

Department of Natural Resources and Water

CENSUS OF REGIONAL BODY WETLANDS ACTIVITIES

**REGIONAL NRM INVESTMENT
STRATEGIES
(RIS) AND COASTAL CATCHMENTS
INITIATIVE (CCI) PROJECT ALIGNMENT
TO QUEENSLAND WETLANDS
PROGRAMME WITH AGREED REPORTING
ARRANGEMENTS**

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Acronyms

Acronym	Meaning
ACTFR	Australian Centre for Tropical Freshwater Research
AGSIP	Sustainable agriculture State-level Investment Program
ANU	Australian National University
BDT	Burdekin Dry Tropics
BMRG	Burnett Mary Regional Group
BSES	Bureau of Sugar Experimental Stations
CA	Condamine Alliance
CBSIP	Capacity Building State-level Investment Program
CCI	Coastal Catchments Initiative
CYP	Cape York Peninsula NRM Region
CQU	Central Queensland University
DCQ	Desert Channels Queensland
DPI&F	Department of Primary Industries and Fisheries
DSS	Decision support system
EPA	Environmental Protection Agency
FBA	Fitzroy Basin Association
FMS	Farm management system
GBR	Great Barrier Reef
GBRCWPP	Great Barrier Reef Coastal Wetlands Protection Plan
GIS	Geographic information system
GLM	Grazing land management
IAWM	Integrated area wide management
JCU	James Cook University
JSC	The Joint Queensland – Australian Governments NRM Steering Committee
LGAQ	Local Government Association of Queensland
MTSRF	Marine and Tropical Science Research Facility
MW	Mackay Whitsunday NRM Group
NAP	National Action Plan for Salinity and Water Quality
NG	Northern Gulf NRM region
NGRMG	Northern Gulf Resource Management Group
NHT	Natural Heritage Trust
NRM	natural resource management
NRW	Department of Natural Resources and Water
PBC	Prescribed body corporate
PNC	Priority neighbourhood catchments
PMP	property management plan
QFF	Queensland Farmers Federation
QMDB	Queensland Murray Darling Basin
QMDC	Queensland Murray Darling Committee
QWP	Queensland Wetlands Programme
RIS	Regional investment strategy
SEQ	South East Queensland NRM Region
SEQC	South East Queensland Catchments
SG	Southern Gulf NRM Region
SGC	Southern Gulf Catchments
SW	South West NRM Region

SWNRM	South West Natural Resource Management Group Ltd.
TS	Torres Strait
TSRA	Torres Strait Regional Authority
UQ	The University of Queensland

Executive Summary

The goal of the Queensland Wetlands Programme (QWP) is to support projects and programs that result in long-term benefits for Queensland wetlands. The QWP is supported through two sub-programmes, the Natural Heritage Trust (NHT) Queensland Wetlands Programme and the Great Barrier Reef Coastal Wetlands Protection Programme (GBRCWPP).

Regional natural resource management bodies are important contributors to wetland management through their plans, partnerships and investment programs.

The aim of this report was to identify and assess how regional body activities were contributing to the achievement of the QWP's objectives. This Census analysed the extent and magnitude of this alignment between regional bodies and the objectives of the QWP. It reported alignment in relation to the four main focus areas of the QWP (improving the wetland information base, wetlands planning, on-ground activities and education and capacity building). The focus area of communication, monitoring, evaluation, reporting and review was not reported separately, but incorporated into the other areas.

The specific objectives of this report were to: review regional bodies' investment in activities that support the objectives of the QWP; identify the strategies that regional bodies are employing to manage wetlands; identify linkages between regional wetland projects and products from the QWP; make recommendations for improving existing reporting mechanisms; and identify key strengths, constraints and opportunities for improved regional delivery of wetland outcomes.

Three key steps were undertaken in this census of regional body wetland activities: a desktop analysis of activities; interviews and discussions with key regional body staff; and three workshops with regional body representatives, to provide more detailed information and discussion. The data from these three steps, as well as comments and feedback from regional body participants and steering committee members were synthesized into this Census report.

The report contains detailed regional profiles for each of the 14 natural resource management regions of Queensland. Each profile identifies key achievements, wetland activities and future directions.

An important outcome of this report was to indicate the level of alignment between regional body wetland activities and the objectives of the QWP. The key achievements for regional bodies were:

Improving wetland information base

- Resource assessment was a priority in several regions e.g. Burnett Mary and the Cape York Peninsula.
- Activities focused on catchment assessment of the condition of riparian and other wetlands and their prioritisation for on-ground works.
- Wetland mapping produced by EPA was viewed by regional bodies as an important resource. Several regions were augmenting this with finer resolution mapping of wetlands for planning and on-ground activities.

Wetland planning

- The development of wetland management plans across several scales was a major achievement of regional bodies. Fitzroy Basin is an example of a region where there was a high focus on planning, mainly for wetlands within its high priority Neighbourhood Catchments. In South West, riparian area management plans had been developed for each sub-catchment. In the Queensland Murray Darling (QMDC), 21 sub-catchment plans have been approved for over 200 individual property action plans.
- The broad spectrum of regional body planning activities closely aligned with the activities of the QWP.
- Wetland priorities have been determined largely through the first phase of regional planning and RIS development. The Decision Support System under the GBRCWPP has been useful in improving the prioritization processes for wetlands.
- The EPA wetland mapping has also proved useful in prioritizing wetlands based on their values and threats.

On-ground activities

- On-ground works represented a high proportion of regional body effort. A particular focus was in riparian areas e.g. fencing, off-stream watering points, rehabilitation and wet-season spelling (in northern regions). The comprehensive range of on-ground wetland activities by regional bodies closely aligned with the objectives of the QWP.
- Grazing Land Management (GLM) and Farm Management Systems (FMS) were widely used to improve land management practices and protect and better manage wetlands. The QWP's Wetlands module for the GLM program was considered by regional bodies as very useful and aligned well with their work with landholders.
- The 15 Wetland Management guidelines produced by EPA under the QWP will greatly assist regional bodies in future on-ground activities.
- Water quality monitoring by community groups was viewed by most regional bodies as an important mechanism for raising awareness of wetland values. Healthy Waterways and similar programs were conducted in many regions along the east coast and in the QMD region.
- Regional bodies identified their most commonly used tools for delivering wetland outcomes as: fencing and riparian management; weed and feral animal control; working with landholders; education tools; improving water quality through Water Quality Improvement Plans; and incentive programs.

Education and capacity building

- All regional bodies highlighted the importance of raising the awareness of their stakeholders in relation to wetlands and their values.

- Some regional bodies engaged directly with landholders e.g. extensions activities by Burdekin Dry Tropics with graziers; Queensland Murray Darling Committee (QMDC), Burnett Mary Regional Group (BMRG) and SEQ Catchments worked through their Landcare and Catchment Management groups.
- Regional bodies have relied significantly on a range of QWP products including the GLM wetlands module, the GBRMPA education products and wetland display. Ongoing provision of educational material was seen as important by most regional bodies and closely aligned with their future needs.
- Regional bodies identified a similar range of wetland partners, including government, research organizations, community groups, industry and conservation organisations.
- Projects and activities under the QWP have assisted regional bodies in the development of collaborative partnerships for wetlands e.g. activities with the consortium lead by Conservation Volunteers Australia has built technical, on-ground expertise.

To date the completed products of the QWP have been well received by regional bodies and align closely with their needs for wetland management. Many products (e.g. wetland maps) will be critical in the next 12 to 18 months for the regional NRM plan and RIS reviews.

Several opportunities were identified for maximizing future alignment of the QWP with regional body activities. The opportunities and ways forward were:

- building on collaborative partnerships;
- establishing a state-wide Wetlands Network;
- continuing to improve land management practices and supporting tools;
- raising awareness and improving capacity of practitioners and stakeholders;
- prioritizing wetlands for management action through regional NRM plan review;
- improving the focus on wetland connectivity in the landscape;
- building on existing incentives schemes to encourage voluntary contributions;
- improving the integration of statutory protection across existing legislation; and
- improving the ability of the existing reporting mechanisms to provide useful information to the State and Australian government investors regarding investment by regional bodies in wetland activities.

In summary, many of the regional body wetland activities were contributing to the QWP objectives and were complemented and supported by the products from the State and Australian governments' wetlands program. Regional bodies were in an initial implementation stage of wetlands management. Enhanced delivery is likely to result from the increased availability of tools and resources through the QWP and targeted funding to planning and on-ground activities. The coming review of NRM plans and RISs provides the QWP with an opportunity to support the more comprehensive consideration of wetlands. Additionally, support for the state-wide Wetlands Network will assist in establishing an important partnerships between the agencies and regional bodies and will have long-term positive outcomes for the development and uptake of QWP products.

1.0 Introduction

1.1 Background

The Queensland Wetlands Programme (QWP) represents a \$23m investment by the Australian and Queensland governments over five years (2003 – 2008). Its goal is to support projects and programs that will result in long-term benefits to the sustainable use, management, conservation and protection of Queensland wetlands. The QWP is supported through two sub-programmes (Figure 1):

- the Natural Heritage Trust Queensland Wetlands Programme (NHT QWP), the objective of which is to develop and implement measures to support Queensland in the conservation and management of wetlands as outlined in the Bilateral Agreement (2004). To this end the Australian Government has allocated \$7.5 million cash which is being matched by \$7.5 million in-kind funding by the Queensland Government to implement the relevant provisions of the Natural Heritage Trust Bilateral Agreement. The Programme will target wetlands across Queensland.
- the Great Barrier Reef Coastal Wetlands Protection Plan (GBRCWPP), the objective of which is to develop and implement measures for the long term conservation and management of wetlands in the Great Barrier Reef (GBR) catchment. The programme implements key actions of the Reef Water Quality Protection Plan (State of Queensland and Commonwealth of Australia 2003), a joint planning initiative between the Australian and Queensland governments. This Programme has allocated \$8 million of Australian Government funds for wetland conservation.

Regional Natural Resource Management Bodies (regional bodies) are significant contributors to wetland management through their plans, partnerships and investment programs. The Coastal Catchments Initiative (CCI) projects are to be delivered complementary to regional NRM plans. The CCI seeks to deliver significant reductions in the discharge of pollutants to agreed hotspots. Following the identification of agreed hotspots, water quality improvement plans are prepared identifying the most cost-effective and timely projects for investment. Funds are subsequently allocated for projects which deliver improvements through the implementation of management strategies. The Australian Government funds regional bodies, local councils and the Moreton Bay Partnership to deliver the CCI in Queensland. The delivery of the CCI is also undertaken in collaboration with the Queensland state agencies such as the Environmental Protection Agency (EPA) and Queensland Department of Natural Resources and Water (NRW).

As part of the QWP, NRW commissioned this Census to review regional bodies' investments into wetlands management and conservation. The terms of reference for the Census are attached (Appendix 1).

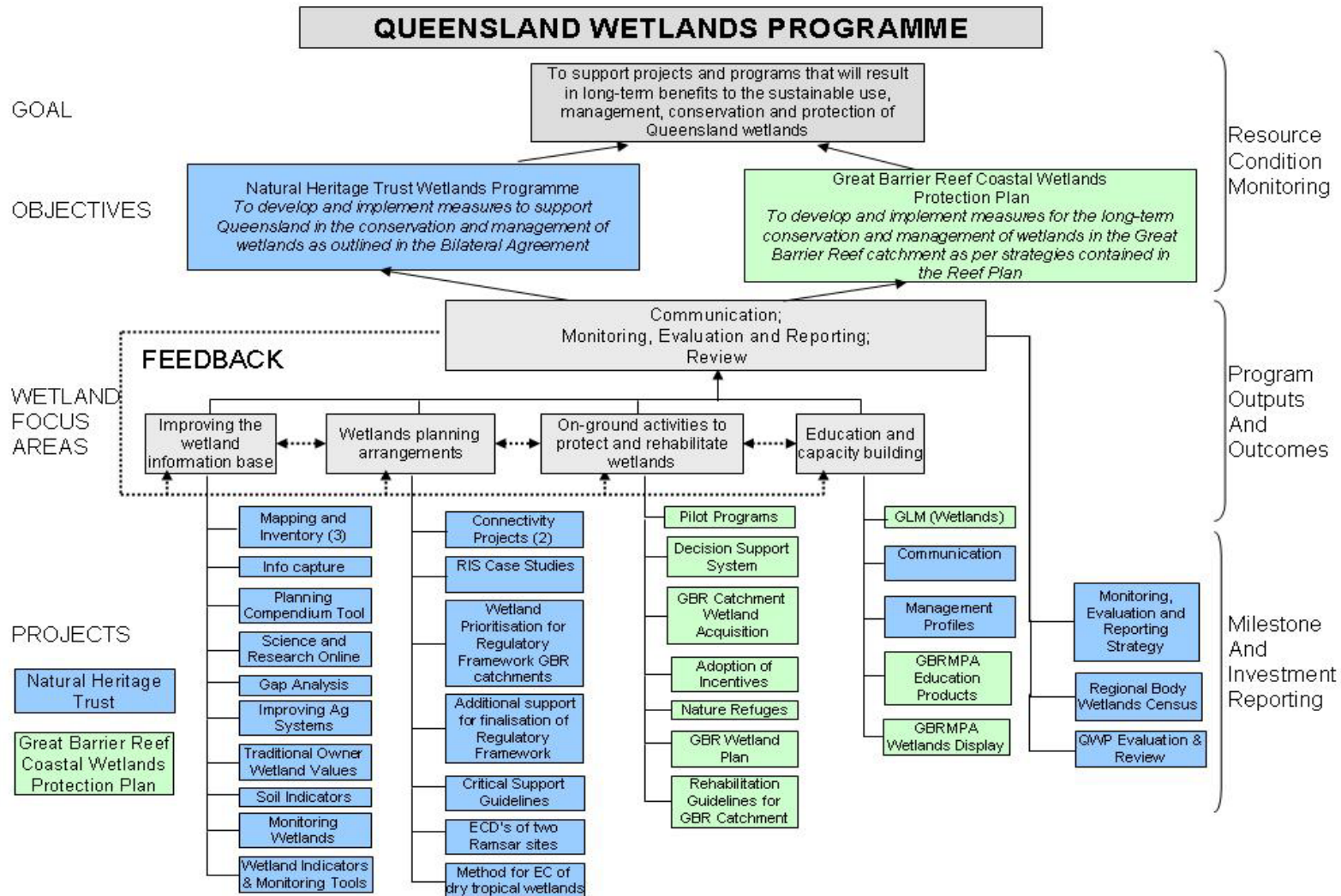


Figure 1-1 - Key Components of the Queensland Wetlands Programme (EPA,2007)

1.2 Queensland Wetlands Programme

The QWP's two sub-program areas (i.e. NHT and GBRCWPP) have five focus areas: improving the wetland information base; wetland planning arrangements; on-ground activities to protect and rehabilitate wetlands; education and capacity building; and communication, monitoring, evaluation, reporting and review.

NHT QWP projects (Figure 1) have focused on developing wetland maps and an inventory database, information capture, planning compendium tool, improving agricultural systems, Traditional Owner wetland values, wetland indicators and monitoring tools, ecological characterisation descriptions for two Ramsar wetlands, management profiles, information capture, literature and gap analysis, connectivity projects and wetland prioritisation. GBRCWPP projects (Figure 1) have included: pilot programs (i.e. \$2 million to fast track projects that protect GBR wetlands, and implemented by a consortium lead by Conservation Volunteers Australia); decision support system (DSS) to prioritise investment in the GBR catchment; wetland acquisition (i.e. purchase of wetlands for protection as national parks); adoption of incentives, rehabilitation guidelines, wetlands education products (part of the GBR Marine Park Authority's ReefEd program); and Grazing Land Management (GLM) Education for Wetlands (i.e. incorporates a wetlands module for GLM programs run in Reef catchments); and wetlands display.

To date, significant achievements include: completion and publishing of wetland mapping and classification methodology; completion of wetland mapping for the GBR catchments, Wide Bay and the Condamine catchment, with significant progress in several other catchments; completion of wetlands inventory database design; development of 15 individual wetlands management profiles for priority areas/sub-groups; development of a DSS which was trialed in two catchments; development of wetland education products; undertaken education and capacity building activities (e.g. on-line questionnaire to assess stakeholder needs, workshops and briefings); and development of a monitoring, evaluation and reporting strategy and a communications plan for the Programme.

1.3 Aim and objectives

The aim of this report is to identify and assess how regional body activities are and will contribute to the achievement of the QWP's actions and objectives. This Census will analyse the extent and magnitude of this alignment between regional bodies and the objectives of the QWP.

The specific objectives of this report are to:

- Review regional bodies' investment in management actions and activities that support the objectives of the QWP, including projects / activities related to management action targets (MATs) and resource condition targets (RCTs) funded under the Natural Heritage Trust (NHT), National Action Plan for Salinity and Water Quality (NAPSWQ), the Coastal Catchments Initiative (CCI) and other sources of funding (e.g. GBRCWPP). This will incorporate a review of the

mechanisms used to allocate funding to wetlands projects; identification of the methods and strategies used to prioritise investments across wetland projects; and commentary of how the wetlands definition is being interpreted and operationalised by regional bodies and their stakeholders (including activities brokered by regional bodies which are only partly funded through the regional bodies, as for example regional monitoring alliances).

- Identify and describe the strategies that regional bodies are employing to manage, protect and rehabilitate wetlands (including constructed wetlands). This will include the identification of successful and innovative approaches and a description of natural resource outcomes from current and completed projects and an analysis of the commonalities and differences across regions.
- Identify linkages between regional wetland projects and products and outputs from the QWP and make recommendations for using or improving existing reporting mechanisms to facilitate easier collation and linking between regional activities and the QWP.
- Identify the key strengths, constraints, gaps, risks, opportunities and potential synergies for improved regional NRM delivery of wetlands outcomes.

In 2006, the Queensland Government commissioned an evaluation of the alignment of regional NRM plans and investment strategies against delivery of Reef Plan actions. This evaluation (Peterson, Walker & Maher 2006), which included an analysis of investment in relation to wetlands initiatives and activities within Reef catchment regional bodies, found that the level of aligned investment in activities that delivered on Reef Plan goals was greater than State Government and regional bodies themselves were aware. In many cases, this was due to the lack of specific labelling of activities as 'Reef Plan' actions. However, the study showed that the intent and likely outcomes of the activities were aligned with the Reef Plan goals of improving water quality in the Great Barrier Reef

1.4 Queensland's NRM regions

In Queensland, there are 14 regional bodies (this includes an interim arrangement in Cape York) through which the Australian and Queensland Governments invest in regional NRM outcomes (Figure 2). All regional bodies across the State deal with wetland protection and management in some form, although the degree of focus, priority for investment and nature of the activities vary from region to region.

Six regional bodies have planning and management responsibilities for part of the GBR catchment and therefore are involved in activities to protect and manage Reef wetlands. These groups are: Burdekin Dry Tropics NRM; Burnett Mary Regional Group (BMRG); Cape York Peninsula Development Association (CYPDA); Fitzroy Basin Association (FBA); Mackay Whitsunday NRM Group; and Terrain NRM Ltd (Wet Tropics).

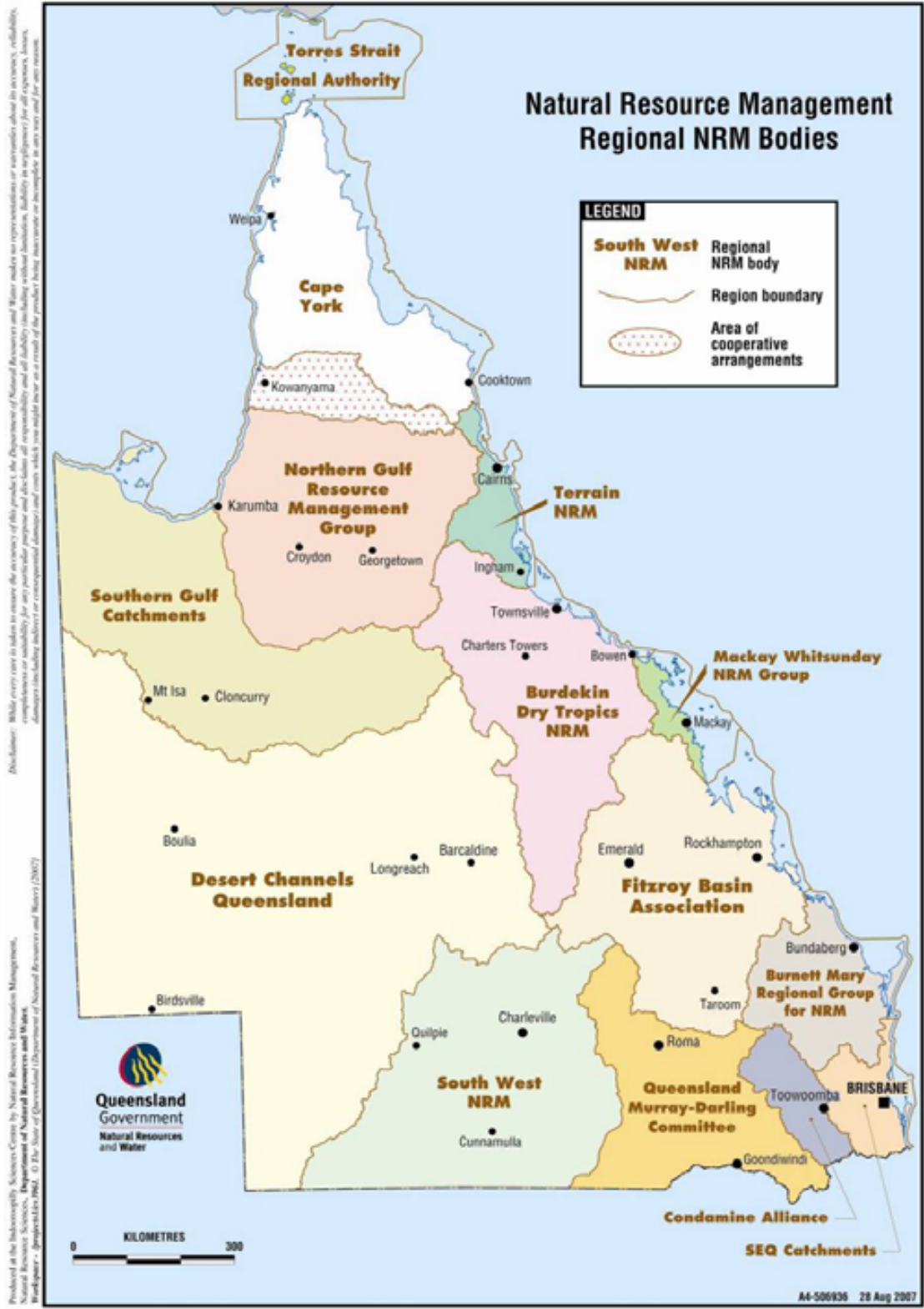


Figure 1-2 –Regional NRM Bodies and related regions
 Source: © NRW (2007)

1.5 Scope of the wetlands census

1.5.1 Definitional

For the purpose of this study, wetlands are defined by the QWP as areas of permanent or periodic / intermittent inundation, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m. To be a wetland the area must have one or more of the following attributes:

- at least periodically the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle; or
- the substratum is predominately undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers; or
- the substratum is not soil and is saturated with water, or covered by water at some time.

This definition was used, and reinforced, during all phases of the project to maintain consistency across discussions. Examples of wetland using this definition include:

- those areas shown as a river, stream, creek, swamp, lake, marsh, waterhole, wetland, billabong, pool or spring on the latest topographic maps;
- areas defined as wetlands on local or regional maps prepared with the aim of mapping wetlands;
- wetlands Regional Ecosystems (REs) as defined by the Queensland Herbarium;
- areas containing recognised Hydrophytes as provided by the Queensland Herbarium;
- saturated parts of the riparian zone;
- artificial and constructed wetlands such as farm dams; and
- water bodies not connected to rivers or flowing water such as billabongs and rock pools.

Examples under this definition exclude the full extent of a floodplain that might be intermittently covered by flowing water but do not meet the hydrophytes and soil criteria and the riparian zone above the saturation level.

1.5.2 Spatial data

This Census will focus on activities that are directly related to wetlands. It will not include activities undertaken upstream that may have indirectly contributed to wetland improvement. However, it does include consideration of investment in a range of on-ground activities in the agricultural sector which are designed to improve water quality and wetland outcomes.

1.6 Role and importance of wetlands

About four percent of Queensland is classified as wetlands (EPA 2007a). Wetlands have many important values including the following:

- filter sediment, nutrients and pesticides from flows;

- provide habitat for many plants and animals (especially birds) and thus support biological diversity and the survival of critical ecosystems;
- support natural hydrological cycles, provide water passage and storage;
- contribute to flood mitigation (by absorbing and slowly releasing flows) and the recharge of aquifers;
- provide coastal protection against storms;
- provide important spiritual and aesthetic enrichment;
- maintain cultural heritage values (e.g. communities in Torres Strait and Cape York Peninsula);
- support production by providing water resources for agriculture, urban, and industrial uses, habitat for fish, broodstock for aquaculture, pasture for stock, a food supply for some communities (e.g. vegetable root stock in Torres Strait), an important asset for the tourism sector (e.g. visiting outstanding wetlands), and recreational opportunities;
- provide opportunities for scientific research;
- enrich educational outcomes;
- provide existence values; and
- provide options values for future generations (EPA 1999).

Under the QWP, wetlands types comprise:

- marine (coastal wetlands including rocky shore);
- riverine (wetlands along rivers and streams);
- estuarine (including deltas, tidal marshes and mangrove swamps);
- lacustrine (wetlands associated with lakes);
- palustrine (marshes, swamps and bogs);
- reservoir (including water storage areas, excavations, wastewater ponds, irrigation channels, rice fields, canals); and
- subterranean (inland subterranean wetlands) (EPA 2007a).

