives. This involves meeting ANZECC guidelines (1992) for protection of aquatic ecosystems and primary contact recreation as well as removing visible litter from waterways.

Water Quantity Objectives

Flooding has been identified as a major issue for the Cooks River. Therefore, all actions for improvement in stormwater management aim to ensure consistency with the objectives of Flood Management Plans and environmental flows. Objectives for river flow were also developed through the water reform program (NSW EPA, 1997).

The water quality objectives most relevant to stormwater management in the Cooks River include:

- protect water levels in natural wetlands;
- protect or restore a proportion of freshes and high flows;
- maintain or restore the natural inundation patterns and distribution of flood waters supporting natural wetlands and floodplain ecosystems;
- maintain the rates of rise and fall of river heights within natural bounds;
- minimise the impact of instream structures; and
- maintain or rehabilitate estuarine processes and habitat.

In the past filling and development of the floodplain has occurred along the Cooks River such that natural river flows are almost impossible to recreate. However, in the long term important functions of the flow regime can be restored to the Cooks River. The stormwater quantity objective is to meet these river flow objectives, while recognising the flooding potential of the existing altered waterway.

Ecological Objectives

The ecological objectives for the Cooks River are to protect and restore the remnant aquatic and riparian habitats, and recreate the natural riparian zones and waterways. Improvements in water quality and re-establishment of natural habitats will encourage aquatic species and water birds to recolonise, thereby enhancing the biological diversity of the waterway. As indicated in *Figure 7*, guidelines for protection of aquatic ecosystems are currently met in less than 25% of water samples taken in the Cooks River by the CMC (EPA, 1997).

The Cooks River Foreshore Strategic Plan (Clouston, 1997) defines objectives and strategies for management and rehabilitation of foreshore remnants. A detailed model for restoration of flora and fauna communities across the catchment is also provided. Therefore, the ecological objectives identified for stormwater management in this Plan are limited to the interaction between stormwater and the ecosystem.

Visual Quality and Recreational Objectives

Objectives have also been identified to enhance the visual quality of the river, particularly the removal of visible pollutants, such that the river provides a water feature within a green recreation corridor. The long term social objectives for stormwater are to maximise the visual amenity of the stormwater system and ensure stormwater quality is consistent with desired recreational uses.

5.2 Short Term Objectives

Specific short term objectives for stormwater management are identified in *Table 5.1* and define the collective short term commitments of stormwater managers within the Cooks River catchment. These short term objectives are linked to catchment values

with the overall aim being to improve water quality and recreate natural features of the River ecosystem. The quantifiable short term commitments towards the long term objectives form the basis for the development of stormwater management actions.

Table 5.1: Objectives for Stormwater Management

Catchment Values	Long-Term Stormwater Management Objectives	Short-Term Management Objectives
Ecological Values:		
<ul style="list-style-type: none"> ▪ Remnants of the original vegetation and creeklines of the River ▪ The presence of native water birds, fish and aquatic flora and fauna ▪ Visually attractive riparian vegetation along the river banks (weed free) ▪ The existing wetland areas and intertidal zone which attract large numbers of waterbirds ▪ Remnant vegetation and native animals of special conservation value such as the endangered Cooks River Clay Plain Scrub Forest, and birds protected on international treaties ▪ Natural creek banks as opposed to concrete and sheet piling 	1. Protect and enhance remnant foreshore vegetation and natural waterways.	Protect all remnant vegetation of ecological significance and natural waterways from future developments and the impacts of stormwater.
	2. Protect and enhance existing wetlands and intertidal zones from the impacts of stormwater.	Protect all remnant wetlands of ecological significance, remaining floodplain and intertidal areas from the impacts of stormwater from future developments.
	3. Recreate aquatic habitats suitable for native waterbirds and fish	Replace sections of concrete channel with more natural waterway in five areas.
	4. Recreate natural riparian and bushland habitats to act as a buffer zone for stormwater.	Restore the natural riparian zone in three sections along existing natural channels.
	5. Achieve water quality which meets the requirements for protection of aquatic ecosystems in all tidal areas and natural channels (refer to Figure 7 for areas).	Water quality meets the guidelines for protection of aquatic ecosystems in tidal areas and natural channels at least 50% of the time.
Social Values:		
<ul style="list-style-type: none"> ▪ Boating and secondary contact recreation throughout the catchment ▪ Swimming in the tidal mouth of the River ▪ Fishing and consumption of fish caught in the River ▪ Recreational areas with water features which are visually pleasing and safe ▪ Walking and bike tracks following the River with no visual pollution (that is, no murky water or floating litter) ▪ Facilities and use of waterways with environmental education and awareness themes. 	6. Achieve water quality which meets the requirements for primary contact recreation in tidal sections of the river and the requirements for secondary contact recreation in all waterways.	Water quality meets the requirements for secondary contact recreation in all waterways more than 75% of the time.*
	7. Maximise the visual amenity of waterways with clear rather than murky water.	Achieve reduction in suspended solid levels in all waterways and control of bank erosion in a sustainable manner.
	8. Maximise the visual amenity of waterways – no floating litter	No significant litter visible in waterways during dry weather and total volume of litter collected in the five key SWC trash racks/GPTs is reduced by 20%.
	9. Achieve water quality meets requirements for consumption of fish	Water quality meets requirements for consumption of fish in the lower Cooks River more than 50% of the time.

Catchment Values	Long-Term Stormwater Management Objectives	Short-Term Management Objectives
	10. Ensure that the stormwater system is of minimal risk to public health and maximise opportunities for environmental education.	Public safety and education considered in the design of all structural stormwater management works.
Economic Values:		
<ul style="list-style-type: none"> ▪ Property values improved by waterway location or with views of waterways ** ▪ Stormwater suitable for reuse 	11. Promote reuse of stormwater for irrigation.	Opportunities for irrigation reuse on Golf Courses and new developments considered.

* In making this commitment for stormwater management, Councils note that the presence of faecal coliforms in the waterways is largely a result of overflows and leaks from the sewerage system rather than a stormwater issue.

** The Objectives which correspond to this Catchment Value are identified for Ecological and Social issues, refer to Objectives 3, 4, 7, & 8.