

TOWARDS A “RANGE TO REEF” APPROACH THROUGH PARTNERSHIPS IN A GREAT BARRIER REEF CATCHMENT

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Abstract

The need for improved water quality within the catchment and for reduced loads of sediments and nutrients delivered to the coastal zone and Great Barrier Reef lagoon are key drivers for improved land, water and vegetation management in the Fitzroy Basin of central Queensland. To achieve these improvements new collaborative arrangements are being formed between the peak regional strategy group (Fitzroy Basin Association Inc.) representing community and industry interests, the three levels of Government and other research and information providers.

The Fitzroy coastal region is one study area for the Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management (Coastal Zone CRC). Recently the Coastal Zone CRC and the Fitzroy Basin Association Inc. (FBA) combined to produce a Central Queensland Information Paper. The Paper identifies critical assets, pressures and threats, resource condition and trend, knowledge gaps and draft targets for natural resources in the region. The information on land use and management, terrestrial biodiversity, inland aquatic ecosystems, estuarine and aquatic ecosystems, water quality and social and economic issues is supporting the development of a Central Queensland Integrated Regional Natural Resource Management Plan by FBA. This Plan will guide investment in improved management of land, water and vegetation resources in the region. These terrestrial changes combined with other coastal and marine planning processes in the region should ensure a sustainable future for the adjacent coastal and marine zones.

Introduction

The Fitzroy Basin in central Queensland, a large region about the size of Tasmania, straddles the Tropic of Capricorn and is characterised by a humid coastal and semi arid inland sub-tropical climate. Rainfall in the region is summer-dominant but highly variable with annual medians ranging from 500 mm in the west to more than 800 mm along the coast. The Fitzroy estuary with a ‘volume’ of about 500 000 million litres (ML) discharges into the southern lagoon of the Great Barrier Reef (GBR) and one or more significant flows (> 500 000 ML) occur in most summers with a larger flood in most decades. Several catchments contribute to this discharge through the lower Fitzroy. The Fitzroy combined with the Burdekin catchment to the north contribute about one quarter of freshwater flow to the Reef.

Land use in the Fitzroy region is dominated by agricultural activities (grazing > 80%, cropping ~ 10% of the land area) while coal mining also contributes very significantly to the regional economy. About 70% of the land area is owned by the State including privately occupied leasehold land with the remaining 30 % under freehold tenure. Water infrastructure includes one large dam with smaller weirs on most streams.

Rockhampton (population ~60 000) is situated at the head of the Fitzroy estuary with the remaining people in the region (~120 000) being distributed among smaller rural towns and agricultural properties throughout the basin.

The Fitzroy River flows into Keppel Bay on the Capricorn coast and while the southern sections of the main GBR are far offshore, the Capricorn coast includes many inshore reefs and islands within the World Heritage Area including the Capricorn – Bunker Group. Approximately 6 % of the land and significant areas offshore within the Great Barrier Reef World Heritage Area are managed primarily for conservation. The region is home to significant floral and faunal assemblages including populations of rare and threatened species. A large area north of Yeppoon on the coast is listed as an internationally significant wetland site. The extensive Fitzroy estuary and adjacent areas of the Capricorn coast form the basis of the central Queensland commercial and recreational fishing industries.

Natural Resource Management in the Fitzroy Basin

Aboriginal people had used and managed the terrestrial and coastal resources of the region for more than 50 000 years. Pastoral settlement by Europeans followed exploration of the area by Leichhardt in 1844-45. In 1855 the Archer brothers established Gracemere Station near the present site of Rockhampton and within a decade the pastoral basis for social and economic development of large areas of the basin had been established. Initial

harmony between Aborigines and Europeans was soon replaced by tension as aboriginal people were increasingly displaced from their traditional lands including near shore islands.

Early development of the region for European agricultural activities was reliant largely on manual methods for clearing native vegetation. During many decades the impact of these agricultural activities on the regional ecosystem was probably minimal except perhaps at a local scale. This changed in the middle of the twentieth century with the development of powerful mechanised approaches to land clearing. Encouraged by the Commonwealth and State Governments under the Fitzroy Development Scheme several million hectares of woodland communities dominated by Brigalow (*Acacia harpophylla*) were cleared of native vegetation and developed for grazing and cropping. Clearing of native vegetation continued at a reduced but significant rate into the 1990's, but clearing for agricultural purposes will now decrease to zero by mid 2006 under current Queensland Government policy.