Wetlands within Queensland have experienced loss, fragmentation, isolation and degradation caused by a range of impacts from expanding urban, agricultural and industrial development. Wetlands are threatened by weed and feral animals, declining water quality (e.g. turbidity, salinity, eutrophication, organic loading), altered catchment hydrology, barriers (e.g. dams and weirs), and altered fire regimes.

1.7 Limitations and assumptions

This report is a census of wetland activities undertaken by regional bodies rather than an evaluation of regional body actions in relation to wetlands, or an evaluation of the QWP. It will address what has been achieved by regional bodies in relation to the QPW's five focus areas. Thus the report will present a 'snapshot' in time rather than undertake an evaluation of the value and likely outcomes of regional body activities in managing and protecting wetlands. The main purpose of this Census is to gain an understanding of the current level and focus of wetland management activities and their differences across Queensland to assist the Queensland and Australian Governments and regional bodies in determining future directions.

Financial limitations prevented the census team from visiting all regions. However, this limitation was largely overcome by comprehensive reviews of plans and investments, phone interviews and a series of targeted workshops at Cairns, Rockhampton and Brisbane, which attracted staff from 11 of the 14 regional bodies.

A further limitation related to the data presented in this report. In particular, information on the specific funding that was allocated to wetland projects was difficult to identify for many regional bodies. Regional NRM plans and RISs for most regions did not identify wetlands as a separate asset category or a specific area of funding within their RIS. Regional body efforts in relation to wetlands were frequently integrated with several funding programs to achieve a variety of outcomes, many of which may have related to wetlands. For example, extension may have been provided as part of the GLM program, to assist landholders in developing property management plans, improving ground cover, establishing off-stream watering points and other works, many of which had benefits for wetlands, as well as several other assets including biodiversity, land, water and coasts. Thus for regional bodies to specifically identify the amount of money allocated to wetlands in broad funding programs was extremely difficult. This report has identified funding for wetland projects where specific projects were undertaken by regional bodies. However, for many regional body activities, this was not achievable within the timeframes of this report.

1.8 Report structure

This report has eight key components:

- the introductory material outlined above explaining the purpose and scope of this report;
- the methodology, which justifies the approach taken to achieve the objectives, as stated in the Terms of Reference;
- the regional profiles, which outline for each of the 14 regions, background information on the region, regional body arrangements, wetland information and threatening processes and a discussion of the key wetland activities being undertaken and proposed in the future;
- a cross-regional analysis of the key findings in relation to regional body wetland activities in Queensland;
- an analysis of the alignment of regional body wetland activities with the QWP that indicate the key achievements in alignment;
- an analysis of the alignment of regional body wetland activities with the QWP that indicate the challenges in relation to alignment;
- an analysis of the main opportunities and ways forward; and
- the conclusion which relates the findings of this report to the stated objectives.

2.0 Methodology

Three key steps were undertaken in this census of wetland activities: a desktop census of regional body wetland activities and their alignment to the QWP; interviews and discussions to provide more detailed and up to date information on regional body wetland activities and the QWP; and three regional workshops with representatives of regional bodies to share learnings from wetland planning and implementation and to highlight cross regional similarities and differences, as a mechanism for highlighting the key achievements, barriers, partners in delivery of wetland outcomes, reporting mechanisms and future directions.

2.1 Desktop evaluation of regional body wetland activities

A desktop analysis of Queensland wetland activities was undertaken and incorporated several steps. First, the main objectives, focus areas and projects undertaken in the QWP were identified. Second, relevant regional body documentation was analysed. This included a comprehensive evaluation of each regional NRM plan, to identify background information on wetland assets, how wetlands were defined, their status and threatening processes, MATs and RCTs that related, both directly and indirectly, to achieving improved outcomes for wetlands, and how wetland activities were prioritised. This included consideration of the mechanisms for incorporating different stakeholder priorities and for prioritising wetland activities in the context of other social, economic and environmental values. Third, regional body RISs were analysed to identify the activities that were designed and funded, either fully or partly, by the regional body to deliver on wetland outcomes. Fourth, regional body project plans and performance reports (six monthly and annual) were analysed to identify specific outcomes from funded actions in relation to wetlands.

2.2 Survey of regional body wetland activities

A questionnaire (Appendix 2) was developed to provide more detailed and up to date information in relation to regional body wetland activities. Questions related to:

- regional body and stakeholders' understanding of wetlands;
- the identification of regional body funded wetland projects in relation to each wetland project, its location, scale of activity, objectives, the actions undertaken, who was involved, the funding provided, products produced and distributed and an assessment of the effectiveness of the project;
- wetland spatial information products;
- prioritisation of wetland funding;
- the main mechanisms used to deliver wetland outcomes;
- the nature and strength of wetland partnerships that had been developed;
- the relative effort placed on resource assessment, capacity building, planning, on-ground work and monitoring and evaluation;

- communication and wetland information products;
- constraints to wetland management; and
- wetland reporting mechanisms.

Within each regional body, staff who had in-depth knowledge of wetlands were contacted to seek their input into the questionnaire. The surveys were forwarded to interested participants, who completed the questions. This was followed by interviews with the survey respondents to elicit greater depth of information in relation to the questions. In particular the interview, and associated questionnaire, aimed to:

- **Refine** and, if necessary, revise the desk top assessment of the alignment between the current range of wetland initiatives and the QWP objectives. The interviewees provided qualitative information that augmented the information obtained from the NRM plans, RISs, performance reports and project plans;
- **Build on** this assessment to identify solutions to improve the alignment of the plans and activities as well as identifying supporting or opposing influences for achieving improved alignment;
- **Analyse** the mechanisms used by a range of stakeholders to prioritise and allocate funding to wetland projects;
- **Analyse** methods and strategies used to prioritise investments across wetland projects;
- **Document** successful and innovative approaches to wetland protection, management and rehabilitation in each NRM region; and
- **Identify** existing reporting arrangements for wetlands activities and the identification of strategies to improve existing reporting mechanisms to enable information on wetlands activities to be updated.

2.3 Regional workshops

The desktop evaluation and data obtained from interviews were further ground-truthed and expanded through a regional workshop process. Three workshops, titled “Working with Wetlands – Practitioners’ Forum for Regional Bodies” were conducted throughout Queensland at Cairns (Monday 13 August 2007), Rockhampton (Thursday 29 August 2007) and Brisbane (Friday 14 September 2007). Workshop participants included staff from regional bodies with a detailed knowledge of wetland activities, Traditional Owners and their support program staff, the consultant team and other partners responsible for delivering regional body wetland actions, and relevant state agency officers (e.g. NRW and EPA) (Appendix 3).

The purpose of the regional workshops was to:

- Verify the results of the assessment of activities in relation to QWP activities from the desktop evaluation and interviews;
- Obtain specific details and insights about wetlands management across the full spectrum of activities undertaken by regional bodies, including capturing examples of innovative thinking and ‘success stories’ for wetland program implementation and outcomes (on-ground as well as process and organisational arrangements);
- Refine understanding of the methods for prioritising investment and decision making relating to wetland activities;

- Recommend workable reporting arrangements for regional NRM bodies to identify activities that deliver on QWP objectives; and
- Provide a forum for wetlands' practitioners to listen, share and reflect on cross-regional wetland activities and build their network of wetland practitioners.

The workshops, in conjunction with the survey of key stakeholders, were used to clarify how the various initiatives aligned to one another, to verify the location and extent of operation of initiatives, the processes used to implement the initiatives, the actual amounts invested in the initiatives and the source of funding, perceived gaps/opportunities for improved funding and the partnerships and networks formed amongst program providers.

Engagement with regional body personnel and other key stakeholders provided an opportunity to assess the changes in attitude towards the QWP outcomes and awareness/application of wetland protection and management thinking as part of the regional NRM decision making.

This information provided the basis for the regional profiles within the Census Report. Workshop participants and respondents to the questionnaire verified drafts of this information through an iterative process resulting in the final information provided in section 3 of this report.

2.4 Census report

The data from the desktop analysis, interviews and regional workshops were synthesized into a draft Census Report. In particular, each Regional Profile (section 3) was forwarded to relevant regional body staff for comment to enhance the accuracy of the profile. Comments from the Wetlands Alignment Steering Committee and regional body contacts were also incorporated into the final Census Report.

3.0 Regional Profiles

The purpose of this section is to briefly summarise the main activities that were being undertaken by the regional bodies in relation to the protection, management and rehabilitation of wetlands. The data that underpin this summary were synthesised from several sources. First, was a comprehensive review of the regional NRM plans, RISs and CCI funded initiatives. An evaluation of each regional NRM plan and RIS in relation to the achievement of QWP objectives was undertaken. In particular, the main RCTs and MATs were identified that related to wetlands and the specific funded activities that have been undertaken since 2004. An assessment of the outcomes of the projects in relation to on-ground works, capacity building, resource assessment, and planning was undertaken, and the prioritization, scope and scale of the activities were assessed using a scale of high, medium and low and any gaps and inconsistency were identified. Opportunities for improvement were also identified. Second, was the information gained from respondents to the survey (Appendix 2) and subsequent interviews with regional body staff. Third, was the information obtained from the three regional workshops conducted in Cairns, Rockhampton and Brisbane and detailed in the workshop outcomes report (Appendix 3). Last, were data obtained from interviews with a range of state agency personnel.

This above information was synthesized and forms the basis of the summary regional profiles outlined in this section, which identify for each region, important contextual information concerning the regional environment and wetlands in particular, society and economy, and key issues in relation to wetlands. This is followed by a brief discussion of the regional body achievements and a summary table which presents the key activities undertaken in relation to the funded wetland activities, categorized into five themes according to the QWP (wetland information, planning, education and capacity building, on-ground activities, with communication, monitoring, evaluation, reporting and review integrated across these themes), and the opportunities for the regional bodies to initiate or implement improvements in the future. The regional profiles below are listed alphabetically.

3.1 Burdekin Dry Tropics NRM Region

3.1.1 Background

BDT comprises the catchment of the Burdekin River and associated coastal and marine areas (Figure 3.1) and has an area of approximately 163,000 square kilometers and a population of about 190,000 (BDT 2005a). The region is biologically diverse with 4.4% of the region consisting of wetlands such as large river systems and coral reefs (Table 3.1). Bowling Green Bay wetlands in the lower Burdekin and Haughton River floodplains are an internationally recognized Ramsar site and 35 wetlands in BDT are listed in the Directory of Important Wetlands in Australia. (Table 3.2) Significant wetlands are found in the Brigalow Belt (e.g. Lake Dalrymple, Southern Upstart Bay), Desert Uplands (e.g. Cauckingburra Swamp and Doongmabulla Springs), Einasleigh Uplands (e.g. Lake Lucy Wetlands, Great Basalt Walls and Valley of Lagoons), and the Great Barrier Reef (BDT 2005b).



Figure 3-1- Burdekin Dry Tropics NRM region

Table 3-1 - Non-marine wetland classification summary for BDT

Classification	Wetlands Area (%)	Total Area (%)
Estuarine	37.4	1.6
Lacustrine	7.3	0.3
Combined lacustrine/palustrine	0.9	0
Palustrine	8.8	0.4
Riverine	45.7	2.0
TOTAL	100	4.4

Source: EPA 2007b

Table 3-2 - Non-marine wetland classification summary for BDT

Type of Wetland	Number
World Heritage Area	2
Internationally important	1
Nationally important	35
Protected areas	49
Fish habitat areas	3
Wild Rivers	0

Source: EPA 2007b

The region's economy is reliant upon natural resource based industries particularly agriculture (e.g. sugar cane) and grazing, which encompasses about 90% of the region. Excessive grazing pressure has been a primary driver of environmental decline in riparian and wetland ecosystems (BDT 2005b). The region has experienced loss, fragmentation and degradation of habitat, including its wetlands. Many coastal floodplains in the lower Burdekin have been cleared for irrigation and catchment hydrology has been modified (including floodplain wetlands). The floodplain wetlands here are in poor health due to weeds, irrigation run-off and loss of riparian vegetation. Many coastal floodplain wetlands have bund walls and sand dams which create weed problems and block tidal influences (BDT 2005b). Also in coastal

floodplains, drainage in cane land often lowers the water tables in adjacent remnant wetlands, frequently resulting in the loss of the wetlands, or their conversion to cropping land. The Burdekin River is the largest source of sediment and nutrient discharge into the Great Barrier Reef lagoon (NR&M 2000) and water quality degradation (e.g. turbidity, salinity, eutrophication, organic loading) is a key threat to wetland values. Input of nutrient and sediment from the catchment has contributed to the decline of many in-shore coral reefs and seagrass communities. Other wetland pressures relate to coastal development, construction of fish passage barriers, feral animals (e.g. pigs and brumbies) and aquatic weeds (e.g. rubber vine *Cryptostegia grandiflora*, castor oil plant *Ricinus communis*, guinea grass *Panicum maximum*, parkinsonia *Parkinsonia aculeate*, chinese apple *Ziziphus Mauritania*, Belyache bush *Jutrepha gossypifolia*, giant rats tail grass *Soporobolus pyramidalis*, giant panamatta grass *S.fertilis*, and American rats tail *S.jacuemontii* and the ponded pastures of para grass *Brachia muticai* and hymenachne *Hymenachne amplexicaule*) (BDT 2005a).

Riparian zones have been especially susceptible to colonization by certain weeds, which impact on water quality, aquatic flora and fauna, and ecosystem processes, particularly in coastal floodplain wetlands (BDT 2005b). Direct stock access into wetlands and riparian areas is also a significant threat, causing disturbance to water quality, trampling of banks and vegetation, changes to flow regime, weeds and lost connectivity with estuarine habitats.

The BDTNRM region comprises 11 Local Government Authorities and a Local Government partnership panel has been established to provide governance, policy and strategic advice to the Board. Three staff are currently hosted within local government. A Traditional Owner Management Group comprising representatives from the region's 16 Traditional Owner groups is in operation.

3.1.2 Achievements and progress

Table 3 presents a summary of key wetland activities undertaken in BDT. Wetland actions are funded mainly within the Surface Water and Wetlands Program (SWW) (2004-08), although activities in other programs indirectly affect wetland conservation. The planned expenditure for this program from 2004-2008 is \$4.3 million (BDT, 2007). BDT's focus to date has been on "achieving long-term change in land management", with the belief that this "should provide a major contribution to achieving resource condition targets..." (BDT, 2007:7). Their delivery model for wetlands is based on partnerships, including: research organizations (e.g. CSIRO, Bureau of Sugar Experimental Stations [BSES]); community groups (e.g. Conservation Volunteers Australia, Wetland Care Australia); local government (e.g. Townsville City Council); Traditional owners (e.g. Gudjuda Reference Group Aboriginal Corporation, Girrungun Aboriginal Corporation, Wulgurukaba Aboriginal Corporation); state government: QEPa, NR&W, DPI&F; and consultants (e.g. Alluvium Consulting).

Expenditure relating to wetlands has focused on planning (30%) and resource assessment (25%) (refer Figure 3.2 and Table 3.3), including a whole of catchment assessment of the condition of riparian and other wetland areas and their prioritisation for on-ground work (in collaboration with ACTFR, EPA, CSIRO & NRW), identification and prioritization of fish barriers and the development of pest

management strategies (e.g. removal of hymenachne). Wetland mapping at a fine resolution was identified as a limitation to planning and management.

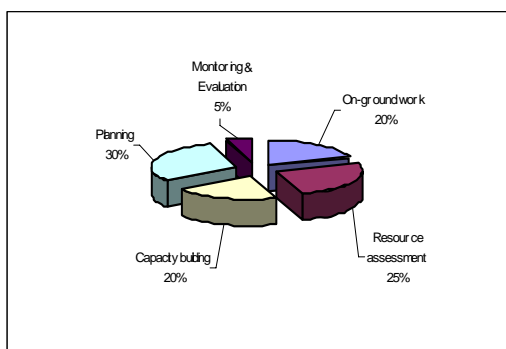


Figure 3-2 - BDT focus of effort in relation to wetlands

On-ground activities have received less attention. Activities are focused in the lower Burdekin, with investments aimed at improving water quality and water use within the cane and horticultural sectors, rehabilitating significant wetlands (e.g. Townsville Town Common), fencing wetlands, including riparian areas, wet season spelling and provision of off-stream watering points in grazing areas, and weed control programs (e.g. undertaken collaboratively with local government and other key stakeholders). These investments are largely incentive-driven (BDT 2007).

Important collaborations have strengthened with local government in the development and implementation of pest management plans (refer Box 3.1), and assessment of wetlands, and this is contributing to improved input into city planning processes, which are recognising the values of wetlands and riparian areas.

In BDT, education and extension play a major role in improving understanding and acceptance of wetland management strategies. Workshops play a valuable role in informing a range of stakeholders about current best practice (refer Box 3.2). Variability in farm incomes across the region also influences the extent of adoption and investment in new practices. Hence financial incentives are an important component for the delivery of wetland outcomes and are a necessary tool to attract interest in implementing best management practices. As most income in the region is derived from agriculture, investment in strategies that improve the viability and productivity of properties as well as improve resource condition are considered to be the most important. Existing incentives focus on adjusting stocking rates to reflect carrying capacity, providing off-stream watering points, and increased water efficiency (especially for irrigation cropping).

3.1

Collaborative weed management

BDTNRM is working with landholders and the Burdekin Shire Council, which initiated a collaborative approach to riparian weed management that encompasses a shared funding agreement among the partners. Collectives of landholders within a sub-catchment are contacted by the Council and with the support of BDTNRM agree to pay Council to remove and manage riparian weeds within their properties. This collective approach is proving very successful for removal of aquatic weeds, with all partners contributing to the improved water quality and wetland outcomes.

A conceptual framework for CCI implementation and preparation of a Water Quality Improvement Plan (WQIP) is being developed for the region. Best Management Practices (BMPs) for grazing lands and sugar lands are being developed. For example, the BMPs for grazing lands focus on riparian and wetland management. Hotspots have also been identified and efforts initiated to confirm these findings.

Achievement of regional NRM plan targets relies heavily on the investment in, and uptake of, a number of incentives programs. However, evidence from the incentives' projects that have been trialed to date, has shown subscription levels were less than anticipated in some projects (BDT 2007), particularly wetlands. This may have related to lack of staff (due to failure to fill a vacant position).

Factors identified by respondents to the survey as limiting wetland conservation included: limited staff and difficulty in retaining staff; poor data resolution (e.g. mapping of wetlands at a suitable scale); difficulties and slowness in obtaining data from outside organizations; delays in scoping and technical assessment of proposed activities (BDT 2006b), the slow pace of change and acceptance by landholders and other stakeholders. Specific difficulties that were identified by the regional body included enhancing understanding of riparian vegetation amongst graziers, addressing the issue of ponded pastures, and dealing with connectivity issues (e.g. weed removal).

BDT (2007:20) has identified that in 2007/08 there will be “a substantial investment in wetlands rehabilitation and protection in the lower Burdekin” and that delivery will be jointly managed by a delivery consortium comprising Wetland Care Australia, Conservation Volunteers Australia and funded by ACTFR. To further ensure success, the project is building on previous work and, in particular, the learnings and initiatives of the recently completed Coastal Wetlands Pilot Program. Future wetland activities will focus also on further wetland fencing, removal of fish barriers, improving understanding of wetland hydrology (especially in irrigation areas of the Lower Burdekin), enhancing the uptake of incentives related to wetland conservation, and working more closely with local government to secure the protection and rehabilitation of key coastal wetlands.

Box 3.2 River Management in N.Qld Workshop

The three day workshop (BDTNRM & Alluvium Consulting) provided an opportunity for participants in the river management industry to hear about recent developments in river management practices suited to north Qld, to share experiences and develop partnerships to more effectively deliver river management projects. Topics addressed: when and how to intervene in river management; priority setting; impacts of sediment and nutrient on GBR lagoon; freshwater fish research; rapid appraisal of riparian condition; managing grazing; weeds; environmental flows; monitoring and evaluation; and several case studies



(Source: BDT 2007)

Table 3-3 - Key wetland activities and future directions in the Burdekin Dry Tropics NRM region

Key activities

Wetland information

Assessed the condition of wetland (including riparian) areas (100 sites) for the region and developed relevant data layers (CCI 0010).

Joint initiatives are developing with Thuringowa City Council to locate wetlands of importance.

Reports produced to assist in the protection and restoration of seasonal wetlands, focussing on the use of fire and grazing for the management of paragrass in seasonal wetlands (SWW3002).

Whole-of-catchment Assessment and Prioritisation of Wetlands and Waterways completed.

Developing and applying a regional and property-scale land condition assessment and monitoring framework, which will incorporate wetlands. Wants more details

Stage 1 of the regional Land Resource Mapping project has been completed and will identify priority sub-catchments for bank and gully erosion.

Contributing to DEH development of a DSS to support wetland management.

Planning

Better regional understanding of uses and values (social, economic, cultural & environmental) associated with waterways (CCI 0019).

Identified and prioritised knowledge gaps in relation to incentives to enhance the adoption of improved land and water management practices to achieve improved water quality within the region (CCI 0019).

Supported the development of the Regional Water Quality Management Plan and Resource Operation Plan to ensure NRM issues are considered in conjunction with production issues (SWW3090).

Supported Burdekin Integrated Water Quality Monitoring Programme and Community Water Quality Monitoring Project (Event-based component).

Identified and prioritised fish barriers in the Burdekin catchment and developed estimate costings for remediation (on-ground works yet to be undertaken) (SWW3007P). The outputs from this project will be used in 2007-2008, to target on-ground works aimed at restoring fish passage, and will include aquatic weed removal and bund removal. A number of rehabilitation priorities have been identified, and negotiations with the relevant stakeholders have been initiated.

Supporting the development of a Regional Pest Management Strategy, which has importance for several pest species that impact on wetlands.

Participating in the FNQ Cross Regional Integrated Hymenachne program in the lower Herbert and northern coastal BDT to develop an integrated management program (SWW3013).

Education and capacity building

Established partnerships to plan and implement wetland protection in the lower Burdekin (Barratta and Sheep Station Creek systems) (rehabilitation strategies yet to be undertaken) (SWW3012).

Hosting of a Wetlands Workshop to share knowledge and best practice within the NRM technical community; promotion of wetlands through newspapers; contributing to EPAs "WetlandInfo" programme and wetland profile fact sheets; contributing to NRW's wetland indicator development program; supporting the development of GBRMPA's ReefHQ wetland exhibit and Reef Beat Wetland competition in schools; provides books for school libraries; undertakes wetland tours; and participation in a range of events (e.g. NQ Field Days, EcoFest, River Management Workshop, World Wetlands Day) to promote and highlight RIS activities, including wetland issues.

Development of strong relationships with several partners in the delivery of wetland conservation, including Water Boards, Sunwater, CSIRO, and Wetland Care Australia.

Strong partnerships with industry (e.g. BSES, AgForce and Growcom) to deliver property planning and on-ground works that will improve wetland conservation, e.g. working with the dairy industry in completing the DairySAT part of the Dairying Better 'n' Better for Tomorrow FMS system; working with the cane and horticulture industries to improve production systems, water quality and water use and thus improve wetland condition; and developing partnerships with the grazing industry e.g. Profitable Beef Businesses -NQ Grazing Systems.

Traditional Owner Management Group established and Traditional Owners are involved in documentation of uses and values of water resources, e.g. the Jurandali Traditional Owners have been supported in the development of a Country Based Management Plan.

Key activities	<p>GIS web portal established on BDTNRM Web Site to provide access to relevant information and links to government, non-government and regional bodies' sites and news links. This includes finer resolution mapping undertaken through property management planning. Some data layers have been delayed pending negotiation of data sharing arrangements with State Government. CHECK WEB SITE – potential overlap?</p> <p>Improved community access to spatial information continues to be developed, through the provision of mapping and image products and capacity-building workshops.</p> <p>Working with landholders on developing and implementing capacity building and on-ground works programs that include property level monitoring, works to improve water quality, weed infestations, vegetation retention, and riparian rehabilitation. Work is currently focussed on two key areas; the Clarke River and East Burdekin Catchments and the Belyando-Suttor catchment and includes voluntary incentive programs and extension.</p> <p>PMP including the provision of GIS advice and satellite imagery products, which will have value for wetland planning.</p> <p>Engaged in monitoring of water quality, reefs, certain fish, seagrass and mangrove communities.</p> <p><i>On-ground works</i></p> <p>Through the Blueprint for the Bush-Pest Offensive, BDT is co-investing and supporting six pest management projects (e.g. washdown sites and on-ground management of weed species).</p> <p>Supported the removal and monitoring of woody weeds from the regionally important Serpentine Lagoon and downstream areas, including reducing infestation and potential for re-infestation (in conjunction with partners from the Coastal Wetlands Pilot Program, and local government) (SWW3005P).</p> <p>With CSIRO and QPWS, the BDTNRM is funding a trial (Townsville Town Common) to protect and restore para grass infested seasonal wetlands.</p> <p>Hymenachne management is being undertaken in northern coastal BDT (SWW3013).</p> <p>Feral pig control is undertaken in several locations.</p> <p>Two wetland plans are being implemented in the lower Burdekin with \$0.5m allocated mainly for the rehabilitation of salt pans, which are impacted by recreational activities (partnership with DPI&F, Townsville Port Authority, and Powerlink).</p> <p>Numerous incentive projects funded under the Land, Soils and Agriculture Program, focussed on fencing of frontage country in extensive grazing areas.</p> <p>Financial and in-kind support to the Nature Assist Program (EPA) to assist landowners establish and maintain voluntary Nature Refuges, some of which contain wetlands.</p> <p>Initial stages of undertaking project to address “Grazing for management of aquatic weeds”.</p> <p>The reef extension project (DPI&F, FNQ and BDT) focuses on riparian management and wetlands with several trials and case studies in place within the region.</p>
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Future directions	<p>In conjunction with EPA wetland mapping, implement finer scale mapping of wetlands to enable improved decision making at the property scale.</p> <p>Establishment of a Land Managers Users Group to provide a direct linkage between land managers and the development and implementation of RIS activities, many of which relate to wetlands; and foster enhanced linkages with intensive farming and grazing sectors in the lower Burdekin and other areas of the coastal plan.</p> <p>Implement removal of fish barriers (based on identified priorities).</p> <p>Complete the state of riparian areas investigation and identify priority wetland areas and undertake appropriate actions.</p> <p>Working more closely with local government to identify and secure the protection and rehabilitation of key coastal wetlands.</p> <p>Further enhance delivery of incentive schemes (e.g. fencing riparian areas, off-stream watering points), which offer opportunity to achieve more widespread adoption of improved land management practices, particularly as landholder attitudes in some sectors limit uptake if there is a perceived conflict with production outcomes. In conjunction with Wetlands Consortium identify incentives for coastal landholders to remove bunds and weirs to re-establish estuarine connectivity and improve river health.</p> <p>Research the hydrological links between wetlands and irrigation activities in the Lower Burdekin.</p> <p>As the uptake of incentives projects has been less than expected there is a need to increase communication to raise awareness of relevant incentives projects and to work more closely with relevant industry and peak bodies and to review and improve education materials related to wetlands.</p> <p>Investigation of improved enforcement measures in coastal wetlands which are impacted on by recreational activities.</p>
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3.2 Burnett Mary NRM Region

3.2.1 Background

The Burnett Mary region (BM) (Figure 3.3), with an area of almost 88,000km², contains a diverse range of coastal and marine habitats, including the continental shelf, estuaries, coastal and tidal wetlands, mangrove forests, salt marshes, freshwater wetlands, samphire flats and dunes. Spanning a sub-tropical to temperate 'transition' zone, the area contains representative species from both climates. A variety of ecosystems occur within these habitats, including coral reefs, seagrass and algal beds, and variations due to sand, mud and rock substrata (e.g. volcanic basalt). The region includes 12 nationally important wetlands (e.g. Burrum Coast, Bustard Bay, Fraser Island, Great Sandy Strait and Wide Bay Military Training Area), two World Heritage Areas and the Great Sandy Strait, which is a Ramsar wetland (EPA 2007b) (Table 3.4).



Figure 3-3 - Burnett Mary NRM region

Table 3-4 - Important wetlands in BM

Type of Wetland	Number
World Heritage Area	2
Internationally important	1
Nationally important	12
Protected areas	265
Fish habitat areas	15
Wild Rivers	1

Source: EPA 2007b

3.2.2 Achievements and progress

In Burnett Mary, wetland management and conservation formed a key focus across three major themes of the regional NRM plan and associated investment by BMRG to date:

- Freshwater Biodiversity – part of the Biodiversity Conservation Management Action Program;
- Marine Biodiversity – part of the Coastal & Marine Management Action Program; and
- Water Quality and Equitable Use Management Action Program (through the links between groundwater and wetlands).

The majority of the initiatives have been in the resource assessment, data gathering and studies areas with the balance in on-ground works and building capacity of stakeholders to be involved in wetland management (Figure 3.4).

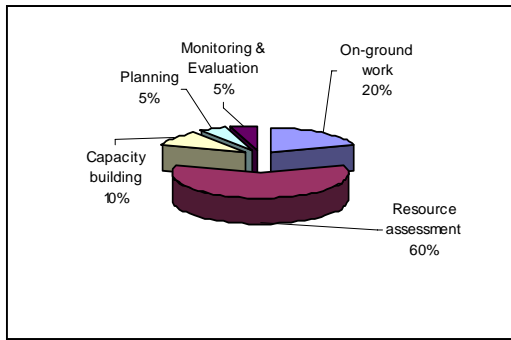


Figure 3-4 - BMRG focus of effort in relation to wetlands

There are several significant initiatives (Table 3.5) underway to better protect wetlands including:

- State of Estuarine Environment reporting (Box 3.3);
- comprehensive mapping project of over 150 shorebird high tide roosts and nesting habitat along the coastline of the Burnett Mary;
- collaboration with Bundaberg Landcare and Wetland Care Australia in Splitters Creek (lower Burnett River) to improve the management of riparian vegetation and control weeds in the riparian area and on creek itself through offering a range of devolved incentive grants to landholders; and
- a similar collaboration is occurring at the Pasturage Reserve, a remnant wetland attached to Mon Repos, where funding is provided to implement improved grazing management, stormwater drainage, and manage weeds, fire and pest animals (part funded by BMRG RIS);
- Arkarra Lagoons and wetlands (in collaboration with Hervey Bay Wildlife Preservation Society of Queensland, Hervey Bay City Council and Friends of the lagoons);
- Seagrass Watch and Monitoring program for the Great Sandy Straits;
- Wongi Waterholes where a pump is to be installed to remove excess water to ensure the wetlands remain intact following the raising of the dam wall;
- Ban Ban Springs, where cultural heritage research is being undertaken;
- a manual planned to provide information for landholders with wetlands on their properties; and
- Rivercare and riparian restoration projects at various locations throughout the region.

Box 3.3

State of the Estuarine Environment

This significant project has produced the first baseline condition assessment of Burnett Mary's estuarine ecosystems using nationally agreed indicators that address key issues affecting estuary, coastal and marine environments.

Undertaken in conjunction with EPA, Phase I of the project tested the appropriateness of the indicators and gained a snapshot of the health in 16 estuaries within Burnett Mary region.

Progress to date includes a massive data collection, mangrove extent mapping, cost/benefit analysis study and the development and implementation of a water quality monitoring program.

In Phase 2, a cost-benefit matrix will be developed to prioritize future estuarine rehabilitation initiatives for Burnett Mary estuaries and provide recommendations for future investment in on ground works at each of the selected sites.

Table 3-5 - Key wetland activities and future directions in Burnett Mary NRM region

Key activities

Wetland information

First catchment in Queensland to have a completed wetlands map based on EPA endorsed methods funded directly by EPA through the QWP.

Regional Bio-pass Strategy working with support from DPI&F and with several regional stakeholders to assess significant barriers to fish movement, identify methods of removal or mitigation of significant barriers and to strategically restore fish passages. This will involve development of a model of fish and other migratory aquatic species movement in the region's waterways and is funded by BRMG RIS funds (PA0135 – BMRG RIS \$151,100).

An assessment of the role of tidal wetlands in cycling and assimilating riverine nutrients and sediment and how this process relates to end of catchment water quality, tidal wetland primary productivity and tidal wetland ecosystem health. This project will deliver a map of tidal wetland structure, condition and inputs in the Burnett-Mary region and an impact specific tidal wetlands monitoring manual for use in the Burnett Mary Region (PA0225 – BMRG RIS \$45,000).

Seagrass monitoring of the Great Sandy Strait (PA0164 – BMRG RIS \$30,480).

A study into the occurrence and habitat of wallum frogs and survey of their populations in the Hervey Bay (Mary and Burrum catchments) is underway. This project is producing a report and database for the area.

Under the Rivercare Program in the Sandy Strait and Cooloola Coast, BMRG are running a community activated 'wallum' species database and mapping project to increase community awareness of local native vegetation resources.

Planning

Alignment of the Baffle Creek Catchment Strategy with the regional NRM plan is underway in partnership with the Baffle Creek Catchment Management Group, the local school and environment society (PA0100 – BMRG RIS \$10,000).

A management plan for Goodger wetland and surrounding land is also underway (PA0135 – through BPOA funds total \$190,000).

Education and capacity building

'Feathering the Future' program aims to promote shorebird conservation through on-ground action using management measures to control recreational access (such as 4WD, people and dogs) and education and awareness initiatives at mapped shorebird roosting and nesting. In collaboration with Central Qld University, this program will build on the current activity being undertaken by Queensland Wader Study Group which has mapped over 200 shorebird roost and nesting locations along the Burnett Mary region and identified / typified potential threats to these sites (PA0261 – BMRG RIS \$95,000)

On-ground works

An extension of the successful 'Tide 2 Table' initiative, in collaboration with the commercial fishing sector, five pilot sites are to be identified for rehabilitation (PA0223 – BRMG RIS \$200,300).

The Rivercare program in the Mary River catchment has funded projects to protect and rehabilitate riparian areas through fencing, provision of off-stream watering points, streambank rehabilitation, revegetation and woody weed control works. These projects have been mainly working with landholders, landcare groups and local governments in the catchment and represents a significant portion of funds (PA058 & PA0238 – BRMG RIS approx \$300,000 for 2006/07).

A project to protect Goodger wetland in Kingaroy Shire is underway and involves 3km of fencing to limit unauthorised vehicle access, eradication of 15ha of weeds, implementation of fire management activities (fire trails & breaks) and undertaking monitoring and evaluation of the wetland system (PA0135 - through BPOA funds total \$190,000).

Several activities are underway on the Mon Repos Pasturage Reserve wetland at Bargara including works to improve drainage and hydrology and monitoring of a grazing trial. Additional components including fire and weed management planning and site access planning in collaboration with QUT (PA0264 – BRMG RIS \$58,000).

Rehabilitate and promote the values of Arakarra Wetlands, in partnership with Hervey Bay City Council and Wildlife Preservation Society of Qld (PA0174 – BMRG RIS \$29,260)

Future directions

Wetlands Inventory and Prioritization Project due to commence shortly will assist in determining future wetlands activities and their funding support. This will be jointly funded by BMRG RIS (\$80,000) and GBRCWPP (\$50,000).

A manual to provide information for landholders with wetlands on their properties is planned to be developed for use in extension activities and information days. The brochure will include information such as wetland types, hydrology, chemical and biological functions of wetlands, constructed wetlands and impacts on wetlands and will be produced in partnership with Bundaberg Landcare (PA0069 – BMRG RIS \$17,000).

Finalise the construction of interpretative wetlands at the Great Sandy Regional Botanic Gardens to demonstrate water sensitive urban design in collaboration with Hervey Bay City Council (PA0087 – BRMG RIS \$14,103 + Community Water Grant \$35,918).

3.3 Cape York Peninsula NRM Region

3.3.1 Background

Cape York Peninsula NRM region (CYP) has an area of about 277,000 sq km and a coastline of more than 2,000 km, including all estuaries, marine areas, reefs and islands within three nautical miles of the coast (EPA 2007b) (Figure 3.5), but with a population of less than 18,000 people (CYIAG, 2005). Indigenous people are in the majority, by number, with pastoral leases and protected areas comprising an extensive area of Indigenous-held land in the region. A regional NRM body has not yet been established, although interim arrangements are in place to deliver current NHT investments for CYP, through the Cape York Peninsula Development Association (CYPDA). However, progress has been slow in delivering on the draft regional NRM plan due to “lack of long-term funding security; differences of opinion creating an inability to resolve conflicting points of view in property planning; insufficient funding to achieve all NHT Plan components” (CYIAG, 2005:3).



Figure 3-5 - Cape York Peninsula NRM region

The region contains 20 basins (EPA 2007b), riparian vegetation is in good condition along most major water bodies, and streams are largely unmodified by dams and weirs (except the Annan River) (CYIAG, 2005). The riparian environments of the Normanby, Archer and Wenlock Rivers are of high conservation value (CYIAG, 2005). Thirty of the region’s wetlands are listed as nationally important (Table 3.6) and are “amongst the largest, richest and most diverse in Australia” (Abrahams et al. cited in CYIAG, 2005:34). These include many of the extensive coastal floodplain wetlands. However, there are many less well recognized wetlands in inland areas. The region also has many springs that are small, but important aquatic habitats.

Table 3-6 - Important wetlands in CYP

Type of Wetland	Number
World Heritage Area	2
Internationally important	0
Nationally important	30
Protected areas	49
Fish habitat areas	8
Wild Rivers	0

Source: EPA 2007b

Threats to the wetlands of the region include pest plants (e.g. rubber vine, *Cryptostegia grandiflora* which destroys riparian vegetation, pond apple *Annona glabra*, giant rats tail grass, calotrope *Catotropis procera*, castor oil bush, chinee apple, noogora burr *Xanthium pogens*, parkinsonia, prickly acacia, sicklepod and bellyache bush), exotic ponded pasture species (e.g. para grass, hymenachne and aleman grass which impact on aquatic habitats), floating weeds (e.g. water hyacinth *Salvinia*, and water lettuce) and pest animals (e.g. pigs *Sus scrofa*), biosecurity (the risk of introduction of exotic diseases, plants or animals), and various land

management issues (e.g. inappropriate grazing activities including stock activities along and within watercourses, inappropriate clearing, mining, exploration, new developments, management of infrastructure such as roads, and tourist impacts at localized sites).

Grazing is a significant land use on CYP, with pastoral leasehold properties occupying up to 60% of the land area. There is potential for inappropriate grazing management to have a significant impact on wetlands e.g. cattle in riparian zones, altered fire regimes, introduction of serious weeds, fragmentation of ecosystems and land clearing. More than ten mining companies are working in CYP and they also have the potential to impact on important wetlands.

There are about 210,000 hectares of sea grass and 83,000 hectares of mangroves on the east coast, while on the west coast there are around 16,000 ha of seagrass, and 122,000 hectares of mangroves. *Rhizophora* species are dominant on the east coast and almost absent on the west coast. The mangrove and seagrass communities are floristically amongst the richest in the world, with over thirty mangrove species and twelve seagrass species recorded from individual communities. On the basis of species richness, rare and uncommon species or features, diversity of habitat, the relative lack of disturbance and importance for maintaining fish populations, sixteen mangrove and seagrass areas are of conservation significance (CYIAG 2005).

Land and Sea Management Centres are being established in 13 communities on CYP. For Traditional Owners the sea is not common property, but is considered as part of their traditional estate and strong connections and responsibilities for country exist as part of their custodial management responsibilities. Indigenous people make up the majority of the coastal population.

3.3.2 Achievements and progress

Table 3.7 summarises the key wetland activities in CYP, the focus being on resource assessment (50%) and capacity building (20%) (Figure 3.6). Resource assessment has involved trialing, adapting and developing a wetland biodiversity and condition assessment methodology that is relevant to CYP and which can be implemented by communities across the Cape. This focus was based on the priorities identified in the CYP Marine and Coastal NRM Action Plan (Howley, 2006), where lack of information on wetlands was identified as a high priority. In addition many Cape communities had expressed interest in wetland monitoring for water quality to address several threats. In this context, the development of a relevant assessment method for use across the Cape was viewed as critical. Six wetland sites on the Eastern Cape were being used as pilots and these were selected as a result of extensive community consultation. They included a range of wetland types (e.g. saltmarsh, paperbark and open freshwater), were minimally impacted by human development (i.e. to provide baseline condition assessments), and management plans were being developed, thus enabling the results of the assessment to be incorporated into recommendations for on-going management. Prioritisation was also based on logistics, i.e. people were available to monitor and manage wetlands and sites were identified as high conservation value for on-ground works.

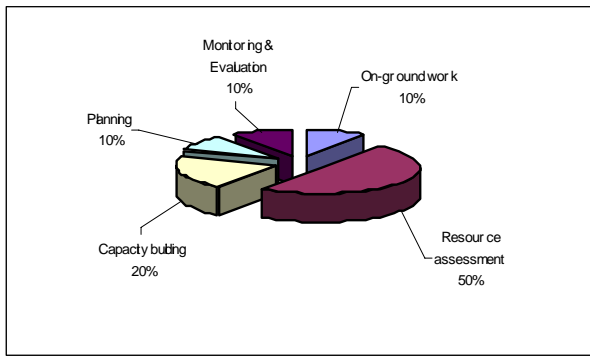


Figure 3-6 - CYP focus of effort in relation to wetlands

Partnerships were effective, but in the early stages of development. Partners included: CYMAG Environmental Inc. (wetland biodiversity and condition assessment and seagrass mapping and monitoring); Traditional Owners in indigenous communities, working through Land and Sea Management Centres (e.g. Napranum seagrass watch, and Kowanyama), and involvement with Balkanu’s “Case studies for Water Quality Cultural Indicators Project”, which has involved six indigenous Cape communities; local government (e.g. Cook SC hosts the coordination of weed and feral animal projects), Australia Zoo (wetland biodiversity assessment); several state and commonwealth agencies (e.g. EPA, NRW, DPI&F, and DEW); and research organizations and consultants (e.g., dune rehabilitation and protection project, and fire management projects, all of which have relevance for wetlands).

The main constraints to wetland conservation were the weather and associated access to wetlands during the wet season, insufficient funding, and lack of specific knowledge of wetland ecosystems in CYP. The lack of a formal regional body and approved plan were limitations to achieving wetland outcomes. There was a significant gap between the vision and aspirational targets identified in the draft NRM plan and the ability to achieve these outcomes on the ground in the near future (Cairns Workshop, 2007), mainly as a result of limited capacity and funding.

Table 3-7 - Key wetland activities and future directions in Cape York NRM region

Key activities

Wetland information

CYMAG has been involved in the delivery of several projects including:

Development of a Wetland Assessment Methodology for use by wetland groups in CYP. Baseline assessments are important to enable trend analyses over time and to enhance understanding of threats to wetland ecosystems.

Baseline assessment of the condition of wetlands and threats to wetlands in eastern Cape York (e.g. Annan River saltmarsh; Jeannie River estuary saltmarsh/mangroves and water quality; Muck River estuary; Jack Lakes freshwater lakes and melaleuca swamps; Keatings Lagoon paperbark wetlands; and Cape Flattery dune lagoons) (\$60,000).

Assessment of wetland biodiversity at Jack Lakes (National Park to be managed by Traditional Owners) and Muck River, including biodiversity values, threats to the values and the development of recommendations for relevant wetland managers (\$100,000).

Mapping of coastal seagrass along a 100km stretch of coastline south of Cooktown, incorporating field work to map all meadows in the intertidal zone to approx. 8m (Envirofund). Some seagrass mapping also occurring on the west coast at Napranum.

Mapping of reef seagrass in six reefs east of Cooktown (Envirofund). These are mainly inshore reefs that have been impacted by declining water quality (e.g. sites close to the shipping channel where sediment is resuspended). Water quality at these sites is being monitored monthly and this information, along with data on species and their location will enable assessments of change over time.

Monitoring wet and dry season changes in seagrass meadows in Endeavour River and Walker Bay.

Undertaking water quality surveys in conjunction with local groups at several estuarine and riverine locations across CYP (e.g. Laura/Normanby, Weipa, Kowanyama, Jeannie River, Annan River, Endeavour River, Lockhardt River, Aurukun, and Wenlock as part of the NWC's Raising National Water Quality Standards Programme).

Cultural assessment of contemporary Indigenous river use and indicators for best practice.

Weed and feral animal mapping is being undertaken in some communities (e.g. Kowanyama, Laura), as part of the CYP Weeds and Feral Animal Project; work is being undertaken to compare the impacts of feral pigs between fenced and unfenced wetlands in Lakefield (with DPI&F); South CYP Catchments are fencing Keating's Lagoon Conservation Park (near Cooktown) from pigs and comparing pig impacts inside and outside the fenceline.

The Turtle Nest Predation Monitoring Project is underway and involves several indigenous communities, state and commonwealth agencies.

Planning

Developed CYP Marine and Coastal NRM Action Plan (June 2006) which reviewed the current state of management of marine and coastal natural resources, listed priority issues and recommended actions, several of which are related to improving wetland conservation.

Strategic Plan developing for the Annan-Endeavour Catchment Management Group completed.

Recording traditional management guidelines for river use; Elders recording traditional knowledge for water management; and providing cultural assessment on native lagoons and the effects of feral animals.

CYP Weeds and Feral Animal Program (hosted by Cook SC) undertakes activities at several scales and with a range of partners and is working on several wetland areas. The CYP Pest Management Strategy and Plan have been developed, incorporating several local governments and Indigenous communities. High priority areas identified (including wetlands).

CYP Sustainable Fire Management project is improving coordination and cooperation among landholders across all tenures to develop sustainable fire management practices (e.g. reduction of large scale wildfires that can endanger wetland communities).

Education and capacity building

Extensive consultation with community groups to identify priorities.

Workshops with a range of stakeholders (e.g. pastoralists, horticulturists, hobby farmers and indigenous communities) have been conducted to improve wetland management.

Key activities	<p>Marine and coastal conference held in Cooktown (2007). Developing skills in seagrass monitoring (e.g. Napranum rangers, Cooktown High School). Completed a documentary, "The Water we Know" on cultural indicators to waterway management. The film is a significant step in raising awareness for indigenous management of waterways. Establishing and developing Land and Sea Management Centres to develop capacity and skills in a range of areas and to implement on-ground works e.g. developing skills in weed and feral animal management, wetland conservation, turtle and dugong management, and seagrass monitoring.</p> <p><i>On-ground works</i></p> <p>The CYP Landcare Program is established and hosted by Cook Shire Council. The GLM program has developed property-wide management plans, some of which have direct impact on wetland conservation. Particular achievements relate to riparian fencing to protect water quality for vulnerable waterholes, provision of off-stream watering points, and wet season spelling to allow palatable native perennial grasses to set seed and increase biomass.</p> <p>Several initiatives to record traditional management guidelines for river use (e.g. Mossman Gorge- Kuku Yalanji; Buru – Kuku-Yalanji; Lakefield National Park – Lama Lama, Aurukun – Wik Mungkan and Wik Ngathan).</p> <p>Land and Sea Centres are an important mechanism for achieving on-ground outcomes for wetlands, although their capacity varies across the Cape.</p> <p>The CYP Weeds and Feral Animal Project (with Cook SC) is implementing projects within wetlands and works in conjunction with Land and Sea Centres (e.g. Kowanyama).</p> <p>Implementing demonstration sites of traditional management practice into river system management (e.g. Lakefield National Park).</p> <p>The CYP Fire Management Project has several projects across the Cape (e.g. focus on Laura).</p> <p>Dune rehabilitation (e.g. coloured sands, Elim Beach).</p> <p>Activities as part of the Turtle Nest Predation Monitoring Project.</p> <p>Salvinia contain and control project at Honey Dam, Lakeland, including boom containment fence, mapping extent of Salvinia and chemical control (with South CYP Catchments).</p>
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Future directions	<p>Continue to work with the grazing industry to implement current best practices (e.g. fencing of riparian areas and provision of off-stream watering points).</p> <p>Wetland resource condition assessment needs to be expanded beyond the initial six case studies. Effort should be directed to identifying future sites for assessment and monitoring. This should incorporate areas beyond the south-east Cape and include a greater number of indigenous communities. However, this will require enhanced funding to access these more remote areas of the Cape.</p> <p>Water quality monitoring has been limited, or non-existent due to limited funding. This needs to be re-started to provide insights into land use activities that are impacting on wetlands.</p> <p>Removal of fish barriers.</p> <p>Strategic management of water weeds.</p> <p>Continue marine turtle nest monitoring and protection, working with Indigenous rangers.</p> <p>Continue seagrass mapping.</p> <p>Resources for Indigenous Land and Sea Centres (e.g. equipment, staff, operating budgets).</p> <p>Proactively address potential future weed problems (e.g. the movement of salvinia into Lakefield National Park from Honey Dam in Lakeland). This may include the use of boom containment to restrict the spread.</p> <p>Proactively manage the potential spread of tilapia into river systems by development of effective screens.</p> <p>Focus on capacity building, especially among indigenous communities.</p> <p>Continue Traditional Owner knowledge recording and the development of Caring for Country Plans.</p>
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3.4 Condamine NRM Region

3.4.1 Background

The Condamine catchment, in the headwaters of the Murray-Darling Basin, is approximately 2.75 million hectares in size and its very fertile soils make this region one of the most productive agricultural areas in Australia, contributing 11% to the total value of agricultural products in Queensland non-metropolitan regions (CA 2007a) (Figure 3.7). Key uses include grazing (57% of land area), irrigated and dryland cotton, grain production, poultry and pork. The catchment contains 12 local governments, including Toowoomba, Warwick, Dalby and Chinchilla and the region's seven major urban centres are subject to increasing sprawl into peri-urban areas.



Figure 3-7 - Condamine NRM region

The Condamine catchment contains over 1700 wetlands. Lake Broadwater, the largest, is nationally significant, with its listing in the Directory of Important Wetlands in Australia recognizing the wetland's importance to the Indigenous peoples of the region (Table 3.8). Condamine's wetlands support regionally-significant waterbird breeding events (e.g. Bellevue Swamp), are important foraging sites for waterbirds and other larger wildlife, have aesthetic values, and provide short-term grazing opportunities as stock watering points. The Condamine's variable flows result in the complete drying of floodplain wetlands and thus some wetlands function as a refuge for aquatic biodiversity, and in supplying colonising individuals (e.g. fish, insects and other invertebrates, turtles, and plant seeds) or organic matter to nearby streams or other wetlands during subsequent overland flow events. They are also thought to function as 'stepping stones' across the landscape for larger migrating fauna such as turtles and waterbirds (CA 2006).