Clearing of native vegetation and application of European agricultural systems (grazing, dryland and irrigated cropping) to this landscape continue to provide economic and social benefits for the region but have placed considerable stress on the ecological integrity of the terrestrial, coastal and marine systems. Natural resource assets such as soil health, biodiversity, and inland water quality have been compromised. As well as impacts on these terrestrial assets, effects can be seen in coastal and marine waters. Increased loads of sediments and nutrients (nitrogen and phosphorus) are being delivered to the Fitzroy estuary and Keppel Bay and during large floods to the lagoon of the GBR. Low, but potentially biologically significant, concentrations of pesticides have also been detected in the Fitzroy estuary. As well, rapid urban expansion is occurring along some of the coastal strip increasing human pressures on that environment.

Natural resource planning and management initiatives in the Fitzroy are being driven by a number of imperatives. The Reef Water Quality Protection Plan (RWQPP) identifies the Fitzroy as a major contributor of sediment and nutrient loads to the GBR lagoon. The Great Barrier Reef Marine Park Authority (GBRMPA) is looking to increase the proportion of marine zones protected (to about 30% across bioregions) along the GBR coast including the Capricorn coast. The Fitzroy region is one focus area for the National Action Plan for Salinity and Water Quality (NAPSWQ). State and regional Coastal, Water Resource and Vegetation Planning processes are current under State Government legislation. Queensland local government authorities must now plan according to guidelines in statutory regional growth management frameworks. New partnerships are being formed among different levels of government and broader community and industry groups to address these environmental issues and move towards more sustainable use of the natural resources of the region. Thus in parallel with these legislative instruments there are a number of voluntary (or non-statutory) state, regional and local industry and community natural resource policy and planning processes and codes of practice.

The Fitzroy Basin Association Inc. (FBA) has evolved today as the peak community-based group involved with natural resource planning and management in the region. FBA developed in the 1990's from the Fitzroy Catchment Coordinating Group which itself evolved mostly from sub-regional Landcare and Integrated Catchment Management groups. Because of earlier emphasis placed on upper catchment issues through the development of Landcare, FBA's constituent agriculture-based groups are predominantly Landcare groups and other production groups such as AgForce. The whole basis of FBA's genesis was the formation of partnerships between community groups and individuals, industry groups and individuals, and Queensland government agencies and individuals in those agencies. Over the years a level of trust has built up which now presents a solid backing of FBA and the plan.

In 2001, FBA was recognised as a regional body for the purposes of implementing the National Action Plan for Salinity and Water Quality, and subsequently the Natural Heritage Trust Extension. Under the Bilateral Agreement between State and Australian governments (National Action Plan for Salinity and Water Quality, Natural Heritage Trust), investment funds will flow through regional bodies to natural resource managers for actions to improve management and more sustainable use of these resources. The State and Australian governments will invest these funds according to a regional natural resource management plan and investment strategy. The draft plan for Central Queensland, *Central Queensland Strategy for Sustainability – 2004 and Beyond* (CQSS – 2004 and Beyond) is soon to be presented for accreditation.

The Regional Natural Resource Management Plan – “CQSS – 2004 and Beyond”

Background

Prior to the development of a regional NRM plan the FBA required an assessment of the condition of land, water, vegetation and other biological natural resources in the basin (freshwater and coastal) as well as a profile of the regional economy and society. Some matters for which targets had to be set were handed down from government and are known as the “minimum matters”, other matters were raised by the regional community during the target setting process and during a previous planning process which laid the foundation for *CQSS – 2004 and Beyond*. Information regarding the condition and trend of all these matters was required so that targets could be set for improvements.

Information on condition and trend

Some information on ecosystem health, land use patterns and capacity for change in the agricultural industries was available through the Fitzroy Implementation Projects of the National Land & Water Resources Audit completed in 2001 and other sources but many knowledge gaps remained. The Fitzroy Basin in Queensland has been one of the study areas for the Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management (Coastal Zone CRC) since 2000. Research topics have focused on biophysical components of the estuary such as sediment and nutrient dynamics, relationships between environmental flows and fisheries productivity and on governance, community attitudes and historical perspectives. This multidisciplinary research is producing new information on and understanding of coastal processes in the region for management agencies.

Early in 2003 the Coastal Zone CRC in collaboration with the FBA produced a comprehensive Information Paper for Central Queensland. The Paper identified critical assets, pressures and threats, resource condition and trend, knowledge gaps and set draft targets for improved management of natural resources in the region.

Science support for planning

Information in the Paper on land use and management, terrestrial biodiversity, inland aquatic ecosystems, estuarine and marine aquatic ecosystems, water quality and a social and economic profiles supported development of *CQSS – 2004 and Beyond*, by providing a comprehensive picture of what was known about the condition of the region’s assets at that time and most importantly, identifying gaps in that knowledge. The paper also proposed draft targets based on that information.