Table 3-8 - Important wetlands in the Condamine Catchment

Type of Wetland	Number
World Heritage Area	1
Internationally important	0
Nationally important	2
Protected areas	35
Fish habitat areas	0
Wild Rivers	0

Source: EPA 2007b

Wetlands have been gradually lost within the region to agricultural and urban development. The regional NRM plan identifies several threats to wetlands including poor management of riparian zones (e.g. lack of fencing) and poor water quality. Water courses in the catchment are regularly grazed, contributing to increased nutrients, stream bank erosion, and spread of weeds. The condition of wetlands in the eastern areas is generally less degraded than those further west (Thrupp & Moffat, 2001, cited in CA, 2004). Riparian vegetation in the upper floodplain is generally in very poor condition. An overall riparian condition rating estimated that 43% of major stream length to be in moderate condition and 42% of stream length in a degraded condition (DNR, 1999, cited in CA, 2004). A reduced incidence of overbank flooding

is thought to have reduced the capacity for germination and growth of riparian species (Wilson & Adams, 2004).

Salt expression occurs mainly on the western fringes of the basaltic uplands in the Condamine catchment, but also in the vicinity of urban areas of Warwick, Clifton, Allora and Oakey and covers approximately 2,500 ha (CA 2007a). The 170 salinity affected sites are small (<5ha) and are strongly influenced by climate. It is anticipated that the onset of a good wet season will push a large salt load through the Condamine system, with subsequent impacts on wetland ecosystems (CA 2007a).

There are more than 3600 fish barriers in the Condamine Basin and few have implemented engineering works or operating procedures to mitigate their impacts on fish movements (CA 2004). The Basin's native fish are threatened by declining water quality, due to changed temperatures, increased salinities, pesticides, heavy metals, sedimentation and turbidity. Regulated river flows through storages and off-stream extraction have changed the Basin's natural water flows causing widespread degradation (CA 2004).

Exotic weeds are a key threat to wetlands and riparian zones (CA 2004). The main focus is on the identification of the spread of Chilean Needle Grass and lantana (CA 2007a). Education is seen as fundamental to better weed control and that this will be achieved only through a coordinated approach.

3.4.2 Achievements and progress

The key wetland activities in Condamine are listed in Table 3.9. The focus to date (Figure 3.8) has been on-ground works (40%) and capacity building (30%). The "Wetlands Assessment and Management in the Condamine Catchment" Project, undertook a rapid assessment and identified 1750 wetlands, of which 768 had little or no modification to their natural hydrological regimes. This project assisted with the prioritisation of the local wetlands, and the "top" 30 wetlands of conservation value are now the focus for protection, rehabilitation and management initiatives. Overall priorities have been guided by the regional NRM plan and RIS "based on [the] value of [the] asset, capacity to deliver, [and] degree of threat..." (Survey Respondent). As a result, on-ground action has commenced on five priority wetlands, including Glencoe, Wilds, Tralee, Long Swamp and the Montane Sedgeland (\$250,000), based on the maps and satellite imagery developed for these wetlands. Short and long term management options have been defined for these wetlands in consultation with EPA. Flora and fauna lists have also been developed to address the degradation of their habitat.

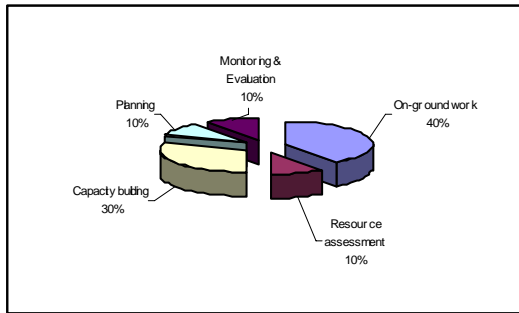


Figure 3-8 - Condamine focus of effort in relation to wetlands

Condamine has also focused on improving connectivity and removing barriers to fish movement. Other important projects include the implementation of a communication/community and landholder awareness program. The region has instituted a deliberate and dedicated process to ‘get the message out’ and works mainly with Greening Australia to engage private landholders, but also links with other partners (e.g. Landcare and grower groups), if required.

The main mechanisms utilized to achieve improved wetland outcomes include improved mapping of wetlands, fencing wetlands (particularly riparian areas), revegetation of riparian areas, pest animal and weed control, the use of GLM with landholders, introduction of off-site watering points, and a range of voluntary conservation agreements (Box 3.4).

Strong and very effective partnerships have developed with EPA (e.g. wetland mapping) and Greening Australia. Partnerships are developing with landholders, Wetland Care Australia (through the involvement of Greening Australia) and Wetlands International Oceania. A Traditional Owner Board has been established and is committed to major works in wetlands of significance and weed removal. Local government is engaged in pest management and creating water efficiencies. Industry partnerships are developing directly with peak industry bodies for cotton, grains, pigs, eggs, horticulture, dairy and poultry and with consultants into the grazing, grain and intensive industries. Universities (e.g. USQ, UTS and UQ [Gatton]) and research and development corporations (e.g. CSIRO, Cotton, GRDC) are also valued partners.

One of the main constraints to wetland conservation was lack of community awareness, with one respondent stating, “Few landholders were willing to undertake management projects with the funding supplied by Condamine Alliance...”. There is a strong perception of high public benefit and limited private benefit resulting from investment in managing wetlands. Landholders were focused on production outcomes and efficiencies resulting from investment in on-ground works and were not as highly motivated to undertake works primarily for a public conservation gain. The current

Box 3.4
Improvements in stream
condition in Condamine
catchment

Investment in protection of the riparian area through stock removal, revegetation and fencing has occurred in streams rated at poor to very poor across the Condamine catchment. Outcomes include: 129km stream bank fenced; 259 ha riparian vegetation protected/enhanced; 181ha weed removed from riparian areas; and 127 off stream watering points.



Improved stream condition in Condamine. Source: CA (2006:17)

lack of water also has made wetlands hard to relate to or identify by landholders and wetlands are perceived as having a lower priority than production efforts.

Condamine's future directions include implementing priority fish passage works, raising community awareness, promoting flexible voluntary management agreements, and partnerships with industry to implement a range of incentive mechanisms.

Table 3-9 - Key wetland activities and future directions in Condamine NRM region

Key activities	<p><i>Wetland information</i></p> <p>The “Wetlands Assessment and Management in the Condamine Catchment” applied the EPA’s mapping and classification method and identified 1750 wetlands, of which 768 were identified as having limited or no known modification to their ‘natural’ hydrological regimes.</p> <p>Condition assessment completed for four priority wetlands (e.g. Long Swamp, Tralee, Washpool and Bellevue Swamps) including flora, fauna (e.g. species lists of birds, amphibians and aquatic wildlife), water flows, water quality, indigenous assessment and identification of culturally significant sites, and landholder concerns and documenting the results and developing maps and satellite imagery (in conjunction with EPA).</p> <p>Condition, connectivity and barriers influencing fish passage determined for five key sites (Archer’s Crossing, Myall Ck, Loudoun Weir, Bowenville Reserve and Gowrie Ck) and management plans developed.</p> <p><i>Planning</i></p> <p>Floodplain management plans developed in Jondaryan/Maluy area to reduce end of valley loads in four priority sub-catchments by 30%.</p> <p>Wetland management options developed in conjunction with landholders for Long Swamp, Tralee, Washpool and Bellevue Swamps.</p> <p>Developed management plan for an endangered ecosystem with a wetland (RE13.3.6) of Montane Sedgelands and Heath, and other resource plans prepared.</p> <p><i>Education and capacity building</i></p> <p>Training and awareness raising events (18) conducted for land managers and education campaign developed to improve management of riparian lands.</p> <p>Engagement of Traditional Owners in on-ground work in significant wetlands (e.g. Long Swamp, Tralee, Washpool and Bellevue Swamps).</p> <p>Promotion of wetlands to landholders to raise awareness of their importance and best management practices. For example Long Swamp is being promoted as a community icon to indicate what can be achieved through community engagement, participation and management.</p> <p>Gaining a better understanding of the barriers to the adoption of new technologies in irrigated cotton areas.</p> <p><i>On-ground works</i></p> <p>Investment in protection of riparian areas through stock removal, revegetation and fencing has occurred in streams rated at poor to very poor and includes: 129km stream bank fenced; 259 ha riparian vegetation protected/enhanced; 181ha weed removed from riparian areas; 127 off stream watering points provided.</p> <p>Implemented actions to protect four high priority wetlands (653 ha) e.g. Long Swamp, Tralee, Washpool and Bellevue.</p> <p>Montane Sedgeland project aims to protect a 1ha endangered regional ecosystem by constructing a fence to isolate the wetland, developing a 20m buffer on three sides of the wetland in the eucalypt woodland, and monitoring and evaluation of the recruitment of wetland species in the cleared area and weed growth. The adjacent landholder will be involved in monitoring.</p> <p>Engaged in partnerships with industry (e.g. irrigated cotton, horticulture, dairy, egg producers, recycled organic waste) through contractual arrangements with measurable deliverables, including: increased skills base in horticultural producers in relation to water use efficiencies; demonstrated practice change and adoption of new technologies in irrigated cotton areas; poultry producers developing plans for NRM practice change.</p> <p>Weed control (e.g. Mother of Millions) being undertaken in two shires (Chinchilla and Millmeran).</p> <p>Addressing salinity through identification of priority salinity areas and development and implementation of a range of a best practice agricultural management options (e.g. improved irrigation practices, capacity building, and information). This will have direct benefit to water quality in the region’s wetlands.</p>
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Future directions

Continue wetland condition assessments (e.g. Montane sedgeland).
Develop priorities for fish passage and begin to implement changes and focus on connectivity.
Enhance community awareness in relation to wetland assessments.
Continue to work with graziers and shift their capacity to on-ground practice change.
Continue to invest in high priority wetlands (e.g. Montane Sedgelands) and undertake more detailed resources assessment, planning, working with landholders involved and delivery of on-ground works to improve the conservation value of the wetlands.
Continue to focus on on-ground works (e.g. at Pelican Chain - \$15,000 allocated).
Continue to establish flow and water quality requirements for wetlands in accordance with WRP. and develop action plans.
Expand the extension effort to enhance practice change in the adoption of WUE in irrigated crops.
Explore joint investment with local government (e.g. Warwick, Oakey, Dalby and Chinchilla) and community organisations (e.g. Landcare) to deliver improvements in the condition of stream reaches
Continue to prioritise investment and consider protection of 'good' condition rather than a focus on rehabilitation and repair.
Promote the use of flexible voluntary management agreements to protect priority wetlands (e.g. discussions with landholder adjacent to Montane Sedgeland project).
Seeking alternative funding sources, including corporate investment and in partnership with industry, implement a suite of incentive mechanisms relevant to industry and landscape to continue the adoption of recommended practices (e.g. dairy, horticulture, grazing, and egg industries) and focussing on priority areas across the catchment.
Enhanced linkage of projects across industry, private and community sectors.

3.5 Desert Channels NRM Region

3.5.1 Background

Desert Channels NRM region (Figure 3.9) comprises the Queensland portion of the Lake Eyre Basin – an area of 510,639 km² (EPA 2007b). The region contains intact ecosystems and significant wetland areas as part of the diverse landscapes that drain internally to central Australia. There are 24 wetlands recognized by the State and Australian governments as being of national significance (Table 3.10). The region's wetlands are also significant for providing habitat to a number of international migratory species (Desert Channels Qld 2004).



Figure 3-9 - Desert Channels NRM region

Table 3-10 - Important wetlands in DC

Type of Wetland	Number
World Heritage Area	0
Internationally important	0
Nationally important	24
Protected areas	19
Fish habitat areas	0
Wild Rivers	0

Source: EPA 2007b

3.5.2 Achievements and progress

Table 3.11 presents a summary review of progress in Desert Channels. As part of the 'Protecting our Future' program, devolved grants have been provided by Desert Channels Queensland (DCQ) for on ground activities aimed at protecting biodiversity including wetlands of significance (including Lake Buchanan, Lake Galilee and artesian springs) and endangered species (including Elizabeth Springs goby) (DCQ 2004a) (Figure 3.10).

Delivery mechanisms are focused on allowing the DCQ to work with landholders who are primarily concerned with rural production. Best management practice guidelines for Channel Country wetlands are underway with 34 monitoring sites selected and initial monitoring completed and guides completed for the Cooper and Diamantina catchments (DCQ 2006).

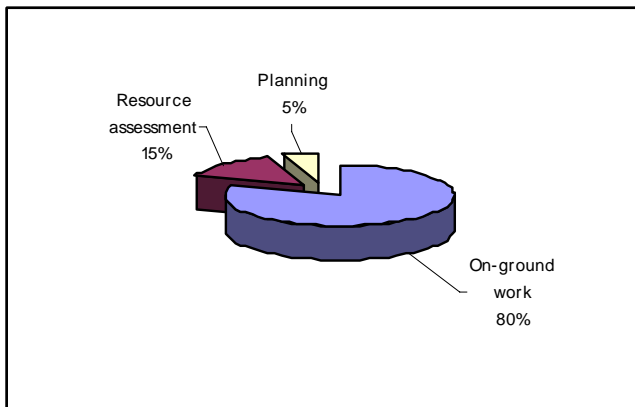


Figure 3-10 - DCQ focus of effort in relation to wetlands

Specific nature conservation initiatives with relevance to wetlands management have been undertaken in the Desert Uplands area. Over 3,000ha of riparian vegetation has been protected and managed with fencing and waters to control stocking pressure and, in many cases total destocking for the project area. In addition, seven natural springs have been fully protected within this area, as well as nearly 15km of river and creek frontage. Over 700ha were treated in weed control projects. Most of these projects were situated in creek areas which are a high priority (DCQ 2006).

DCQ has also contributed to a number of cross-border projects including the Arid Rivers and Cultural Heritage initiative, a joint project with the Arid Lands NRM Group in South Australia to identify key biodiversity rich areas in the South Australian and Queensland sections of the Cooper Creek and Georgina Diamantina catchments (DCQ 2004b).

Table 3-11 - Key wetland activities and future directions in Desert Channels NRM region

Key activities	<p><i>Education and capacity building</i></p> <p>Development of BMP guidelines for Channel Country wetlands including establishment of monitoring sites and gathering of baseline information.</p> <p>Development, publication and dissemination of 1000 copies of the 'Weeds and problem plants of the Channel Country' booklet which includes weed species within wetland habitats (an initiative of the Georgina Diamantina Catchment Committee and the Channel Landcare Group).</p> <p><i>On-ground works</i></p> <p>3,000ha of riparian vegetation protection on the Desert Uplands area through fencing and destocking. Seven natural springs, 15km of river and creek frontage have been protected from grazing pressure. Weed and feral animal management in wetlands.</p>
Future directions	<p>'Funding our Future' devolved grants program to continue to target areas of biodiversity including wetland habitats.</p>

3.6 Far North Queensland NRM Region

3.6.1 Background

The Far North Queensland NRM region (FNQ) drains to the Great Barrier Reef lagoon from six major coastal catchments, as well as Trinity Inlet (Figure 3.11). The six major catchments (progressing south) are the Daintree/Mossman (including the Bloomfield), Barron, Russell/Mulgrave, Johnstone, Tully/Murray and Herbert River catchments. Within these catchments there are many thousands of waterways and wetlands including more than 160 important wetlands (Table 3.12).



Figure 3-11 – Far North Queensland NRM region

Table 3-12 Important wetlands in FNQ

Type of Wetland	Number
World Heritage Area	2
Internationally important	0
Nationally important	31
Protected areas	127
Fish habitat areas	14
Wild Rivers	1

Source: EPA 2007b

Wetland habitats are widespread throughout the Wet Tropics. Wetlands occupy 4.9% of the region and are of various types, with estuarine being most extensive (3.1%) (Table 3.13) (EPA 2007a). The freshwater ecosystems of the Wet Tropics support tremendous biodiversity. In particular, the region has an extremely high proportion of Australia's freshwater fish species (e.g. more than 80 species are recognised for the region, including approximately 70% of the fish genera, and 42% of the fish species, in Australia).

Table 3-13 - Non-marine wetland classification summary for FNQ

Classification	Wetlands Area (%)	Total Area (%)
Estuarine	63.6	3.1
Lacustrine	3.8	0.2
Combined lacustrine/palustrine	0.6	0
Palustrine	15.3	0.8
Riverine	16.7	0.8
TOTAL	100	4.9

Source: EPA 2007b

The Russell/Mulgrave and Johnstone River catchments form the core of freshwater fish and aquatic plant biodiversity and endemism in the region. This region also has Australia's highest aquatic invertebrate biodiversity and one of the highest recorded anywhere in the world (Burrows 2004, cited in FNQ NRM & Rainforest CRC 2004). Waterway and wetland modification has occurred in all Wet Tropics catchments.

3.6.2 Achievements and progress

In FNQ, Terrain NRM (formerly FNQ NRM Ltd) is directing its efforts (Table 3.14) to providing incentives for on ground works, building capacity of various stakeholders (e.g. local government and landholders) and planning for waterways and floodplains (Figure 3.12). The majority of these wetland projects are either funded through the CCI program via the development of water quality improvement plans or through the direct allocation of approximately \$400,000 Australian Government funds for wetland management (outside the RIS allocation).

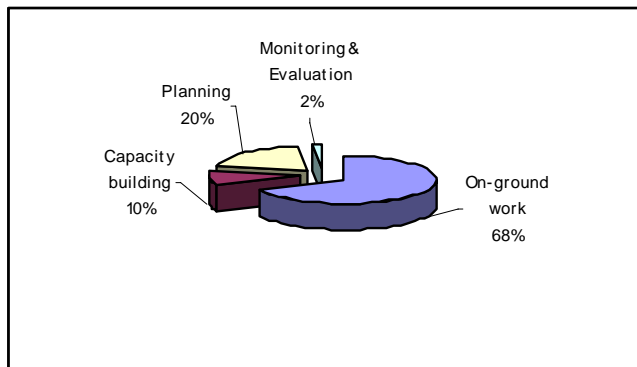


Figure 3-12 - Terrain NRM focus of effort in relation to wetlands

Assistance is provided to local government to incorporate mechanisms for the protection of wetland and riparian vegetation in planning and development assessment. Support has been given to regional forums with local government (e.g. Wetlands Management Forum in Cairns run in partnership with Earthwatch Institute). The wetland management and protection activities are delivered through the water quality, biodiversity and sustainable agriculture programs.

The Cardwell Shire area is currently the focus of a number of activities relating to water quality and catchment health. Terrain NRM has been strongly involved with the Cardwell Shire Floodplain Project's Biodiversity Action Team in the development of priority project sites and activities. A high priority area has been targeted and negotiations have begun with adjoining landholders to create a network of wetland and riparian zones within the Upper Murray area. On ground works will be funded through \$100,000 of Coastal Catchment Initiative funds. Decisions on catchment scale priorities for water quality improvement through wetland and riparian works are being informed through the development of Water Quality Improvement Plans in the Douglas and Tully and a proposal to develop a Barron WQIP is being developed.

Ten wetland projects largely focusing on the removal of weeds are underway in the lower floodplain of the Herbert River (Australian Government funds outside the RIS).

Terrain NRM identified that future activities in relation to wetlands will focus on improving landholder practices (through their partnerships with grazing and cane industries) that impact on wetlands and progressing the protection of wetlands through allied planning processes e.g. WQIP and FNQ regional plan.

Table 3-14 - Key wetland activities and future directions in the FNQ

Key activities	<p><i>Wetland information</i> EPA wetland maps are completed for the region (NHT QWP funds) Tully catchment was one of the pilot areas where the GBRCWPP program’s DSS was trialled. Lower Herbert and Russell Mulgrave have run DSS for wetlands identified for management (This use of DSS is part of \$400K Australian Government grant)</p> <p><i>Planning</i> River planning underway – water quality improvement plans, catchment management plans, river improvement trust management and action plans</p> <p><i>On ground works</i> Ten wetland projects underway in the lower floodplain of the Herbert River. Incentives to primary producers (particularly cane and banana industries) through the Sustainable Agriculture program to improve protection of riparian areas through fencing (NLP funds). Biodiversity program supports the catchment coordinators in priority and non-priority catchments and supports local government for revegetation project, many of which are wetlands.</p>
Future directions	<p>Focus on improving landholder practices (through their partnerships with grazing and cane industries) that impact on wetlands.</p> <p>Recognition of the protection and management of wetlands through WQIP and FNQ2026 regional plan.</p>

3.7 Fitzroy Basin NRM Region

3.7.1 Background

This central Queensland region includes the Fitzroy Basin, adjacent coastal waterways and the Boyne and Calliope catchments and has an area of 225,364 km² (EPA 2007b) (Figure 3.13). The Fitzroy is the largest river system draining to the east coast of Australia and is characterised by a large estuary and coastal lowlands, with contributing catchments that are flat and thus producing long duration flows (>1 week). The region contains 20 nationally important wetlands (Table 3.15), with wetlands comprising 3.4% of the total area (Table 3.16). Almost 90 percent of the region is under agricultural production, primarily grazing. Much of the coast is undergoing rapid urban and industrial expansion (around Gladstone) and this is resulting in the loss and modification of significant habitats.



Figure 3-13 - Fitzroy Basin NRM region

Table 3-15 - Important wetlands in Fitzroy Basin

Type of Wetland	Number
World Heritage Area	1
Internationally important	1
Nationally important	20
Protected areas	208
Fish habitat areas	3
Wild Rivers	0

Source: EPA 2007b

Table 3-16 - Non-marine wetland classification summary for Fitzroy Basin

Classification	Wetlands Area (%)	Total Area (%)
Estuarine	63.6	3.1
Lacustrine	3.8	0.2
Combined lacustrine/palustrine	0.6	0
Palustrine	15.3	0.8
Riverine	16.7	0.8
TOTAL	100	4.9

Source: EPA 2007b

Within the Fitzroy system 9% of mangroves and 41% of the salt marsh have been lost (FBA 2004). Increasing levels of contaminants and suspended solids are adversely affecting seagrass beds and marine biodiversity (FBA 2004). The condition of riparian areas and associated wetlands affects reef water quality. Deterioration of these areas has contributed to increased delivery of sediment and nutrients to the lagoon. Across the catchment riparian vegetation is less than 40m wide on approximately 58% of off-stream permanent and semi-permanent wetland sites. Fifteen of the region's 31 documented regional estuaries are "near pristine" (e.g. in the Shoalwater Bay Military Training Area). Eleven are "largely modified" (e.g. Styx, Herbert, St. Lawrence), four are "modified" (e.g. Fitzroy, Causeway, Calliope and Boyne), and one is "extensively

modified” (Auckland Creek in Gladstone). Wetlands in the region are significantly impacted by weeds (e.g. para grass and hymenachne).

FB has five sub-regional partner groups e.g. Central Highlands Regional Resource Use Planning, Dawson Catchment Coordination Association (DCCA), Boyne/Calliope Interim Steering Committee (BC), Fitzroy River and Coastal Catchments (FRCC) and Three Rivers. There are 200 Neighbourhood Catchments, which have been prioritised in collaboration with the sub-regional partner groups to focus on-ground investment into priority areas. Neighbourhood Catchment Action Plans guide project development and on-ground delivery of works, including wetland projects.

3.7.2 *Achievements and progress*

The Fitzroy Basin Association (FBA) is undertaking a wide variety of wetland activities (Table 3.17). The focus of effort (Figure 3.14) is on-ground works (70%) and the Priority Neighbourhood Catchments Projects (refer Box 3.5) are the outstanding achievement of FBA, which targets support and incentives to these areas to enhance the adoption of sustainable production systems. These projects have improved wetland assets on over 200 properties since July 2005, covering an area of 40,000ha. Projects generally require at least 50% landholder contribution.

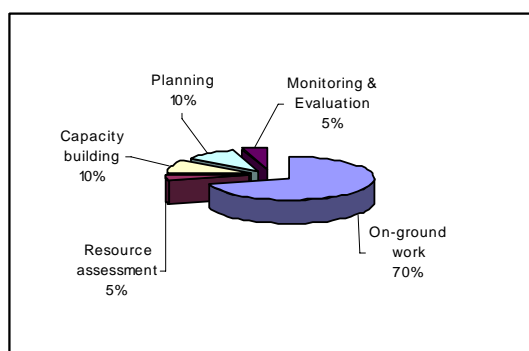


Figure 3-14 - FBA effort in relation to wetlands

The focus has been on riparian zones in third or higher order streams, wetlands greater than five hectares in size, and wetlands which are classed as ‘endangered’ or ‘of concern’. The aim is to rehabilitate, better manage and enhance the connectivity of wetlands. This is achieved by education and extension efforts which promote property management plans that encourage sustainable production systems (e.g. GLM and FMS), the fencing of wetlands and stream banks (e.g. Stowe Park project), improving connectivity, wet season spelling, provision of off-stream watering points, weed control, and reinstating fish passages. Biodiversity assessments are being conducted in the region to assess the condition of wetlands. Initial work is being undertaken to conduct baseline monitoring of seagrass (e.g. Currumin Creek estuary and Corroya Bay). Considerable effort has also been directed to engaging with the public and informing the public about wetland conservation, including through the Healthy Waterways media campaign, workshops (e.g. salinity, acid sulfate and wetlands), various communications products, media releases, funding wetland improvement, mapping and GIS support.

On-ground actions for wetland are directed at the Priority Neighbourhood Catchments. This was seen to provide economies of scale, enabling FBA staff relatively quickly to provide support and funding for wetland management to interested landholders and to achieve on-ground outcomes. Another benefit of this approach is the targeting of actions where there is greatest need. Neighbourhood Catchments are prioritised according to best available scientific information of catchments assets. These Priority Neighbourhood Catchments are then targeted by FBA allowing field officers to contact with every landholder in the catchment and a multiplier effect is produced through the spread of information to other landholders.

Strong partnerships have been forged with the following:

- local government (e.g. Livingstone, Fitzroy and Calliope Shire Councils) to actively manage wetland projects, to assist with the development of strategic pest management plans, and to incorporate NRM issues into planning schemes, policies and development assessment;
- landholders to actively initiate a range of projects that better manage wetland areas;
- sub-regional groups, which provide an active link to landholders; and
- industry bodies (e.g. Growcom, AgForce, IAWM, and Cotton Australia), which are instrumental in disseminating best practice recommendations to landholders.

Partnerships are developing with:

- Traditional Owners (through the Fitzroy Basin Elders committee and the Indigenous Engagement project and by building in Traditional Owner involvement into the on-ground incentives program);
- Research institutions (e.g. CQU - monitoring and evaluating wetland condition);
- EPA/QPWS in undertaking wetland mapping, providing expert knowledge, and establishing Nature Refuges.

The main constraint to wetland management identified by survey respondents was the lack of human resources to address “multiple funding initiatives for wetland planning and implementation”, including the recent current interest by government in wetlands, which was seen by staff as adding more work in reporting and communication, rather than allowing staff to engage directly in on-ground work. Future directions in the region are governed by actions and targets within the ‘Central Queensland Strategy for Sustainability – 2004 and Beyond’ (FBA 2004). This includes planning, prioritisation and actions to protect wetland assets and improve wetland connectivity.

Box 3.5 Priority Neighbourhood Catchments

Priority Neighbourhood Catchments (PNC) are the focus of current on-ground efforts for wetlands. A Catchment Plan is developed for the PNCs to identify issues of specific, shared concern. The farm-specific property management plan identifies practical on-ground management options to achieve improved wetland condition. This approach is efficient and effective in providing information and technical advice to underpin best management practices and makes good use of local and experiential knowledge. Past projects have protected more than 750km of riverine wetlands covering almost 5,000ha through fencing and off-stream watering points. 2750ha of palustrine and lacustrine wetlands have also been protected. Landholders contribute to this program and receive incentives targeted at changing practices and protecting regional assets. The program offers farmers property planning incentives such as mapping resources, workshops and on-farm expert advice. This is followed by a one-on-one farm visit to discuss many aspects of property management including creek and wetland management, mapping, land type management, property infrastructure such as dams and off-stream watering points, and vegetation management.

This includes actions associated with RIS funding as well as GBRCWPP Wetland Plan Projects (refer Box 3.6).

Box 3.6

FBA Wetland Plan Projects

FBA has developed seven individual wetland plans, mainly for wetlands within Priority Neighbourhood Catchments and a comprehensive range of projects are being implemented. These focus on stock proof fencing, weed and pest management, restoration of fish passages and restoring wetland connectivity, removal of pondage banks and other wetland/floodplain barriers, targeted revegetation, monitoring, production of information and interpretive signage. Projects usually require at least 50% landholder contribution.



Construction of fishways will overcome this barrier at St Lawrence Wetlands. Source: FBA 2007b:88.

Table 3-17 - Key wetland activities and future directions in Fitzroy Basin

Key activities

Wetland information

Purchase of SPOT 2.5m pixel satellite imagery for the whole of the Fitzroy Basin is enabling improved mapping of wetlands and more informed property management planning (and links to QWP mapping).

Salinity risk assessment is providing knowledge and extension tools to assist landholders to develop risk minimisation strategies to deal with higher risk areas.

SedNet modelling is used to indicate potential for soil loss from hill slopes, gully formation and stream banks and to determine hazard areas.

Water quality monitoring sites are established in 17 sub-catchments (25 are targeted) and Priority Neighbourhood Catchment Community Water Quality Monitoring undertakes event based water quality monitoring in streams leaving Priority Neighbourhood Catchments (with landholders).

Hazard mapping and monitoring of acid sulfate soils is occurring and many of the high risk areas are within wetland areas (with NRW).

Examined the effects of dredging on inshore reefs in Rosslyn Bay (with CQU and Qld Transport).

Undertaken condition assessment of wetlands in the Broadsound area (with CQU and Wetlands International); seagrass in Shoalwater Bay (with EPA and CQU); and Corio Bay wetlands (with CQU).

Assessing the impact of grazing on native fauna communities in riparian areas at several sites in each sub-region (with CQU).

Risk assessment of cyanobacteria on Lake Elphinstone (with CQU).

Port Curtis Integrated Monitoring Program to monitor and assess Gladstone Harbour (with several partners – Comalco, Cement Australia, Qld Alumina, Pacific Nickel etc); monitoring of estuaries along the Capricorn Coasts to assess the impact of urban development (with CQU).

Planning

Three Neighbourhood Catchment Plans are approved and being implemented.

Property management plans are a key mechanism for delivering improvements to wetlands and related capacity building activities have been conducted in all sub-regions. 480 Property Action Plans have been developed, approved and contracted to be funded in RIS programs.

Wetland plans developed for several individual wetlands (e.g. Corio wetlands, St Lawrence, Hedlow, Southern Fitzroy, Lake Nugga Nugga, Funnel Ck, Consuelo Creek NC). These have comprehensive action statements to improve wetland values under the QWP initiative.

Developing indigenous indicators of water quality and wetlands (with Traditional Owners) and development of video exploring country along the Nogoia River.

Establishing water quality targets throughout the region.

Mapping of habitat for Yellow Chat (*Epthianura crocea macgegori*) and interpretive signage (with Birds Australia, Threatened Species Network, and CQU).

Education and capacity building

All landholders are licence holders of the 2.5m satellite imagery and have improved information on their properties, enabling development of property management plans.

Technical support is provided across a range of production systems and this broad effort has resulted in improved wetland outcomes.

Focus on education and extension services to raise awareness (land managers, industry, local government, urban stakeholders).

Production of factsheets with relevance to wetland conservation and management (e.g. “Property Planning: Sustainable grazing on riparian lands – How and why to do it”; “Use of off-stream watering points”; and “Fencing to land types – Riparian lands”).

Developing partnerships with industry groups (e.g. QFF, QFVG, Cotton Australia, AgForce, Meat and Livestock Australia) with a focus on water use efficiency, property resource management planning.

The Biodiversity Stewardship Program is providing useful information to participating landholders and raising awareness of wetland values.

Key activities	<p><i>On-ground works</i></p> <p>Best management practices are conducted at the Neighbourhood Catchment and property level (e.g. reducing soil loss from cropped and grazed lands, assessing pasture condition, stock management, improving the physical condition of soils through minimum tillage, controlled traffic systems, stubble retention and rotational cropping/grazing, waterway and riparian management, off-stream watering systems).</p> <p>Incentives underpin on-ground work in Priority Neighbourhood Catchments, e.g. incentives to improve cattle management in riparian/wetland areas have resulted in wetland fencing and off-stream watering points on 210 individual properties; over 750km of fencing; over 40,000ha of riparian and wetland areas protected from the negative effects of production.</p> <p>Removal of pondage banks and other wetland barriers.</p> <p>Weed control (e.g. parkinsonia) has been conducted on hundreds of properties (including those with wetlands); Emu Park Wetlands have undergone weed control and habitat restoration (with Emu Park Bushcare); collaboration with local government through GBRCWPP Pilot Programme to develop a management program for Washpool Lagoon (e.g. to examine the impact of weeds and how to minimise their effects through reintroducing grazing and fire management).</p> <p>Fencing of coastal wetlands (>20km) in Priority Neighbourhood Catchments (e.g. saltmarsh and mangrove fencing and off-stream watering points).</p> <p>Implementation of catchment plans has resulted in changed management to improve the condition of resources, particularly water quality.</p> <p>A pilot project has been undertaken in Kinka Wetland and selected wetlands on the Fitzroy floodplain to improve wetland condition and management (e.g. weed control fencing, revegetation and fishways).</p> <p>Removal of fish barriers and improving connectivity in Raglan Creek, Bajool Weir and the southern Fitzroy floodplain (with Calliope SC, Main Roads, DPI&F and FRCC).</p> <p>Supporting 'conservation with production' e.g. Land for Wildlife and nature refuge initiatives.</p> <p>Collaborative agreements with industry (e.g. Growcom FMS program, Dairying better'n' better for tomorrow, Cotton BMP programs, AgForce grazing program, and AgForward grains programs) have positive outcomes for wetlands.</p> <p>Collaboration with local government (e.g. gross pollutant traps in Livingstone Shire).</p> <p>Fitzroy River turtle project is protecting turtle nesting habitats in the Fitzroy catchment (with Greening Australia and EPA).</p>
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Future directions	<p>Continue funding incentives for wetland protection under RIS.</p> <p>Deliver GBRCWPP Wetland Plan projects for 2007/08 include several properties in Priority Neighbourhood Catchments (e.g. Funnel Ck, Corio Wetlands, Lake Nugga Nugga, Consuelo Creek, Hedlow Southern Fitzroy, Perch Creek and St Lawrence). These aim to improve wetland condition and management (e.g. weed control, fencing, revegetation, fishways and management plans).</p> <p>Continue fishway prioritisation.</p> <p>Further funding of water quality incentives.</p> <p>Research into cattle behaviour in riparian areas.</p> <p>Continue to produce fact sheets and other information relevant to raising awareness of wetlands.</p> <p>Improve engagement with Traditional Owners. Several projects are underway e.g. identifying indigenous rights with respect to waterways.</p> <p>Continue funding to accelerate uptake of property management planning.</p> <p>Increase focus on establishing conservation agreements (Land for Wildlife and Nature Refuges) for wetlands.</p>
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3.8 Mackay Whitsunday NRM Region

3.8.1 Background

There are nine basins within this region, with several major river systems draining from the region's western ranges across the narrow coastal plain (Figure 3.15). There are nine nationally important wetlands and 11 fish habitat areas (Table 3.18), with wetlands comprising 3.1% of the region (Table 3.19). The coastal area contains intertidal wetlands supporting extensive mudflats, mangroves and seagrass meadows. Large freshwater wetlands are adjacent to intertidal wetlands in Repulse Bay (Mackay Whitsunday NRM Group Inc. 2004). Coastal wetlands provide habitat for shorebirds, estuarine crocodiles, marine turtles, the false water-rat (*Xeromys myoides*) and dugongs.



Figure 3-15 - Mackay Whitsunday NRM region

Table 3-18 - Important wetlands in Mackay Whitsunday

Type of Wetland	Number
World Heritage Area	1
Internationally important	0
Nationally important	9
Protected areas	59
Fish habitat areas	11
Wild Rivers	0

Source: EPA 2007b

Table 3-19 - Non-marine wetland classification summary for Mackay Whitsunday

Classification	Wetlands Area (%)	Total Area (%)
Estuarine	83.7	2.6
Lacustrine	4.9	0.2
Combined lacustrine/palustrine	0.0	0.0
Palustrine	2.2	0.1
Riverine	9.2	0.3
TOTAL	100	3.1

Source: EPA 2007b

The main land uses are sugar, horticulture, beef and grain and there has been significant loss of vegetation, particularly wetlands on the coastal plains. Many of the coastal wetlands on the alluvial plains have been converted to sugar production and riparian linkages have disappeared. Wetlands are small in area and largely fragmented and isolated. Altered land management practices particularly in the cane industry (e.g. green cane harvesting and reduced incidence of fire), may ultimately place remaining wetlands at high risk from damaging fires.

3.8.2 Achievements and progress

Table 3.20 summarises the key wetland activities and future directions in Mackay Whitsunday (MW). While there has been a relatively even spread of effort in all areas of activity, slightly more effort has been directed to on-ground work (Figure 3.16). Past land practices in MW have resulted in the loss of significant wetlands and thus the remaining wetlands and riparian areas are considered by the regional body to be a very high priority.

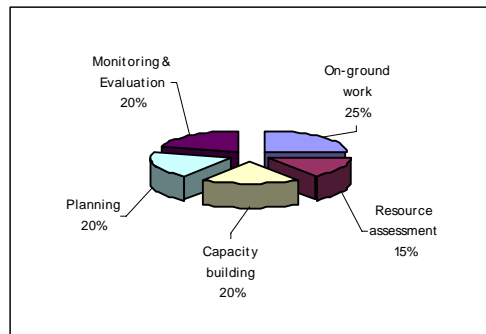


Figure 3-16 - MW focus of effort in relation to wetlands

The key wetland initiatives in which the regional body is involved are: those within the regional vegetation initiative of the Sustainable Landscapes Program (SLP), where approximately \$400,000 has been allocated to revegetation and management of riparian and wetland areas (e.g. weed control, fencing, off-stream watering points, protecting turtle nesting habitat and shorebird roost sites) and developing property management plans with landholders who volunteer to become part of the program; several priority projects are funded by external providers, including QWP, which focuses on Sandringham Lagoon, (Southern Pioneer River floodplains, and the pilot program at Tedlands station (\$70,000); NHT funding of the Wetland International Project, which is delivering management-based skills to wetland managers and owners of wetlands listed as significant wetlands; construction of fishways at 20 priority sites (\$150,000); baseline fish community monitoring at 14 freshwater sites (\$34,000); and seagrass and mangrove health monitoring in conjunction with CQU.

Fixed incentives are offered to landholders to undertake on-ground works related to wetlands. From ten to 40% of the total cost of an activity is available to landholders. Expressions of interest are obtained by the regional body and projects are assessed and must be consistent with identified plan priorities. Priority is given to projects which result in a high level of improvement to a particular asset. Funded activities include riparian fencing, weed control, stock watering points, fishways, and stormwater structures. However, a property management plan is required as a condition of funding. This process is believed to have enabled a greater amount of on-ground work to be undertaken than could have been achieved by other means. However, uptake has been influenced by landholders' perceptions that a productivity or property management improvement should result from the wetland related projects. In some cases, landholders were less interested in these incentives programs where the main benefit was for conservation outcomes.

Wetland projects are undertaken with a range of stakeholders. For example, the GBRCWPP pilot program at Tedlands Station is developing partnerships with the

property owners, EPA, DPI&F, Sarina Landcare Catchment Management Association, Wetlandcare Australia, Sarina Shire Council and the Mackay Bird Observer Club of Australia. Very effective partnerships have developed with DPI&F, particularly in relation to fishways and in-stream rehabilitation, while those with Traditional Owners are in the early stages (e.g. developing a management plan for stone fish traps and Traditional Knowledge Recording Program).

Key difficulties identified by survey respondents included: few off-stream wetlands remain due to previous draining, making conservation and management difficult to achieve; lack of understanding and knowledge, by landholders, regional body staff and industry partners, of wetlands (particularly knowledge of in-stream habitats); conflicting management regimes (e.g. where production outcomes are prioritised over environmental outcomes it is difficult to achieve gains in wetland conservation); increasing development; lack of relevant wetland legislation; lack of recognition of wetlands in planning schemes; limited regional body staff capacity to address all relevant issues and particularly to undertake on-ground works; insufficient time; and lack of resources. FBA identified that future activities in relation to wetlands will focus on improving landholder practices that impact on wetlands and improving the level of knowledge in relation to in-stream habitat.

Table 3-20 - Key wetland activities and future directions in MW

Key activities

Wetland information

Assessment of wetland values and property management needs at Tedlands Station, including fish and waterfowl populations and water quality monitoring

Inventory of 10 wetlands as part of the Wetland Information Capture project, led by the EPA and part of the QWP (e.g. Sandringham Lagoon, Tedlands Wetlands, McEwans Wetlands, Padaminka, Fursden Ck., Neilson Ck., Demoylans Lagoon, Goorganga Wetlands, Eden Lassie Ck., and Orphanage Swamp).

Baseline fish community monitoring in 14 freshwater catchments and estuaries across the region in multiple sites, incorporating wet/dry season monitoring, species presence and abundance, and site and antecedent conditions.

Partnered with DPI&F to undertake detailed assessment of in-stream habitat and barriers to fish movement in the region and have prioritised sites for rehabilitation (Mackay Whitsunday Freshwater Fish Habitat Rehabilitation Strategy).

Community based monitoring of seagrass (Seagrass Watch).

Partnered with Central Queensland University to monitor mangrove health. For example, mangrove monitoring in the Pioneer River estuary is occurring in response to large scale dieback of *Avicennia marina* suspected to be caused by agri-chemical runoff. Transects have been established and data collected from 2003 to present.

Community based water quality monitoring (Healthy Waterways) is undertaken.

Nutrients and agricultural chemicals in the GBR are being monitored as part of an ARC Linkage grant (PhD project).

Undertaking condition assessment of vine forest on coastal dunes (cross-regional project).

Partnership with Queensland Wader Study Group and Mackay and District Turtle Watch to monitor populations of shorebirds and nesting marine turtles.

Rainfall simulation trials to determine reduction of sediment and nutrients runoff due to improved land management practices on cane land.

Planning

Property management plans are an important mechanism to conserve wetlands.

Water Quality Improvement Plan is being developed to maintain and improve water quality and aquatic ecosystem health and encompasses all streams within the NRM plan area.

Land management guidelines for agricultural and grazing industries are being developed to improve water quality.

Education and capacity building

Focus on community capacity building (e.g. Healthy Waterways Volunteer Network, Coastal and Marine Program, Sustainable Landscapes Program, which trains land managers and provides ongoing support to implement property management plans).

Education and extension services developed to raise awareness (e.g. land managers in cane and grazing areas, industry, local government, schools and wider community).

Seagrass Watch and Mangrove Health programs aim to engage the community and raise awareness of wetland issues, while providing early warning systems for ecosystem health and management effectiveness.

Developing partnerships with local government, Traditional Owners, Wetlandcare Australia, CQU, EPA, NRW and DPI&F to undertake a range of wetland related projects.

Working in intensive cane areas with the cane industry to implement BMPs (minimal tillage, fixed row planting, herbicide application and nutrient testing).

Voluntary agreements such as Land for Wildlife, while successful in the past, currently are not supported with funding.

Support and funding for community and conservation groups to undertake community capacity building workshops in wetlands (e.g. Mackay Conservation Group Community Capacity Building Workshops)

Shorebird and marine turtle signage and education.

Development of nine plain English 'information bulletins' on project outcomes of GBRCWPP Pilot at Tedlands Station.

Coastcare Week and Healthy Waterways Week activities.

Key Activities	<p><i>On-ground works</i></p> <p>At Tedlands Station, implementation of grazing and fire regime management trials to manage ponded pasture grasses, coordinated pig control involving neighbouring landholders, financial and material incentives to facilitate the delivery of environmental management outcomes and negotiate nature refuge designation to secure coastal wetland values over selected areas.</p> <p>Current funding through the Australian Government GBR CWPP to develop a ‘Wetland Plan’ and implement measures to rehabilitate and conserve 10 wetland sites (see Resource Assessment) including revegetation, weed control, sediment reduction, provide connectivity for fish passage and wildlife corridors.</p> <p>Fencing of riparian areas and coastal shorebird habitat to reduce human traffic (e.g. Sandfly Creek).</p> <p>Fishway construction at 20 priority sites in Mackay, Sarina, and Whitsunday region provides connectivity for fish passage to streams and wetlands cut off by development and/or agricultural activities.</p> <p>Freshwater fish habitat rehabilitation strategy, which is a cross-regional collaboration led by MW NRM has identified and prioritised important fish habitats, degraded in-stream habitat and barriers to migration within streams and has implemented on-ground protection and rehabilitation strategies.</p> <p>MW Healthy Waterways Volunteer Water Quality Monitoring Program encompasses monthly monitoring of ambient stream conditions at approx. 39 sites in 14 sub-catchments. Event sampling occurs twice per year at 23 sites in 18 sub-catchments.</p> <p>Mimosa pigra eradication program is funded to improve waterways and wetlands.</p> <p>Indigenous stone fish traps have been located, identified and documented across the coastal region and a management plan for their preservation is being developed.</p> <p>Turtle signage and shading of lighting at turtle nesting beaches in Sarina.</p> <p>Preservation of wetland areas, including Lake Barfield and Reed Beds.</p> <p>Development of property management plans are a priority and are based on current best management practices and incorporate a range of strategies to conserve wetlands (e.g. reducing soil loss from cropped and grazed lands, assessing pasture condition, pasture and stock monitoring and management, improving the physical condition of soils through minimum tillage, controlled traffic systems, stubble retention and rotational cropping, off-stream watering systems and sustainable forest production).</p> <p>Incentives (e.g. capital grants and staged grants) are available to assist land managers develop and implement best management practices (e.g. weed control, fencing, off-stream watering points, and constructed wetlands/stormwater structures). Landholders are offered 10-40% of the total cost of undertaking an activity, depending on its priority.</p>
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Future directions	<p>Implement priority actions detailed in the Mackay Whitsunday Water Quality Improvement Plan.</p> <p>Promote the uptake of conservation agreements and covenants for wetland areas.</p> <p>Continue to promote land management best practices which improve wetland outcomes e.g. riparian fencing, off-stream watering points, and rotational grazing.</p> <p>Focus on improved riparian management particularly in cane areas (e.g. investigate the role of fire and grazing in maintaining wetland condition and promote constructed wetlands for water quality improvement and biodiversity conservation.</p> <p>Enhance knowledge and capacity in relation to understanding of in-stream habitat and wetland management generally.</p>
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3.9 Northern Gulf NRM Region

3.9.1 Background

The Northern Gulf NRM region covers approximately 233,440 km² and has 12 basins, including the catchments of the Mitchell, Staaten, Gilbert and Norman Rivers (EPA 2007b) (Figure 3.17). There are nine nationally important wetlands and two fish habitat areas (Table 3.21). The majority of the region is extensively grazed. Karumba (at the mouth of the Norman River) is the base of a major prawn fishing industry and tourism is becoming increasingly more important to the region's economy. The region is sparsely populated with nearly half the region's population residing in Mareeba Shire to the east. Approximately one quarter of the population identifies as Aborigines or Torres Strait Islanders (27% compared with 3.1% for the State).



Figure 3-17 - Northern Gulf NRM region

Table 3-21 - Important wetlands in Northern Gulf

Type of Wetland	Number
World Heritage Area	1
Internationally important	0
Nationally important	9
Protected areas	27
Fish habitat areas	2
Wild Rivers	1

Source: EPA 2007b

The major biophysical natural assets in Northern Gulf are: land; water (including waterways, groundwater and wetlands); biodiversity (terrestrial, aquatic and marine); and coastal and marine environments (Note: The other two assets – Indigenous resource management and community capacity expansion – incorporate the social and economic aspects of NRM).

Although there are thousands of wetlands, the coastal freshwater wetlands have only recently been mapped providing a description of type and their extent and location (Macdonald and Dawson 2004). The region contains nine wetlands listed in the Directory of Important Wetlands in Australia including:

- Mitchell River Fan aggregation – a 715,000ha wetland south of Kowanyama;
- Dorunda Lakes freshwater wetland complex;
- Macaroni Swamp – a semi-permanent wetland important for waterfowl;
- Smithburne-Gilbert Fan aggregation – northwest of Normanton;
- Southeast Karumba Plan aggregation – dominated by estuarine wetlands; and
- Southern Gulf aggregation – largest continuous estuarine wetland of its type in northern Australia (largely occurs in Southern Gulf NRM region).

The region forms part of the migration path of 22 species of migratory birds that span both hemispheres. Additionally, estuarine and coastal areas contain important fisheries habitats and marine plants. Two fish habitat areas are identified (Table 3.21).

Riparian health within the region was generally good with all estuaries considered to be near pristine or largely unmodified. In support of this, the Staaten River and surrounding waterways are part of the Staaten wild river declaration (2007). Impacts by pigs are considered by the Northern Gulf Resource Management Group (NGRMG) as the major issue facing wetlands management in the region (Ms Noeline Gross, pers. comm.). Impacts from other feral animals and from weed species such as rubber vine are management issues in riparian areas. Significant infestations of rubber vine are present in many places throughout the region however control activities are having success over the two - five year timeframes. The development of ponded pastures was trailed in river catchments in western parts of the region however, this was not successful.

3.9.2 Achievements and progress

To date, NGRMG has focused largely on delivering on-ground works and to a smaller degree conducting resource assessment of the wetlands assets (Figure 3.18). Planning, capacity building with stakeholders, and monitoring and evaluation tasks have been less of a focus (refer Table 3.22).

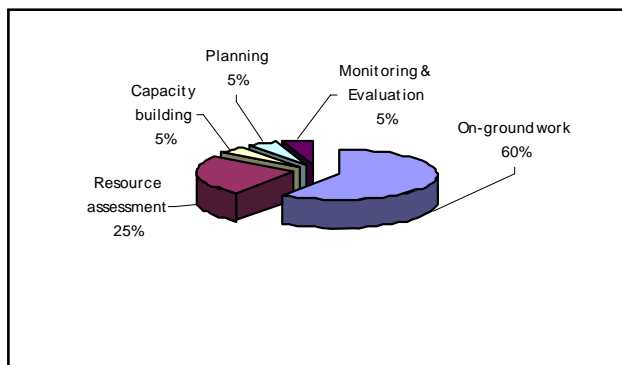


Figure 3-18 - NGRMG focus of effort in relation to wetlands

Several projects currently focus on wetland conservation and management initiatives including:

- the wetland management model at Mutton Hole Wetlands, Normanton – has lead the way in how local communities and government can work together to protect important nature values, cultural values as well as maintain an income for local businesses.
- ghosts nets (marine debris) in the Gulf of Carpentaria – discarded fishing nets of international origin are causing mass killings of marine life in the Gulf of Carpentaria. The local communities and local fishermen of the Gulf are driving a project to identify how many and where the nets are coming from and then to ‘clean up’ this problem. (Lead agent: Carpentaria Ghost Nets Steering Committee).
- numerous on-ground works by landholders through a devolved grants program to fence and install solar water pumps to remove stock from waterways which have been very effective, with most sites showing improved condition. Good uptake of wet season spelling with will have significant benefits for overall resource condition including wetlands.

“There has been very good uptake of wet season spelling which will have significant benefits for overall resource condition including wetlands as described by QWP. Some of these incentives have also been directed towards permanent wetlands, numerous springs and permanent riparian water bodies directly improving their condition.”
(Regional Body)

- the establishment of partnerships and collaborative working relationships with a number of key community sectors in the range of NRM activities have had positive impacts on activities relating to wetlands management. In particular, partnerships with landholders in the region, Traditional Owners, and some community and science organisations are very strong, while others are developing.