CQSS2 incorporates an adaptive management approach and represents an ongoing commitment from stakeholders to the concept of ecologically sustainable development. Both short term (management action) and longer term (resource condition and aspirational) targets are incorporated in the Plan and these targets will guide strategic investment by the Queensland and Australian governments in improved management of natural resources in the years ahead. The Coastal Zone CRC is currently expanding the information on coastal and marine assets and pressures to allow their incorporation into a further revision of the Plan.

Partnerships for development of the Plan

State agencies supported target setting through technical support at community workshops and in the provision of data and knowledge for the development of the Information Paper. Coastal Zone CRC collaboration provided the Information Paper and process support for target setting and also prioritization. Community workshops allowed further community input, sub-regional planning and roll up to a regional level. A further “comment phase” involving policy analysis, community concerns, sector representation of policy and “whole of government” response has led to the revised plan ready for accreditation.

Alignment of Priorities

An Investment Strategy aimed at achieving regional targets and outcomes has been developed to accompany the plan. Partnerships between collaborators are evident in the Investment Strategy. Many priorities of Queensland State Agencies have been aligned to achieve agreed regional targets. Resources invested in addition to the investment of the NAPSWQ and NHT extension programs will include Queensland State in-kind, NHT 2, NAPSWQ, industry research and development, and community in-kind. These partnerships and investments then are positioned to achieve outcomes under the NAPSWQ, RWQPP and NHT2 strategies.

The Future

Improvement through partnerships

As for many regions in Australia the Fitzroy is undergoing a change in population dynamics – a “sea change” with rapid development along parts of the Capricorn coastal strip. Concurrently the viability and survival of many of the smaller inland rural towns and enterprises are under threat.

Local and state government have responsibilities in the areas of land use, and with the alignment between priorities of Queensland agencies and the CQSS2, assisted by implementation of the RIS, a partnership between the two levels of government and the community can deliver a better managed ecosystem. Implementation of programs under the RIS will integrate some of the activities currently suffering from multi-jurisdictional objectives. One of the most glaring examples of this is the concept of property management planning. With the introduction of the Reef Water Quality Protection Plan (RWQPP), another requirement for this planning has been identified. Implementation of the CQSS2 and the RWQPP represents an ideal opportunity to provide guidance and lend weight to the need to have this vital level of planning developed and implemented.

Governance

FBA has evolved as a strong community-based voice for partnerships with government and industry in managing natural resource and cultural assets of the region and for the promotion of sustainable development. An optimal model for governance in a region such as the Fitzroy is a challenge for the future. At present there is a mismatch between time scales for NRM targets and certainty of funding programs for FBA. Desirable long-term outcomes need greater certainty of program longevity. Assuming resource constraints remain, a continuing role for regional community NRM strategy groups such as FBA must be seen by State Agencies as an opportunity for effective delivery of improved natural resource planning and management outcomes.

Monitoring and evaluation – resource condition and trend

The interdependence of freshwater and coastal / marine systems is clearly espoused in the RWQPP. This is especially true for a large drainage basin such as the Fitzroy that now exports elevated loads of sediments, nutrients and contaminants to inshore reefs and islands and the GBR lagoon. A ‘range to reef’ approach to natural resource management is required if terrestrial and coastal / marine resources are to be managed sustainably.

A long-term strategic approach to monitoring and evaluation of resource health is needed? For essential biophysical components such as water quality and quantity (freshwater and marine) there are currently Government, industry, community, and research organization monitoring programs with specific and varied objectives. However there are no clear indications at present that Governments can initiate, coordinate and help to resource a long-term “range to reef” monitoring framework that will identify the health of the catchment.

Partnerships between government and regional groups will be essential if the regional communities are to gain the information they require as to how their catchment and the critical assets therein are faring under pressures of economic activity. Regional bodies will have to take the lead in directing these programs of information delivered through State of Region Reporting. Partnerships are also necessary to ensure that information is gathered and available. Monitoring is often the first casualty of cutbacks and the present program uncertainty of regional bodies doesn’t lend itself to long-term monitoring activities. If regional bodies are to play their part in strategic monitoring and assessment then a firmer resource base will need to be found for them.

As well as partnerships between government and regional groups, monitoring is one area where the community can and has in the past played a substantial part in keeping track of what is happening in their own backyard. There is further potential for increased community involvement through industry groups monitoring particularly for on-property management purposes.

Conclusions

- New partnerships and collaborative arrangements among community groups, industry and Government agencies are evolving
- Partnerships between stakeholders, as individuals and through regional groups, and government are essential to ensure ownership and resulting change
- A major issue is the establishment of collaborative arrangements to drive the initiation, coordination and resourcing of longer term monitoring programs to enable reliable assessments of condition and trend and progress towards targets set in regional natural resource management plans. Success stories in managing natural resources in complex environments around the world generally involve strong partnerships between communities, governments and industries.

References

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