The main avenues that NGRMG has been engaging with the wider public and informing them about wetland conservation and management include through the wetland management model, targeted springs and wetlands incentives and engagement in the resource assessment projects.

Table 3-22 - Key wetland activities and future directions in Northern Gulf

Key activities	<p><i>Resource assessment</i> Freshwater inventory underway in partnership with ACTFR and landholders (\$180,000).</p> <p><i>Planning</i> At a local scale, development of a management model for best practice wetland management focused on the Mutton Hole wetland, near Normanton. A book addressing best practice management has been produced as part of the project. \$51,000 in funds has been allocated to this project</p> <p><i>On-ground works</i> Various devolved grants to landholders for improved management and/or protection of wetlands – activities have focused mainly on fencing and solar water pumps (to water stock away from ‘wetland’ areas).</p>
Future directions	<p>Working with local governments and their planning instruments to improve wetland management and conservation.</p> <p>Further work in weed and pest animal control programs for species that impact on wetlands e.g. pigs, rubbervine.</p> <p>Investigation of nature refuges on properties as a means to manage and conserve wetlands.</p>

3.10 Queensland Murray Darling NRM Region

3.10.1 Background

The Queensland Murray Darling Committee Inc. (QMDC) is the regional body implementing the regional NRM Plan in the Maranoa-Balonne part of the Condamine-Balonne-Maranoa Priority Investment Region and the Queensland section of the Border Rivers Priority Investment Region (Figure 3.19). The region's NRM plan was developed in partnership with the South West NRM Group (SWNRM) (refer section 3.13). Grazing and cropping are the dominant land uses (QMDC 2004). 'Wetlands and Floodplains' is included as one of nine regional asset categories within the NRM plan and six RCTs have been developed to address relevant issues. The regional NRM plan (QMDC 2004) indicated that there are more than 10,000 wetlands (>5ha) in the QMDB and Bulloo Catchment and two of these are of national importance (Table 3.23).



Figure 3-19 - QMD NRM region. Maranoa Balonne and Border Rivers catchments

Table 3-23 - Important wetlands in QMD

Type of Wetland	Number
World Heritage Area	0
Internationally important	0
Nationally important	2
Protected areas	94
Fish habitat areas	0
Wild Rivers	0

Source: EPA 2007b

The overall ecological condition of floodplain wetlands is reported in the regional NRM plan to be in poor to fair condition in the lower Balonne and upper Condamine and Border Rivers (QMDC 2004). Threatening processes that impact on wetlands include the declining water and habitat quality of waterbodies, increasing salinity, floodplain development and removal of vegetation, land management practices and changes in flow regimes due to siltation, increased land degradation, and increased fragmentation of ecosystems (QMDC 2004). In particular risks arise from alterations to flow regimes due to grazing, harvesting overland flows, weeds, and earthworks (for irrigation purposes) (QMDC 2004).

3.10.2 Achievements and progress

Table 3.24 summarises key wetland activities in QMDC. The focus of effort (Figure 3.20) within the region is on-ground works (40%) and this will continue in 2007/08 (QMDC 2007b). The main mechanism used to achieve wetland conservation has been sub-catchment planning (21 plans have been developed), which involves landholders and their neighbours working with coordinators and technical staff to identify, prioritise and undertake actions to address local NRM issues (QMDC 2007d) (refer Box 3.7). This has provided the basis for over 200 individual property management plans, many of which have implemented riverine works (e.g. fencing riparian areas,

providing off-stream watering points, improving connectivity, weed and feral animal control), and current recommended practices in a range of land use activities (e.g. through GLM program initiatives). The focus is on improving water quality flowing into wetlands. Prioritisation within sub-catchment planning is based on QMDC’s regional NRM plan and recognizes that the benefit should be to the community and not for private gain.

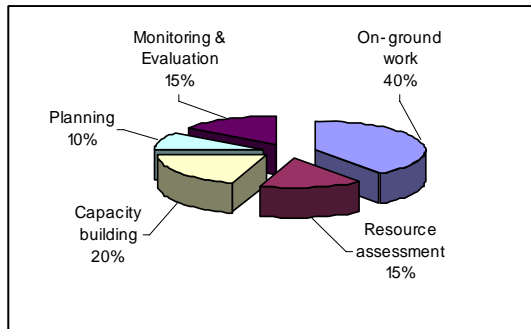


Figure 3-20 - QMDC focus of effort in relation to wetlands

Education and awareness raising are also important in this process and several voluntary conservation mechanisms, particularly Land for Wildlife agreements have been negotiated. Future efforts will be directed to negotiating Nature Refuges and restoring environmental flows to wetlands.

The Demonstration Reach Project that is being undertaken in the Border Rivers has been a major investment since 2005 and has incorporated aerial geo-referenced video mapping of waterways (110km), allowing very rapid surveying of waterways, fluvial geomorphology, and in-stream habitat. A core aspect has been community consultation and engagement to assist the expert panels identify priority management issues and on-ground works. Wetland condition assessments are occurring and landscape understanding of riverine areas has improved as a result of the Rapid River Health Appraisal projects at 67 riverine sites (refer Table 3.24) and sub-catchment planning processes (refer Box 3.8), along with the increased capacity of the community to monitor water quality and to identify and manage pollutant contributions to catchments.

While the on-going drought adversely affected the implementation of some on-ground works, many landholders have undertaken riparian fencing, erosion control and weed management through QMDC’s incentive and tender programs (QMDC 2007b). However, landholders in the region are “generally focusing on production outcomes and not on landscape/ecological outcomes” (QMDC 2007:10).

Box 3.7
Sub-catchment planning

This is an engagement, planning and action approach, whereby landholders within a sub-catchment work with their local Landcare Coordinator and QMDC technical staff to develop a detailed action plan and maps of their creek/stream catchment. Groups range in size depending on social boundaries and common NRM issues requiring action. Over 750 landholders in 63 different sub-catchment groups have developed and are implementing their sub-catchment plans.



Landholders discussing their sub-catchment plan (Source: QMDC 2007a:np)

Over-grazing of riparian and wetland areas has increased the risk of sediment delivery in run-off events. Greater protection of riparian areas is considered essential to minimize sediment and nutrient input to waterholes and waterways. Hydrology is considered to be the driving influence on long term river and wetland health, with Resource Operation Plans aiming to improve hydrology. The riparian zone functions of cover and vegetation structure are the second major influence on river and wetland health in the region, and hence riparian fencing and off-stream watering points are the primary management actions used to control stock access to these areas. This best management practice is supported by industry groups (QMDC 2006) and is expected to reduce sediment, nutrient and pesticide residue entering waterways.

Survey respondents believed that strong partnerships were developing with all levels of government, producers and the water quality monitoring groups. They considered that partnerships with Traditional Owners were in their initial stages. The respondents felt that the effectiveness of these partnerships were difficult to assess at this early stage.

Future directions will encompass expanded implement of best practice land management practices, implementation of sub-catchment plans and related projects, improving knowledge of aquatic organisms, development of training packages, and expanded engagement with local government and Traditional Owners.

Box 3.8

Rapid River Health Appraisal

67 riverine sites across the Maranoa-Balonne and Border Rivers have been assessed by 35 community volunteers and staff from QMDC. The results will be combined with other monitoring activities to show variations in river function as a result of changed management.



Volunteers undertake river health appraisal (Source: QMDC 2007c:11)

Table 3-24 - Key wetland activities and future directions in QMDC

Key activities

Resource assessment

Rapid River Health Appraisal has assessed 67 riverine sites (Maranoa-Balonne and Border Rivers regions) by community volunteers and QMDC as part of an intensive river health survey. This will indicate changes in river condition and help to measure river health.

Geo-referenced aerial video mapping of 110km stream length in the Border Rivers area, providing information on fluvial geomorphology, in-stream habitat, and erosion).

QMDC is managing the community stream salinity monitoring project and extensive assessments have been undertaken throughout the region.

Collaborative projects have begun to monitor aquatic habitat and fish ecology and population structure in the McIntyre River. Macro-invertebrate data has been collected from three long term monitoring sites

There are foundation projects to identify in-stream fish barriers (with assistance of DPI&F).

Identification and prioritisation of 15 top-ranking weed and pest animals in Maranoa-Balonne and Border Rivers catchment has been undertaken.

Planning

The RCTs and MATs within the River, Floodplains and Wetlands theme of the regional NRM plan were reviewed and updated.

21 sub-catchment plans approved and >200 individual property action plans which incorporate a range of management strategies, some of which are related to wetland conservation.

Undertaken a review of the Land for Wildlife program.

Collaboration with NRW, EPA and Invasive Animal CRC in pest management planning and implementation to prevent duplication and create a united front across the region.

Project design for Reilly's Weir rock-ramp fish way completed; and preliminary GIS modelling to identify road structures (collaboration with Main Roads).

Integrated community carp management plan developed.

Capacity building and communication

Two riverine officers employed to raise awareness of river function.

Developed a communications plan to ensure effective engagement with stakeholders.

The Demonstration Reach Project in Border Rivers area has involved extensive consultation with the community to raise awareness and involvement in river management and monitoring.

High numbers of landholders attending awareness and training events (e.g. sub-catchment planning).

Five industry (grain, grazing, and horticulture) BMP publications produced to inform sub-catchment planning; 200 landholders engaged in accredited EMS; GLM manual completed (aims for more even utilisation of pasture, improved cover and water quality outcomes).

Carp Buster Field Days (Surat, Thallon) and collaboration with local government to improve the ecological effectiveness of catchment run-off over road crossings.

Cultural Connection Workshop and other Traditional Owner Workshops conducted with incorporation of water and wetland issues; and Oral History workshops.

Engagement with media (print, radio and television) addressing incorporating wetland issues; production of fact sheets and other relevant wetland information; information days, field days; and a range of community events which feature wetlands.

Monthly newsletter has been developed to support Aboriginal Elders' conversations and leadership on the management of country (including wetlands); cross-border oral history workshops.

Several properties with wetlands have Land for Wildlife agreements.

'Creative Catchments', an innovative theatre production and visual arts exhibition toured schools in Balonne catchment (USQ and QMDC), enhancing understanding of NRM and wetland issues.

Key activities

On-ground works

The Demonstration Reach Project (110km) funds a range of demonstration projects in the Border Rivers area including: aerial geo-referenced video mapping of river (e.g. fluvial geomorphology, habitat mapping), alternative watering points, rehabilitation, re-stocking with native fish; and carp buster field days.

63 groups of landholders are involved with sub-catchment planning processes, which have resulted in: 331 alternative watering points created; 244km of riparian fencing created; and 10654ha waterway stabilization (2004-06).

In Maranoa-Balonne contracted works are expected to reduce sediment and phosphorus export to waterways, representing a 75% reduction in soil loss from cropping.

Revegetation of degraded wetland areas is occurring as part of property management planning across the region, within the sub-catchment planning process.

Weed and pest eradication (e.g. baiting of pigs); lippia case studies; and blackberry control.

Indigenous Traditional Owners supervised the cleaning out of the Weengallon Rocks Wells. The area has been fenced and a weed control program to eradicate Mother of Millions was undertaken.

Future directions

Implement the findings from the review of sub-catchment planning and continue to implement sub-catchment plans, including contour banks, fencing to land types, increased riparian fencing, provision of watering points to more evenly distribute grazing pressure.

Salinity audits have highlighted the need for regionally responsive management changes and sub-catchment action plans are the proposed mechanism e.g. this will involve 80 landholders, related industry and local government in 2007/08 and further uptake of current recommended practice to meet industry standards.

36 river protection projects are in the final negotiation stages in three sub-catchment planning groups and these projects involve 86km and 698 ha of wetland asset protection, 31 off-stream watering points and improved grazing land management practice to 12,000ha of grazing and mixed farming lands.

Further consultation with sub-catchment planning groups in relation to a variety of wetland management projects.

Improve knowledge of aquatic organisms and their response to catchment change and continue to monitor aquatic habitat (in conjunction with UNE) and implement projects that address in-stream habitat, channel form and aquatic vegetation.

Development of a River Restoration Course that is tailored to regional conditions (TAFE certified).

Implement priority weed and feral animal documentation and reduce weed seed spread.

Continue on-ground works through the provision of incentives through sub-catchment planning and local government initiatives.

Need to gain better understanding of landholders' constraints to adoption and the drivers for implementation of on-ground works.

Further engagement with local governments in sub-catchment planning processes to increase coordination and awareness of priority NRM issues, including wetland issues.

Target wetland areas for improved management, particularly through voluntary agreements, and increase effort directed to the negotiation of Nature Refuges.

3.11 South East Queensland NRM Region

3.11.1 Background

The South East Queensland (SEQ) region incorporates Moreton Bay and Islands, Noosa, Maroochy/ Mooloolah, Pumicestone, Pine Rivers, Redlands, Logan/Albert, Gold Coast, Bremer, Lockyer, Stanley, and the upper, mid and lower Brisbane River catchment areas (Figure 3.21). The region covers an area of approximately 41,591.30 km² (EPA 2007b) from Noosa to the Gold Coast and west to the Great Dividing Range. The region is the fastest growing metropolitan area in Australia and supports a population of 2.5 million people or 65 percent of Queensland's population. This is expected to grow to 3.5 million people by 2021. The region has a rich diversity of natural resources which supports a wide diversity of agricultural manufacturing industries, commerce and tourism. The SEQ region has 17 wetlands that are of national importance and 15 fish habitat areas (e.g. Deception Bay and Pumicestone Passage) (Table 3.25). The region's wetlands have outstanding biological richness, diversity, geographical extent, and importance as habitat for a similarly rich and diverse biota (SEQC 2004).



Figure 3-21 - South East Queensland NRM region -

Table 3-25 - Important wetlands in SEQ

Type of Wetland	Number
World Heritage Area	1
Internationally important	1
Nationally important	17
Protected areas	200
Fish habitat areas	15
Wild Rivers	0

Source: EPA 2007b

Specific values and functions of wetlands in SEQ include:

- Extensive freshwater, intertidal and estuarine wetlands with a diversity of fish, bird and flora species;
- Populations of dugongs, turtles and rare and threatened species such as the Water Mouse and Illidge's ant-blue butterfly;
- Nature appreciation and passive outdoor recreation at wetlands centres, boardwalks and parks in all local government areas; and
- Recreational boating facilities at inland lakes and dams and marinas, accessible throughout the region.

3.11.2 Achievements and progress

SEQ Catchments has progressed a level of wetlands mapping based on regional ecosystem and historical data, to give some direction for their resource assessment and planning activities while awaiting the EPA wetlands map products (not yet available for the region) (Figure 3.21).

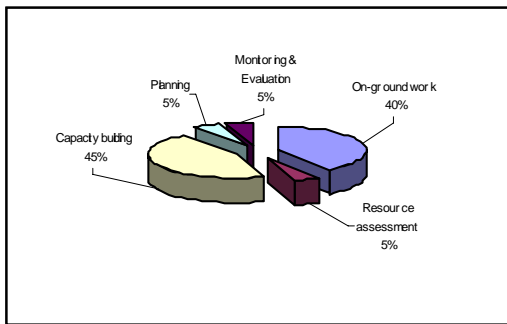


Figure 3-22 - SEQC focus of effort in relation to wetlands

The following projects are examples from the range of SEQ Catchments programs focused on wetland conservation and management:

- Hay's Inlet project in collaboration with Redcliffe City Council – coordination of management, protection and repair of the Hays Inlet coastal system and associated estuaries. Initial investment towards Hays Inlet is for the protection of the Endangered/Of Concern Regional Ecosystems present within the marine environment through access management. Key critical access points have been identified and fenced to keep out the illegal entry of four-wheel drive vehicles and motorbike users.
- Wetlands Revitalisation at Bundamba – involves engineered works to re-establish the natural water levels of the wetlands area, weed and pest control to allow regeneration and revegetation with native wetlands plant and grass species (refer Box 3.9).
- Jim Finemore Park riparian revegetation project in collaboration with Ipswich City Council – establish 1km of riparian vegetation and protect and manage 1km of stream bank for water quality and conservation outcomes.
- NRM activities in Logan and Albert Catchments – involvement in Best Management Practice programs such as Grazing Land Management, Dairying Better and Better for Tomorrow and water use programs. Access to a small devolved grant program providing support for resource assessment, riparian restoration or native vegetation enhancement.
- Off-stream watering points at Harrisville – involves the establishment of two off-stream watering points, 600m of riparian fencing and 12ha of wetlands managed for the pest plant 'Lippia'.

**Box 3.9
Bundamba Wetlands Project
- working with Hunting &
Conservation**



SEQ Catchments have partnered with the Hunting & Conservation Division of the Sporting Shooters' Association of Australia (Queensland) Inc and Ipswich City Council to re-instate some of the natural values of the wetlands at Bundamba.

Project activities involve building up an embankment to re-establish the natural water levels of the wetlands area, weed and pest animal control, allowing natural regeneration and supplementary planting to reinstate local ecosystems and link the wetland to remnant vegetation in the hills in the south of the property, an area of high conservation value.

This is a good example of working with an 'unusual' partner – a sporting group - who has land management responsibilities and valuable features on their property.

- Revegetation of Sandy Creek Bridge to Bridge – involves the remediation of a 5ha area of Sandy Creek riparian area at Lower Tivoli through pest plant management, revegetation activities and 1km of riparian protection fencing.
- Shorebird management and education strategy programs.

Table 3-26 - Key wetland activities and future directions in SEQ

Key activities	<p><i>Resource assessment</i></p> <p>Identified coastal and marine studies are underway</p> <p>Impacts of septic on groundwater quality in priority catchments are being determined through ongoing support for community groundwater investigation project</p> <p>Investigation of groundwater quality in priority catchments</p> <p>Community-based water quality monitoring and estuarine monitoring programs (including Seagrass Watch) are supported.</p> <p>Monitoring extent and infestations of aquatic weeds in conjunction with water quality monitoring processes.</p> <p><i>Planning</i></p> <p>Assistance is being provided to smaller local governments to develop catchment and waterway management strategies.</p> <p>In conjunction with their research partners, models of catchment groundwater systems are being developed for future planning and management activities.</p> <p><i>On-ground works</i></p> <p>Incentives play a key role in the on-ground works in terms of total investment in wetlands management. Targets for incentives include areas of biodiversity; management of weeds and pests; removal of aquatic weeds; protection or enhancement of riparian zones in priority areas; management of gully erosion and key coastal localities.</p> <p>Implementation of the Shorebird Strategy and Coastal Wetland Management Program.</p> <p>Fish passage restoration projects in key waterways.</p>
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Future directions	<p>Building community capacity in the area of weed management (e.g. Lippia) in the first instance in order to engage landholders in broader discussions about wetland management, restoration and protection.</p> <p>Developing and running wetlands awareness/education campaign, e.g. Hay's Inlet Awareness Week, which would build the understanding of the community regarding the connections between the upper catchment and coastal wetlands. The project would focus on the D'Aguilar Range corridor along Pine River to the Bay.</p> <p>Further work is required to address fire management in urban wetlands and the impact of hydrological change on wetlands, caused by urban development and water extraction (where it exceeds the environmental flow requirements of particular wetlands).</p> <p>Moving to a more comprehensive involvement of the region's Traditional Owners across the board of NRM activities in particular in wetlands management.</p>
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3.12 Southern Gulf NRM Region

3.12.1 Background

The Southern Gulf NRM region of northwest Queensland is approximately 246,145 km² in area and comprises 12 major basins, including the Flinders/Cloncurry Rivers, Leichhardt River, Nicholson/Gregory Rivers, Settlement Creek basin in the vicinity of the NT-Qld border, and Morning Inlet, as well as the Wellesley Islands group in the Gulf (Figure 3.23).



Figure 3-23 - Southern Gulf NRM region

The region has 15 nationally important wetland aggregations (Table 3.27) including:

- Southern Gulf aggregation – the largest continuous estuarine wetland of its type in northern Australia (in part included in Northern Gulf NRM region),
- Marless Lagoon aggregation – an important example of seasonal and semi-permanent forested wetlands within the Doomadgee Plain, seasonally abundant with waterbirds,
- Wentworth aggregation – one of the best examples of the full range of wetland types related to alluvial and estuarine systems in northwest Queensland,
- Bluebush Swamp – an important example of scrub-shrub wetland on an alluvial plain,
- Nicholson Delta aggregation– contains permanent, semi-permanent and seasonal wetlands and is the best example of delta alluvial system in the area, and
- Thornton aggregation – a good example of a pristine wetland system with permanent water in a semi-arid environment which includes Lawn Hill Gorge with deep permanent water and fringing habitat and Gregory River, the largest perennial river in arid/semi-arid Queensland (Southern Gulf Catchments 2004, Blackman et al. 1992).

Table 3-27 - Important wetlands in Southern Gulf

Type of Wetland	Number
World Heritage Area	1
Internationally important	0
Nationally important	15
Protected areas	15
Fish habitat areas	2
Wild Rivers	3

Source: EPA 2007b

Detailed mapping and ecological assessment of the wetlands in the region have not yet been undertaken, but the values of the region's wetlands are well documented and include:

- one of the three most significant habitats for migratory shorebirds in Australia;
- habitat for approximately 100,000 waterbirds;
- supports some of the most diverse freshwater fish fauna of any State, providing habitat for the entire life cycle of some 130 species (DoE 1997); and

- represents the only perennial streams in arid Queensland with a significant level of associated biodiversity.

These wetlands, their resources and ecological processes are integral to the Gulf region’s prawn and fin-fish industries, tourism and the pastoral sector (Southern Gulf Catchments 2004).

3.12.2 *Achievements and progress*

Southern Gulf Catchments’ NRM activities (Table 3.28) have focused on (Figure 3.24):

- weed management and control;
- on-ground conservation projects including riparian protection and improved grazing land management;
- property infrastructure mapping leading to property management planning; and
- fire management in the lower Gulf.

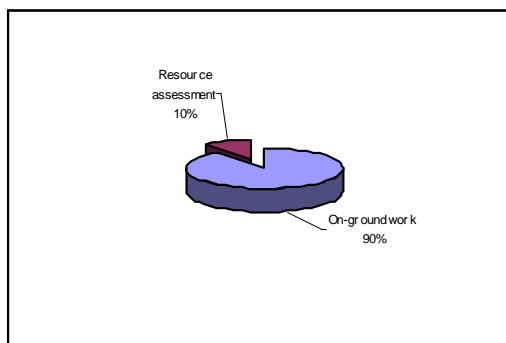


Figure 3-24 - Southern Gulf Catchments’ focus of effort in relation to wetlands

Inland wetlands investment will primarily cover on-ground works under the region’s ‘Healthy Waterways, Rivers and Wetlands’ program. Projects being implemented through the program include:

- Wetland prioritisation using remote sensing being conducted by ACTFR – an assessment of the Leichhardt River identified high priority water bodies for protection or restoration.
- Grazing land management initiatives, wet season spelling and provision of off-stream watering points – all key activities towards wetland management and conservation in the region.
- Collaborative rubber vine management project in the Qld/NT buffer zone (see Box 3.10)

A project focused on the coastal and marine zone involves wetland identification and migratory shorebirds and associated wetland habitats aerial and ground survey in the Burketown area covered approximately 50 km of Southern Gulf intertidal zone.

Box 3.10
Rubber vine management in the Qld/NT buffer zone

Integrated projects initiated by Southern Gulf aim to keep the QLD/NT rubber vine buffer zone and hence the Northern Territory clear of rubber vine. The buffer zone extends 100 km east from the NT border to the Rubber Vine Containment Line. Projects include burning and treating rubber vine along the Gulf coastline by local Indigenous trainees, and herbicide treatment of rubber vine on the Lawn Hill Creek - Musselbrook - Elizabeth Creek system and Gregory River. These sites are strategic in the upper catchment, being closest to the NT border and Lawn Hill National Park. Waanyi staff on Riversleigh Station are trained in weed control techniques to carry out follow-up procedures.

Table 3-28 - Key wetland activities and future directions in the Southern Gulf

Key activities	<p><i>Resource assessment</i> Wetland identification and migratory shorebirds and associated habitat survey in the intertidal zone near Burketown</p> <p><i>On-ground works</i> Collaborative rubber vine management projects in the Qld/NT buffer zone with around \$220,000 of funding from various Southern Gulf, Australian and State Government sources contributing. Reinstatement of fish passages is underway with Burke Shire and DPI&F collaboration.</p>
Future directions	<p>\$100,000 of RIS funds are flagged for wetland management activities in the current financial year; Local government participatory work – collaboration with all nine Southern Gulf shires will deliver wetland and waterway management and other conservation activities; Agreed property pest management plans are envisaged to enable effective long term collaborative monitoring and management of weeds of national significance in strategic upper catchment areas.</p>

3.13 South West NRM Region

3.13.1 Background

This region includes six major basins (Balonne-Condamine, Bulloo, Cooper Creek, Fitzroy, Paroo and Warrego) (EPA 2007b) (Figure 3.25) and its NRM plan was developed in partnership with the QMDC. The main land uses are cattle and sheep grazing, with some mining. ‘Riverine, Floodplain and Wetland’ is included as one of nine regional asset categories within the NRM plan and six RCTs have been developed to address relevant issues. There are more than 10,000 wetlands (>5ha) in the QMDB and Bulloo catchment (QMDC, 2004). Currawinya Lakes (Paroo Catchment) is the only internationally important Ramsar site in the plan area, although there are 17 nationally important wetlands (Table 3.29).



Figure 3-25 - South West NRM region

Table 3-29 - Important wetlands in South West region

Type of Wetland	Number
World Heritage Area	0
Internationally important	1
Nationally important	17
Protected areas	17
Fish habitat areas	0
Wild Rivers	0

Source: EPA 2007b

The overall ecological condition of floodplain wetlands is highest in the Warrego-Paroo (QMDC, 2004). Threatening process that impact on wetlands, include the declining water and habitat quality of waterbodies, increasing salinity, floodplain development and removal of vegetation, land management practices and changes in flow regimes due to siltation, increased land degradation, and increased fragmentation of ecosystems (QMDC 2004). In particular risks arise from alterations to flow regimes due to grazing, harvesting overland flows, weeds, and earthworks (for irrigation purposes) (QMDC 2004).

Two key investment programs for South West NRM (SWNRM) are: PLANSCAPES, which delivers priority planning and resource assessment at multi-property scales and targets land manager groups in priority landscapes through a system of research, mapping and data analysis; and FUTURESCAPES, which is the primary vehicle for on-ground works and investments that improve natural resource condition. Funding is provided to stakeholders who demonstrate a willingness to go beyond their ‘duty of care’ or core business to provide sustainable landscapes for the benefit of the wider community and future generations (SWNRM 2007).

3.13.2 Achievements and progress

Table 3.30 summarises the key wetland activities and future directions for the South West region. Prioritisation of NRM activities, including wetland activities, is based on a three tier assessment process including SWNRM technical staff, a panel of three government representatives and a community assessment panel, with final assent from the SWNRM Board (SWNRM 2007c). The focus of wetland effort to date (Figure 3.26) has been on investment in on-ground works (70%), with lesser emphasis on capacity building and planning. This focus is expected to continue in 2007/08, although with less emphasis on planning and resource assessment (SWNRM 2007c).

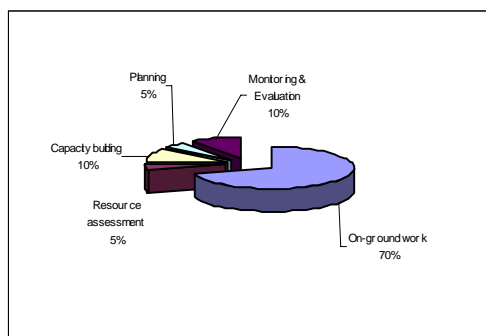


Figure 3-26 - SWNRM focus of effort in relation to wetlands

The highlight has been the commitment to fencing riparian frontages (over 180km protecting approximately 10,000ha of wetlands at a cost of about \$670,000 from 2004-07), provision of off-stream watering points and assisting small groups of neighbouring land managers address property and catchment management issues and works in conjunction with the GLM program. The Larbey Ladder project typifies the outcomes that have been achieved (refer Box 3.11). Best management practices are promoted with landholders and actions have been implemented to reduce soil erosion on cropping lands, with conservation farming practices being applied on over 60% of cropped land. These activities are aimed at improving water quality and wetland values. However, as little monitoring has been conducted, it is difficult to determine the long term effectiveness of the projects (e.g. landholders retaining ungrazed frontages after they are fenced and the works are completed).

Significant problems in prioritizing sub-catchment planning programs have limited the outcomes from the FUTURESAPES program. Management of weeds and pests in wetland systems is not considered to be a priority by landholders. However, these issues are being addressed in conjunction with local government. A major issue in the NRM Plan area is management of European carp (e.g. Paroo R., Nebine Ck, and Bulloo catchment) (QMDC 2004).

Box 3.11 Larbey Ladder protects springs -Carnarvon Station Reserve

The project has involved the exclusion of feral herbivores from the Conglomerate and Mailman Springs by fencing to improve water quality, protect a threatened ecosystem and sites of cultural heritage significance. To date 11 of the 36 springs are protected by exclusion fencing. The project is part of the devolved grant incentive scheme, with money awarded to the Australian Bush Heritage Fund to undertake the works. The project incorporates a range of fencing types to determine their relative effectiveness and a monitoring program to assess improvements in water quality.
(SWNRM Ltd, 2007d)

Emphasis has also been placed on education and awareness raising (e.g. new web portal, fact sheets, information displays, workshops and case studies). This is the key mechanism to achieving best management practices and hence improved wetland outcomes.

Strong partnerships have been developed with Traditional Owners, particularly through the recent engagement of a consultant to enhance the capacity of Traditional Owners to engage broadly in NRM issues and wetlands in particular. Partnerships are developing with local government to expand their area of engagement from the traditional “rates, roads and rubbish”, as evidenced by the development of a water use efficiency project in conjunction with Paroo Shire Council and with other councils in the control of weeds and pests. Also developing are partnerships with landholders to expand their engagement with wetland issues (i.e. away from a focus on “drought and production”).

The main challenges for the regional body have been: attracting and retaining suitable staff; the lack of knowledge transfer because of staff turnover (although this has now stabilized); improving staff skills; the extended drought, which has had a significant bearing on landholders’ ability to deliver on-ground works and to participate in workshops; limited capacity to conduct on-going monitoring and evaluation of projects due to staffing shortages; and lack of landholder understanding of ecology and sympathy for the environment. Future directions will focus on continued wetland (riparian) fencing and stream bank stabilization, restoration of fish passages, weed and pest management, awareness raising through GLM and FMS workshops, and working to secure management agreements with landholders.

Table 3-30 - Key wetland activities and future directions in South West region

Key activities

Resource Assessment

Research into priority weeds and pests, some of which affect wetlands e.g. in the Bulloo, Nebine-Mungallala-Wallam, Paroo and Warrego catchments. This will develop a methodology to prioritise weeds and pests based on their extent and impact, and will identify best practices for weeds and pests. Surface water assessments being undertaken (e.g. Eulo and Mobile Creeks). Developing finer scale SPOT image coverage of the main river systems.

Planning

Floodplain management plans are developed for several floodplains e.g. Brigalow, Jimbour and Upper Condamine
Riparian area management plans have been developed for each sub-catchment group.
Developing 'Current Recommended Practices' to encourage primary producers to improve land management practices, with expected improved outcomes for wetlands.
Voluntary management agreements are increasingly used as a planning mechanism.

Capacity building and communication

Significant progress in communication, education and capacity building e.g. workbooks were extensively reviewed and redesigned to update information on weeds and pests, riparian and floodplain management. GPS/GIS training in Thargomindah, Quilpie and Charleville to assist landholders in understanding and better managing their properties.
Development of fact sheets, information sheets and newsletters which provide an avenue for raising awareness about wetlands to the main stakeholders; information stands at regional events provide information on wetlands (e.g. Tree Planning Day, Cunnamulla Festival, Threatened Species and Landcare Week, and AgForce Conference); attendance at Landcare meetings; quarterly newsletters to residents; water efficiency package is partially completed (e.g. information sheets on the importance of water and water efficiencies); and a water wise initiative scheme has begun with Paroo Shire Council.
Strong links have developed with the media, and this has enhanced the presence of the regional body and its ability to open dialogue with the community on wetland issues.
New web portal with increased functionality has been developed to better engage the community, and provide a mechanism for information exchange concerning wetland conservation and management.
GLM workshops assist with the delivery of information on wetlands and their management.
Case studies are being developed and used in promotional materials: Kooma Traditional Owner group on Murra Murra Station; and Larbey Ladder on Carnarvon Station Reserve (protects natural ground springs in the upper reaches of the Warrego catchment).
A Traditional Knowledge Recording Project has begun.

On-ground Works

Riparian fencing is a major focus (e.g. in 2005-06, approx. 400kms). In 2005-06, 7400ha of riparian area were protected and 1000ha of other wetland types. This included the removal and/or limiting of stock from riparian areas allowing native vegetation to regenerate, and provision of off-stream watering points (36 established in 2005-06).
Strong partnerships are developing with several organisations (e.g. local government) to implement actions relating to water quality and riverine management. Water contamination is being addressed through integrated pest management practices, better chemical application and container disposal methods, development of pest resistant plant species, and restrictions on the use of some chemicals.
Actions implemented to reduce soil erosion on cropping lands have reduced sediment reaching streams.
Conservation farming practices are applied on >60% of cropped land.
Local governments are beginning to upgrade sewage works, improve waste management systems, reduce soil erosion from construction sites and incorporate floodplain management principles into their planning schemes.
Piastre Fish Trap project is underway.

Future directions

Ensure that the new NRM Plan that is specific to SW incorporates wetland specific actions.
Continue to bridge knowledge gaps in the understanding of wetland ecosystems e.g. determining baseline water regimes and wetlands ecology.
Identifying wetland rehabilitation and management projects.
Riparian fencing (70km riparian fencing protecting 7000 ha riparian veg) and wetland fencing (40km protecting 4000ha wetland areas) in 2007/08.
Stream bank and bed stabilisation (75km) in 2007/08.
Management agreements to ensure adequate protection and rehabilitation of priority riparian and wetland areas.
Continuing actions to maintain river health/condition in Maranoa-Balonne, Border Rivers, Nebine Mungallala, Warrego-Paroo catchments.
Restoring native fish passages (e.g. Warrego R) and reviewing Paroo River native fish passage.
Partnerships with local councils in the areas of river restoration, wetlands construction, weed and pest control, and develop their capacity to participate more effectively in NRM planning and implementation.
Continue feral pig control programs throughout river systems.
More effective engagement with Farm Management System initiatives in relation to wetlands.
Expand training programs and workshops in NRM for community and NRM decision makers.
Complete Indigenous cultural NRM issues plan (2007/08).
Participate in new regional plan (DLGP) to ensure effective incorporation of NRM and indigenous content and policy and specifically wetland related issues.
Undertake monitoring and evaluation of wetland condition and extent.
Increase the number of nature refuges, properties undertaking Land for Wildlife and other voluntary conservation mechanisms that improve wetland outcomes.

3.14 Torres Strait NRM Region

3.14.1 Background

The Torres Strait region (Figure 3.27) covers approximately 56,446.77 km² (EPA 2007b), of which 2.6% is terrestrial, 6.2% tidally inundated reef flats, and 91.2% open seas, most of which are relatively shallow (TS NRM Reference Group 2005). It is recognized for its ecological complexity and biodiversity, and the main primary production activity in the region is fishing and small scale horticulture. Coral reefs occur to the east and have been extensively mapped and classified by the CSIRO, while extensive seagrass beds (approx 12,425 sq. kms) occur in the western and northern areas, forming critical habitat for dugong populations and a nursery area for commercially important species (e.g. prawns and tropical rock lobster). The over 150 islands of the Torres Strait are of five major types:

- top western cluster are low-lying mud islands that are extremely flat, with large interior swamps filled with brackish water. Mangroves line almost the entire perimeter shores. Wetlands are thus a key vegetation type (mangroves and saltpan communities). Saibai and Boigu are the main islands;
- western islands are granite, although low-lying regions contain wetlands;
- eastern islands are volcanic with many creeks and streams, although early clearing has destroyed much of the dense vegetation;
- central islands are granite islands fringed with coral sand flats; and
- inner islands vary in their landscape features, some with extensive inter-tidal wetlands.

The ecosystems, including wetland ecosystems are poorly known. Regional vegetation communities have been mapped at 1:100,000 scale, but there has been little on-ground field work to support this mapping and to delineate specific communities. There are large areas of inter-tidal wetlands around the northern mud islands (e.g. Saibai and Boigu). Smaller inter-tidal wetlands are found in many continental islands. Most areas of freshwater wetlands are small and seasonal, although little is known about their extent or ecology. There are no listed wetlands in Torres Strait due to the paucity of knowledge about the region (Table 3.31). Despite this, “all wetlands areas are of major ecological, social and economic importance within the region itself” (TS NRM Reference Group 2005:26).



Figure 3-27 - Major islands within the TS NRM region

Table 3-31 - Important wetlands in TS

Type of Wetland	Number
World Heritage Area	1
Internationally important	0
Nationally important	1
Protected areas	0
Fish habitat areas	0
Wild Rivers	0

Source: EPA 2007b

The Torres Strait Regional Authority (TSRA) manages the delivery of the NHT in the Torres Strait region. A Land and Sea Management Unit (LSMU) was established by June 2006, within the TSRA, to coordinate the delivery of NHT funded initiatives and to promote the strategic alignment of effort and resources to support improved NRM outcomes for the region (TSRA 2006a). This unit takes on the functions of a regional body for the Torres Strait on behalf of the JSC and TSRA (TSRA 2006b). This is unique in Queensland.

The majority of inhabited islands in the Torres Strait are Deed of Grant in Trust (DOGIT). However, there have been successful determinations of native title over every inhabited island and over most of the uninhabited outer islands of the Torres Strait. Prescribed bodies corporate (PBCs) have been established to hold and manage native title on behalf of the native title holders for each of these islands. For these lands all interactions with community are through the PBCs and individual Traditional Owners. Wetland projects require administrative coordination and support from Community Councils, whilst permission from Traditional Owners and native title holding entities is required for most land access and use arrangements, and to ensure cultural heritage requirements are met (TSRA 2006b).

Issues of importance in relation to wetlands include:

- loss of mangroves due to reclamation and development;
- loss and degradation of riparian vegetation and degradation of catchment areas, resulting in loss of topsoil and siltation of creeks and streams;
- invasion of weeds and feral animals (pigs, deer, horses, and goats), which have resulted in the degradation of catchment and riparian zones;
- degradation and draining of wetlands;
- lack of knowledge of the occurrence and distribution of threatened vegetation types;
- disturbance of garden bottom and coral reefs; and
- maintaining the health and extent of seagrass.

3.14.2 Achievements and progress

Table 3.32 summarises the key wetland activities and future directions within TS. The focus of effort (Figure 3.28) is planning and resource assessment and a small amount of on-ground work. Important activities have included a series of regional events and workshops to enable the community to articulate their priorities, aspirations and concerns in relation to NRM (TSRA 2006b) and also to familiarize people with the scope, objectives and program requirements of the NHT and National Landcare Program.

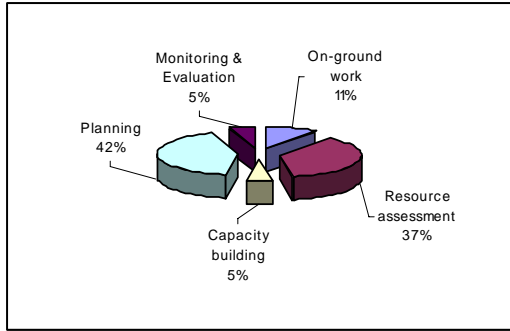


Figure 3-28 - Focus of effort in TS in relation to wetlands

The wetland strategies are focused on mapping and inventory and education and awareness raising. Wetlands are viewed as an important food source. There is historical evidence of canals having been constructed in the wetlands approximately 1000 years ago to assist crop production (e.g. starchy vegetables). While the canals are not used today, the custom of cultivating wetlands remains important to many communities (Survey respondent).

The Torres Strait region does not have an accredited regional plan or RIS in place. The Land and Sea Management Strategy for Torres Strait (TS NRM Reference Group 2005) forms the framework for the delivery of land and sea management initiatives, including wetland initiatives, and NHT and other sources of funding for environmental projects in the region (TSRA 2006a). The Strategy identifies on-ground projects, and information and institutional resource needs to protect and enhance the natural environment of the Torres Strait. It forms the basis for NRM investment and priority-setting in the region. Concept project proposals are endorsed by the TSRA Board and Executive before being fully developed. Thus priorities in relation to wetlands are determined by the Board, on the advice of the LSMU, which engages in consultation with community to identify and gain support for proposed projects.

NHT funding of approximately \$700,000 per annum over three years has been provided from 2004 – 2008. A Technical Advisory Group has been established to support the LSMU and to enhance the alignment of research and agency effort with the Strategy's priorities (TSRA 2006a). A draft RIS, which will include a wetland component, is expected to be completed by December 2007, with formal approval expected in July 2008.

The main partner in the delivery of wetland outcomes is the relevant local Community Council. Relationships with PBCs are at different levels of capacity and relationships with Traditional Owners vary throughout Torres Strait and are improving in effectiveness. The Torres Strait Regional Landcare Officer is hosted within the TSRA LSMU and is facilitating the participation of communities to deliver on initiatives identified in the Land and Sea Management Strategy for Torres Strait. Several communities have ranger programs underway. For example, the Badu Island Council employs two full time rangers to deliver the Badu Island Land and Sea Management Program. On ground activities conducted by the rangers include weed removal and identification, fencing and construction of signage around culturally and ecologically

significant areas, maintenance and rehabilitation of significant areas. They also play an important role in community education and awareness raising and building capacity to manage land-based resources, including wetlands.

Key challenges are the high costs associated with operating within the Torres Strait region, the limited availability of staff and office accommodation, the limited capacity of staff to undertake wetland conservation, delays in program funding, and remoteness. The PBCs have little or no operational funding to perform their functions, and generally have limited capacity to fulfill their responsibilities or aspirations as land-holding entities (TSRA 2006b). Community Councils are under-staffed and under-resourced to effectively carry out on-ground NRM initiatives, often lacking basic infrastructure, vehicles and equipment. The limited access to technical advice and information about key environmental impacts or issues compounds these constraints (TSRA, 2006b). This indicates the need for innovative and dynamic approaches which integrate with existing program and funding arrangements in the region, and strong cooperation with partners based within and outside the region (TSRA 2006b). Another barrier is the lack of information (e.g. extent and condition of wetlands, threatening processes and management strategies) and hence the LSMU's current focus on resource assessment and mapping. There is also a cultural context in relation to wetlands, with local communities viewing wetlands, not as storehouses of biodiversity, but important sources of food. There is also a perception that wetlands are not under significant pressure and that other issues are of a higher priority. Finally, the absence of an approved RIS has further constrained wetland outcomes.

Table 3-32 Key wetland activities and future directions in the Torres Strait NRM region

Key activities	<p><i>Resource assessment</i></p> <p>Finer resolution mapping (1:15,000) of regional ecosystems, including wetlands has been contracted to external consultants. The Authority has purchased spatial imagery to assist with this mapping. Bird surveys have been conducted (with ANU). Mapping of seagrass (with DPI&F) and aerial surveys of dugong.</p> <p><i>Planning</i></p> <p>Six land use plans have been contracted to be developed and wetland planning will focus on Sabai and Boigu islands, which contain most of the wetlands in the Torres Strait. Developed eight community plans relating to turtle and dugong harvesting.</p> <p><i>Capacity building and communication</i></p> <p>Turtle and dugong project facilitator is in place and the training of officers is being undertaken in how to conduct wetland/seagrass monitoring. Workshops have been held with local hunters to seek input on sustainable community-based management approaches for dugongs and turtles. A school information package has been developed. Rangers are in place on some islands and play a role in community awareness raising in relation to wetlands. Finalising contracts for a Water Education Project. Community Liaison Officer encourages beneficial linkages with research initiatives and agency programmes. Prescribed Body Corporate capacity building workshops have been held to support native title holders to become stronger partners in NRM. Community consultation in association with coastal erosion impacts project in the central sand cay islands. Efforts are underway to build local people's capacity to manage and plan for improved and more sustainable NRM at the local and regional level.</p> <p><i>On-ground works</i></p> <p>Limited on-ground works have been conducted in wetlands. Active participants in the ghost nets, turtle and dugong programs (with JCU) (e.g. turtle tagging and monitoring on three islands, implementation of workplans to monitor and remove ghost nets and marine debris from shorelines and reefs). Rangers participate in joint patrols and surveillance activities with government agencies, including over coastal and marine areas and assist AQIS and NRW on pest and weed management initiatives on Badu Island.</p>
Future directions	<p>Contracts to develop six land use plans for islands within TS have been signed. These will address wetland planning and management. The initial work will focus on mapping to enhance the resolution of existing regional ecosystem mapping (1:15:000), including wetlands. Ongoing development and implementation of these plans is a priority. Preparation of draft RIS for ratification in July 2008. The RIS will have a wetland component. Focus on weed control, with a threat of increased weed invasion in wetlands, due to spread of weeds from Papua New Guinea. Continue to explore research partnerships e.g. MTSRF, Reef and Rainforest Research Centre. Expansion of the dugong and turtle management project to an additional five islands.</p>

4.0 Alignment – the achievements

A key objective of this report was to review regional bodies' investment in management actions and activities that supported the objectives of the QWP (refer 1.3). An important outcome of this census was to indicate the level of alignment between the activities of regional bodies and the QWP. In this section, the alignment is described in relation to the four key wetland focus areas within the QWP, namely: improving the wetland information base; wetlands planning arrangements; on-ground activities to protect and rehabilitate wetlands; and education and capacity building. The QWP focus area of communication, monitoring, evaluation and reporting, and review is incorporated into the four major focus areas and is not reported separately.

It is important to note that significant outcomes have been achieved across a spectrum of wetland types in all regions (refer to regional summary tables in section 3). The information detailed in this section is derived mainly from the regional Wetland Census Workshops, the Wetland Survey and interviews with wetland practitioners. In particular, it details the “statements about where we are at with wetland management” (refer Appendix 3) that were agreed to by Wetland Census Workshop participants.

4.1 Improving the wetland information base

4.1.1 *Wetland mapping*

The wetland mapping produced by EPA was viewed by regional bodies as an important resource. The development of a consistent state-wide approach to the classification and mapping of wetlands was viewed as a necessary step and closely aligned to the needs of regional bodies. It was particularly highly valued by those regional bodies (e.g. CA, FBA and BMRG) for which the mapping had been completed (refer Appendix 3). In some regions (e.g. CA), this information was the main mapped data used by regional bodies. It also was viewed by regional body wetland practitioners as “an important delivery mechanism for future wetland works” (Brisbane Workshop) and further refinement of the mapping was supported by all regional bodies.

“The importance of wetlands in the NRM picture has been raised.” (Rockhampton Workshop in relation to EPA wetland mapping)

Where the wetland mapping had been completed, some regions augmented this with finer resolution information on specific wetlands. CYP used GIS to map the local boundaries of wetland sites where investment was occurring, but did not undertake wetland mapping on a wider scale. BDT selected relevant wetland areas and proceeded to map these at a finer scale, with priorities having been set by local communities and through expert opinion. FBA had a very advanced GIS capability and had started to incorporate a wetlands' layer into their planning and on-ground activities. Products developed included individual property maps and catchment maps with relevant wetlands identified. SWNRM used full SPOT 5 coverage and was in the

process of receiving finer scale (2.5m) SPOT coverage of the main river systems to assist with wetland planning and management. SEQC developed spatial layers in their GIS to identify wetland locations using drainage and topographical data in combination with remnant vegetation mapping from the Queensland Herbarium. This was augmented by several local wetland studies conducted in SEQ to identify and map wetlands (e.g. Beaudesert Wetlands and Lockyer Wetlands Directory). Further mapping in SEQ had been postponed awaiting outcomes of the QWP mapping. BMRG used existing products e.g. the GBR wetland maps (EPA), 'Wetland Mapping and Classification for the Great Barrier Reef Catchment and Wide Bay' and AQUABAMM (Burnett River only) and various riparian condition studies. The Wetlands Inventory and Prioritisation Project and the Water Quality Improvement Plans underway within catchments in the BM region will produce additional information in the future.

Several regional bodies stated that the absence of completed EPA wetland mapping had been a significant barrier to their wetland management and planning as part of regional NRM plan and RIS development. Hence there was a perception among regional bodies of a lack of alignment in relation to the timing of the wetland mapping, rather than any dissatisfaction with the final product. For example, several regional bodies had proposed wetland mapping projects, but were deterred by EPA from undertaking these until the EPA maps had been completed, in order to develop and maintain a consistent wetland approach and methodology (and therefore state-wide usefulness of the maps). This caused some delays in progressing wetland planning and management activities within regions where the mapping information was not yet complete.

4.1.2 Wetlands definition

Overall, regional bodies acknowledged that the clear definition of wetlands provided by the QWP was important. It closely aligned with the needs of regional bodies to have a consistent approach to wetland definition and classification. There was universal agreement that the definition was very comprehensive. However, the Workshop participants noted that the QWP definition was different from their stakeholders' perceptions of wetlands (e.g. many separated rivers from wetlands). The importance of this is in relation to the on-going role for agencies (in particular, EPA) to support regional bodies in ensuring adoption of the definition in all aspects of their business and for regional bodies to continue to promote the QWP definition with their stakeholders.

Within the Torres Strait, the definitional issue was slightly different from that raised by the mainland regional bodies. It was felt that "wetland protection was a foreign concept". In this region, wetlands were seen by the communities as an important food gathering source and the wetland elements (e.g. plants and wildlife) provided important seasonal cues to undertake a range of activities (e.g. the start of dugong hunting). This view of wetlands does however align with the QWP, which supports the sustainable use of wetlands.

4.1.3 Resource assessment

Resource assessment in the regions has focused mainly on catchment assessment of the condition of riparian and other wetland areas and their prioritization for on-ground work. These activities were a priority in several regions (e.g. BMRG – 60% of effort;

CYP – 50%). For example, BMRG has focused effort on resource assessment, data gathering and studies. Key example projects included: the State of Estuarine Environment report; the study of the role of tidal wetlands in protecting reef and coastal waters in the region; shorebird mapping project in partnership with the Queensland Wader Study Group; the cultural heritage study at Ban Ban Springs; the study of barriers to fish movement in the region's waterways; and the wallum frog survey and habitat study. Also in CYP, the Cape York Management Advisory Group (CYMAG) was involved in the development of a Wetland Assessment Methodology and produced baseline assessments of the condition of wetlands and threats to wetlands in eastern CYP, assessed wetland biodiversity at several sites, mapped coastal seagrass south of Cooktown and reef seagrass in six reefs east of Cooktown, monitored seasonal changes in seagrass meadows, monitored turtle nest predation, mapped weeds and feral animals in some Indigenous communities, undertaken water quality surveys and some cultural assessment of Indigenous river use. In the TS, emphasis was placed on resource assessment and finer resolution mapping of regional ecosystems (including wetlands). Bird surveys had been conducted and the mapping of seagrass and aerial surveys of dugong were being undertaken.

Resource assessment was also significant (although not a priority) in several other regions. BDT had developed a whole-of-catchment assessment and prioritization of wetlands and waterways using the DSS, was applying a regional and property scale land condition assessment and monitoring framework, and had implemented the first stage of the regional Land Resource Mapping project to identify priority sub-catchments for bank and gully erosion. In CA, over 1,700 wetlands had been identified and condition assessments had been undertaken for four priority wetlands, as well as an assessment of the condition, connectivity and barriers influencing fish passage at several key sites.

Resource assessment was a lower priority for FBA, SEQC and SWNRM (5% of effort), SGC (10%), MW and QMDC (15%), and NGRMG (25%). However, in many of these regions, significant outcomes had been achieved. In the Fitzroy, finer resolution mapping of wetlands was occurring to enable more informed property management planning, as well as salinity risk assessments, sedNet modelling, water quality monitoring, hazard mapping of acid sulfate soils, condition assessment of several wetlands and monitoring of several estuaries. In MW achievements included: an inventory of ten wetlands (Wetland Information Capture project); fish community monitoring at 14 sites; assessment of in-stream habitat and barriers to fish movement; and monitoring of seagrass, mangrove health, water quality, shorebirds, and turtles.

QMDC used SPOT 5 imagery and also relied on geo-referenced aerial videos to provide important information in the Border Rivers area (e.g. fluvial geomorphology, in-stream habitat, sand bars, and sites of erosion). This enabled a large section of the river to be mapped very quickly and was used in expert panel workshops to identify priority management areas and relevant issues within their Demonstration Reach Project. A Rapid River Health Appraisal had been undertaken at 67 riverine sites, as well as monitoring of stream salinity and aquatic habitat, identification of in-stream fish barriers, and identification and prioritization of weed and pest animals (refer Box 3.8).

SEQC had several studies underway including a number of coastal and marine studies; an investigation of groundwater quality in priority catchments; and an assessment of impacts of septic sewage treatments systems on groundwater in these catchments. NG had conducted a freshwater inventory in partnership with ACTFR and landholders. In SG, ACTFR had also conducted a wetland inventory using remote sensing.

Regional bodies were undertaking a range of wetland assessments, utilizing a variety of techniques. This was important to assist in the prioritization of future planning and on-ground works. The QWP's scoping study for monitoring wetland extent and condition, although not available to regional bodies at the time of this report, will align closely with their needs as its focus is on the identification of wetland indicators and will provide a more consistent state-wide approach to monitoring and assist regional bodies in their planning and reporting activities.

4.2 Wetland planning

4.2.1 Development of wetland management plans

The development of wetland management plans at several scales (e.g. regional, catchment, sub-catchment/neighbourhood and property) was a major achievement of regional bodies. Many regions reported on planning initiatives that were either well established or underway to improve protection and management of wetland values, while several (e.g. SG and DCQ) reported a low level/no focus on planning activities. As an example of a region where there is a high focus on planning, FBA had developed seven individual wetland plans, mainly for wetlands within its Priority Neighbourhood Catchments and a comprehensive range of projects were being implemented (refer 4.3.1). In TS, six land use plans have been contracted to be developed, with wetland planning focusing on Saibai and Boigu islands, which contain most of the wetlands in this region. Other community plans have been developed in TS relating to turtle and dugong harvesting. In SW, riparian area management plans have been developed for each sub-catchment in the region and this will incorporate on-ground actions focused on recommended best practices to encourage primary producers to improve land management practices, with expected improved outcomes for wetlands. In QMDC, 21 sub-catchment plans have been approved incorporating over 200 individual property action plans, which incorporate a range of strategies that will have positive impacts on wetland conservation. Sub-catchment planning is an engagement, planning and action approach, whereby landholders within a sub-catchment work with their local Landcare Coordinator and QMDC technical staff to develop a detailed action plan and maps of their creek/stream catchment. The BMRG was undertaking an alignment of the Baffle Creek Catchment Strategy and the regional NRM plan to produce a revised Strategy for Baffle Creek. Additionally, a management plan for the Pasturage Reserve near Mon Repo was being prepared. SEQC provided funds and assistance to smaller local governments in their region to develop catchment and waterway management strategies.

In some regions (e.g. CYP, CA, FBA, NGRMG and DCQ), while less emphasis was placed on planning, important outcomes had been achieved. For example, in CYP, planning focused on the development of a Marine and Coastal NRM Action Plan, strategic plan for a catchment management group, the CYP Pest Management

Strategy and Plan, and the CYP Sustainable Fire Management project. For CA, a management plan had been developed for an endangered wetland ecosystem (Montane Sedgeland and Heath) and other resource plans had been prepared. In FBA, three Neighbourhood Catchment Plans had been approved and were being implemented, 480 PMPs had been developed, plans had been prepared for several individual wetlands, and water quality targets were being established. A wetland management model had been developed for the Mutton Hole Wetlands near Normanton through NGRMG with a goal to lead the way in how local communities and government can work together to protect important natural and cultural values of wetlands while maintaining the economic values for the local communities.

This broad spectrum of regional body planning activities closely aligns with the objectives of the QWP, which strives to achieve long-term benefits to the sustainable use, management, conservation and protection of Queensland's wetlands. Collaborative and cooperative plans, which have been developed by a range of regional body stakeholders, are an important mechanism to achieve on-ground wetland outcomes, as well as attitudinal change.

4.2.2 *Prioritisation*

Wetland priorities within the regions have been determined largely through the comprehensive regional NRM planning process and the development of RISs. This has usually involved comprehensive consultation with a wide range of stakeholders, input from regional body boards and staff, and the opinions of expert panels. For example, BDT utilized the EPA's wetland mapping to assist with the identification of priority wetlands and augmented this with local expert opinion to select specific wetland sites for more detailed action. For SWNRM, priorities were set through the regional NRM plan and RIS and then based on landholders' applications for grants for on-ground works. In this instance, priorities "were set and will in the future be set by the Directors and all staff meeting jointly" (Survey respondent).

MW, following an examination of EPA's wetland mapping, utilized a scoring exercise to rank individual wetlands based on their values, threats and the capacity to undertake works. It was deemed critical that attendees involved in the scoring process had on-ground knowledge of the region's wetlands, including flora and fauna, condition, threats, and adjacent land uses. It was also considered important to link with current water quality and wetland projects in the region to get desired outcomes on the ground. Priority was also given to activities that improved the quality of the downstream environment. The DSS workshops ranked and prioritised wetlands based on an agreed weighting given to the values, threats and capacity and then stakeholder input. The DSS tool that was utilized by several regions (e.g. MW, FBA, and Terrain NRM) was funded under the GBRCWPP and hence this product and its application closely aligned to the needs of regional bodies to prioritise their management actions across a range of assets, including wetlands.

QMDC utilized a sub-catchment planning process to engage landholders and funding for wetland projects was provided on the basis of "first in first served". However, for individual landholdings the regional body worked with landholders to prioritise where investment and on-ground works should occur. They also worked collectively with landholders e.g. fencing important wetland (riparian) areas. Hence the focus for QMDC was engagement first, and particularly engagement on a sub-catchment basis.

SEQC made a specific allocation to wetlands (including riparian zones and coastal areas). Confluence mapping was used as a tool to identify areas in the region where multiple NRM issues coincided and subsequently communities were approached to develop proposals for works. However, this ultimately relied on the interest and willingness of community groups and other stakeholders to identify and nominate projects for action.

Wetlands were a major focus for BMRG and the regional NRM plan addressed wetlands across three biophysical themes – freshwater biodiversity, marine biodiversity, and water quality and equitable use management. RCTs were prioritized independently using a triple bottom line approach, then assessed through the Board and Technical Advisory Group participants. Under this system, wetland projects attracted a high level of support from all three programs.

4.3 On-ground activities

4.3.1 *Early gains*

It was widely recognized by all workshop participants that much had been achieved in the early phase of investment in wetlands. On-ground works represented a high proportion of regional body effort for SGC (90%), FBA and SWNRM (70%), NGRMG (60%), and QMDC, CA and SEQC (40%). A particular focus was in riparian areas (e.g. fencing, off-stream watering points, wet season spelling common in northern regions and rehabilitation). GLM and FMS were widely used to improve land management practices and thus reduce sediment and nutrient input to wetlands, and were frequently undertaken in conjunction with property management planning activities. Weed and feral animal control strategies were also widely implemented, many in collaboration with local government, and in CYP with Land and Sea Management Centres. Most regional bodies were beginning to establish and maintain voluntary conservation agreements that improved wetland values. Exceptions included NGRMG, SGC and DCQ.

“With limited dollars, a lot has been achieved.”
(Cairns Workshop)

For FBA, implementing best management practices were a key initiative and were directed at the Neighbourhood Catchment and property level (refer Table 3.17). This was underpinned by an incentives program that focused more specifically on Priority Neighbourhood Catchments and resulted in the engagement of over 200 properties, incorporating over 700km of fencing and over 40,000ha of wetland (mainly riparian) areas protected from the negative effects of primary production. Weed control had been implemented on numerous properties; coastal wetlands were being fenced; pilot projects were undertaken in several wetlands (e.g. Kinka) to improve wetland condition and management; fish barriers were being removed; support was provided for ‘conservation with production’ initiatives (e.g. Land for Wildlife and nature refuges); efforts were focused on rehabilitation and enhanced wetland connectivity; and pondage banks and other wetland/floodplain barriers were being removed.

SWNRM also focused on riparian fencing (>400km protecting >8,000ha of wetlands), the removal of stock from riparian areas, off-stream watering points, actions to reduce soil erosion on cropping lands, and had applied conservation farming practices to over 60% of cropped land.

In the Desert Uplands area of DCQ, 3,000ha of riparian vegetation had been protected through fencing and destocking. This had resulted in 15km of river and creek frontage being protected from grazing pressures. In other parts of Desert Channels, as well as in SG and to an extent NG, on ground works for wetland management were being delivered largely through their property management planning activities, such as weed and feral animal control, undertaken with rural landholders. An example was SGC's initiation of the Queensland/Northern Territory rubber vine buffer zone management project, where partner groups were active in containing the weed within a 100km of the Northern Territory border and hence addressed one of the key weeds of riparian zones in that part of the region. SG also was involved in the reinstatement of fish passages in partnership with Burke Shire and DPI&F as part of their on ground works program for wetland management.

The comprehensive range of on-ground wetland activities by regional bodies closely aligns with the objectives of the QWP and does not duplicate projects undertaken by the Programme. QWP has focused on pilot programs, DSS, wetland acquisition, adoption of incentives, creation of nature refuges, and rehabilitation guidelines, which are complementary to the range of regional body activities and extend the on-ground outcomes for wetlands. For example, the 15 guidelines to assist land managers in conservation of wetlands (EPA) provide regional bodies with important information to be included and addressed in GLM and FMS discussions with landholders.

4.3.2 Wetland management tools

Regional bodies were asked in the Wetland Survey to identify their most commonly used tools to improve wetland conservation and these included:

(a) Fencing, riparian management and off-stream watering points

Fencing of wetland areas was a high priority on-ground activity in most regions. Riparian fencing was a particular focus and frequently was undertaken in association with off-stream watering points, riparian rehabilitation/revegetation and the introduction of a range of best management practices through GLM and FMS processes.

(b) Weed and feral animal control

On-ground works focused on weed and feral animal control. For example, in CYP efforts have concentrated on development of plans and strategies (refer Table 3.3), with Cook Shire Council hosting the coordination of the weed and feral animal projects in this region. A key project has involved the ongoing removal of pigs from beaches to minimize impacts on turtles. In FNQ, these activities were part of the WQIP (e.g. pond apple and hymenachne control in the Tully). In BDT, the focus was aquatic weed removal, with the greatest risk being from the spread of hymenachne, paragrass, salvinia, and hyacinth. Removal involved both mechanical removal and chemical spraying. In SG, weed control of rubber vine in conjunction with NT was a key activity.

(c) Working with landholders

All regional bodies indicated that landholders were becoming more involved in wetland projects. Key strategies included providing information through GLM training, and in particular the inclusion of a wetland module in some GLM packages, FMS, and related

“Our focus to date has been on achieving long-term change in land management... and this should provide a major contribution to achieving RCTs.”
(BDT)

strategies such as property management planning. While many landholders focused on production outcomes, workshop participants indicated that through the implementation of recommended best practices, this also frequently resulted in improved wetland outcomes (e.g. through addressing weed problems and improving the condition and biodiversity values of wetlands).

(d) Education tools

Providing wetland information was an important aspect of regional bodies' activities. This was achieved through fact sheets, field days, festivals, workshops, web sites and visits (to schools, landholders, community meetings). It was generally considered that by providing information about wetlands and through face to face contact that stakeholder attitudes and values would improve, resulting in more favourable outcomes for wetlands. Community engagement in a range of monitoring activities (e.g. water quality, seagrass, mangrove and turtles) was also viewed as an important mechanism for providing information and raising awareness.

(e) Improving water quality

All regional bodies were involved in a range of projects to address water quality. Many focused on working with landholders to implement best practices, as well as community monitoring of water quality to raise awareness. WQIPs were seen as an important mechanism to achieve improved wetland outcomes.

(f) Incentives

Incentives were used in all regions to encourage the adoption of improved land management practices. The variability of farm incomes in some regions influenced the extent of adoption and investment in new practices and hence financial incentives have been an important tool for attracting interest in implementing new practices and achieving wetland outcomes. For example, in BDT incentives have focused on adjusting stocking rates to reflect carrying capacity, providing off-stream watering points and increased water efficiency in irrigation cropping. Last year's cyclone in north Queensland also influenced the extent of interest by many landholders in incentive schemes due to other operational demands (Peterson et. al. 2006).

Other tools used in specific regions included:

- removal of pondage banks which restricted wetland connectivity (e.g. MW, FBA);
- property management planning (excluding Northern Gulf where this was a main mechanism for delivery);
- assessment, monitoring and evaluation of wetland condition;
- revegetation and rehabilitation of wetlands e.g. BDT's work with Townsville City Council resulted in the rehabilitation of the Townsville Town Common;
- enhancing wetland connectivity e.g. this was being achieved particularly through improved riparian area management, weed and feral animal control, and reinstatement of fish passages in most regions. In addition, in the Condamine, the bioregional corridors program aims to reconnect wetlands and improve biodiversity; and
- fish passage reinstatement - assessment of fish passages had been undertaken for some of the larger rivers in several regions (e.g. BDT, MW, FBA, BMRG) to prioritise appropriate actions for improvement. Several regions were actively

“Wetlands have been a good place to introduce ponded pastures and many wetlands have been modified hydrologically for this purpose.”
(Rockhampton Workshop)

undertaking projects to improve wetland connectivity and reinstate fish passages (e.g. MW has constructed fishways at 20 priority sites).

One tool that was not used in regions was formal protection of wetlands. However, BMRG identified this mechanism for potential use in the future. In general, this was seen as the role of the EPA and outside the role of regional bodies, which operated in the non-statutory, voluntary arena.

4.4 Education and capacity building

4.4.1 Importance of extension and engagement

All regional bodies highlighted the importance of raising the awareness of their stakeholders in relation to wetlands (including their definition, threats, planning and management) and were actively engaged in this process. Key initiatives included media promotions (print and electronic), development of web sites and improving access to spatial information, working with landholders (e.g. workshops, property management planning, engagement in various monitoring activities), working with industry groups (e.g. BSES, AgForce, GrowCom), and developing information products.

“... a BMP was recently developed and includes wetlands...it was written by graziers for graziers.”
(BDT)

However, engagement with stakeholders varied regionally. For example, MW relied on stakeholder workshops linked to the DSS; television and other media promotions; providing assistance at wetland workshops; electronic newsletters; a comprehensive website; and individual promotions. BDT mainly engaged directly with landholders (e.g. graziers) to improve land management practices. For example, the regional body collaboratively developed a BMP for grazing lands and this was an important achievement that was believed to be having a significant influence on land managers and their understanding of the importance of wetlands. BDT had not developed its own fact sheets and related information, but preferred to rely on existing information provided by a range of agencies (e.g. EPA, NRW, GBRMPA). It did however, have a major input into promotional events (e.g. Ecofest, field days, World Wetlands Day, and the River Management Workshop) and stakeholder workshops. It was also involved in the Reef Beat Wetland competition in schools in Townsville.

Other regional bodies, such as SWNRM, BMRG and SEQC worked through their Landcare/ Coastcare and Catchment management groups or employed consultancies (e.g. to record knowledge of wetlands or undertake studies such as inventory surveys).

All regions in which grazing occurred highlighted the importance of GLM in raising awareness. The QWP wetlands module for GLM (DPI&F) was highly relevant to regional bodies' on-ground activities and on this basis has been expanded to non-GBR catchments (e.g. DCQ). Wetland modules for integration with FMS have also been developed and are available for implementation. These projects align very closely with regional body needs and will provide important information to landholders engaged in production.

In general, the GBRMPA Wetlands Display and educational package provided a range of useful products and was available on the QWP web site. Several regional

bodies relied significantly on these products, although many regional bodies continued to produce locally relevant information in relation to wetlands. Ongoing provision of appropriate educational material was seen as important by most regional bodies and closely aligns with future needs.

While most regional bodies expressed concern at the level of engagement of Traditional Owners, there was agreement that small gains had been achieved (e.g. Fitzroy Basin Elders Committee established, starting to develop Caring for Country Plans and to record Traditional Owner cultural values in relation to wetlands). In CYP, extensive meetings were conducted with many community groups concerning coastal wetland issues and seagrass and wetland monitoring were undertaken with school groups and Indigenous rangers to raise awareness.

Community water quality monitoring was viewed by most regional bodies as an important mechanism for raising awareness of wetland values. Healthy Waterways and similar monitoring projects were being utilized by FNQ, BDT, MW, BMRG, SEQC and QMDC.

4.4.2 Collaborative partnerships

All workshop participants identified a similar range of wetland partners. These included: State agencies (e.g. EPA/QPWS, NRW, DPI&F, and Education Qld); Australian government agencies (e.g. DEW); local government; regional organizations of councils; landholders; industry (e.g. sugar, grazing, cotton, horticulture and mining); quasi-government organizations (e.g. Water Boards); non-government organizations (e.g. Conservation Volunteers Australia, Wetland Care Australia, Wetlands International, Landcare/Catchment Management/Coastcare groups, and Greening Australia); research organizations (e.g. CSIRO and universities); consultants; schools (e.g. Reef guardian schools); the media; philanthropists; Traditional Owners and their related organizations; and inter-State regional bodies (e.g. DCQ were engaged with cross-border regional groups in South Australia to address wetland issues in the Great Artesian Basin and SGC is working with the NT regional body to address weed management issues relevant to the riparian areas).

Significant achievements were gained through stakeholders working collaboratively to address a range of threats to wetlands. BDT's very effective management of riparian weeds, incorporated contributions from local government, the regional body and adjacent landholders, particularly those with properties along river systems, and produced an integrated approach that has enhanced riparian connectivity and begun to address weed management in a more holistic manner. BDT, in conjunction with Burdekin Shire Council, has worked towards establishing five year agreements with the key stakeholders to ensure some continuity of on-ground activities. BDT has also undertaken joint initiatives with Thuringowa City Council to locate wetlands of importance.

FBA invested in wetland projects that were of particular interest to its stakeholders. For example, in the GBR pilot projects local government expressed an interest in undertaking works in Kinka Wetland, and with FBA support, this developed into a beneficial partnership, with good wetland outcomes. Similarly in the coastal areas of FBA, individual landholders were approached by regional body staff to identify those

who were willing to construct coastal and riparian fencing. This collaboration has proved successful in conserving important coastal wetlands in this region.

SWNRM was developing strong partnerships with local government to implement actions related to water quality and riverine management, integrated pest management practices, better chemical application, improved waste management systems and the incorporation of floodplain management principles into planning schemes.

SEQC was working extensively with local community action and catchment groups and local councils through incentives for on-ground projects. For the wetland revitalisation project at Bundamba, the regional body was working with the Sporting Shooters Association – a local community group. BMRG partnered with several local councils to deliver specific wetland related projects (e.g. Burnett Shire for the Pasturage Reserve, Hervey Bay City for the Arkarra Lagoons and wetlands and Kingaroy Shire for the Goodger Wetlands). BMRG also worked with a number of the local environment groups (e.g. Queensland Wader Studies Group for the shorebird mapping project and Wildlife Preservation Society of Queensland and Birdwatchers of Hervey Bay for the Arkarra lagoons and wetlands) and Landcare/Coastcare and Catchment management groups (e.g. Mary River Catchment Coordinating Committee, Cooloola Coastcare and Bundaberg Landcare for various projects).

SGC, NGRMG and DCQ worked extensively with their landholders and through their local councils to deliver outcomes for wetland management, in some cases, partnering with research providers such as ACTFR for resource assessment work in the regions.

In general, there was agreement by regional body practitioners that landholders were beginning to express positive sentiments about wanting to become involved in wetland projects and that incentive funding was an important mechanism for achieving wetland outcomes. Co-contributions from landholders were seen as an effective mechanism to sustain long-term benefits from individual projects and this was the approach that was universally applied by regional bodies. The QWP project related to the adoption of incentives thus closely aligns with the needs of regional bodies in expanding wetland activities to priority areas and increasing the level of engagement of their landholders. Incentives are seen as a key mechanism for enhancing wetland outcomes.

5.0 Alignment - QWP and regional body business

An important focus of this report is to address the alignment between the regional body activities (refer sections 3 and 4) and the objectives of the QWP. In this section, the assessment of this alignment is outlined in relation to the five focus areas of the QWP: improving the wetland information base; wetlands planning arrangements; on-ground activities to protect and rehabilitate wetlands; education and capacity building; and communication, monitoring, evaluation, reporting and review.

5.1 Improving wetland information base

Key QWP projects in this focus area include: mapping and inventory; information capture; planning compendium tool; science and research online; gap analysis; improving agricultural systems; Traditional Owner Wetland values; soil indicators; and monitoring wetlands.

The wetland mapping and State-wide classification methodology has been completed and is available on the EPA website. Mapping and methodology has been completed for the GBR catchments from the Wet Tropics to Wide Bay. Maps for the Condamine region have been completed and significant progress has been made in several other regions. The production of the maps and development of the methodology was well received by regional bodies (refer section 4.2) and these products have closely aligned with the needs of regional bodies. The first wave of NRM plans (developed in 2004 and 2005) were produced without the benefit of these maps. Future regional NRM plan and RIS reviews being undertaken by regional bodies over the coming 12 to 18 months will have the benefit of these maps, which will be an important product to ensure consistency in the way that wetlands are identified and classified (refer section 6.2.1). For several regional bodies, this is the main information available and provided an invaluable resource (e.g. contribution to WQIPs). Further refinement of the mapping was being supported by the regional bodies as a result of detailed sub-catchment and property scale planning.

The wetland mapping (EPA) will provide an important mechanism for monitoring the extent of wetlands over time and will provide regional bodies with important information to guide their planning and on-ground works.

The gap analysis (NRW) had not been released at the time of this report. However, its objective of providing an assessment of wetland science and the areas in which future investment may be required will be useful to regional bodies, many of which cited lack of wetland information as a key challenge (refer section 6.1.3). This project will result in the review of the current status of wetland science and where possible, make that information available to regional bodies and other land managers.

WetlandInfo Queensland (EPA) is the delivery mechanism for many of the QWP projects and is closely aligned to regional body needs (refer section 6.1.3). Development has been in line with the findings of a survey of stakeholder needs which included regional bodies.

The Wetlands Information Capture component (EPA) – not complete at the time of this report – aims to better capture new information on wetlands (e.g. threats to flora) and will provide critical data for plan reviews and future investments. The system will allow external users to contribute data to the wetland inventory database as well as allow users an opportunity to manage data previously uploaded. These datasets will be made available through the WetlandInfo and WetlandMaps websites. Regional bodies prefer to be able to contribute to a standardized format and retain ability to manage their own data. When operational, this project will deliver an important data portal for regional bodies and their stakeholders.

The soil indicators project (NRW) has been completed. An extensive literature review of soil indicators has been undertaken and field work undertaken at two case study sites (Burnett Mary and Fitzroy Basin). These will provide important information to better identify wetlands and a methodology similar to the United States approach with some modifications, is believed to be useful in Queensland. This will be a critical data layer for wetland identification and therefore will be well aligned with the needs of regional bodies (refer section 6.1.3).

The scoping study for monitoring wetland extent and condition (NRW) was not available to regional bodies at the time of this report. Its focus is on the identification of wetland indicators and development of conceptual models of wetlands and indicators. It will provide a more consistent state-wide approach to monitoring of wetland extent and condition. This project is well aligned to assist regional bodies in their planning and reporting activities.

The science and research online project (EPA) was not completed at the time of this report. It proposes to provide a range of wetland information in a fully interactive manner online. It will provide the wetland science in a format that is useable by the main stakeholders (e.g. searching the literature, conceptual models of wetlands, and identification of threats). This will provide significant support to regional bodies and their stakeholders, particularly landholders in accessing relevant information concerning their local area.

The project to improve information in relation to agricultural systems (DPI&F) was incomplete at the time of this report, with only one module on coastal grazing available for use by regional bodies. In general, information and strategies that closely link with key landholder groups, especially those engaged in agricultural activities are an important mechanism for improving land use practices that will impact positively on wetland outcomes. This information closely aligns with the needs and future directions of regional bodies, who are actively and extensively engaged with rural landholders and their organizations to promote the improved management, conservation and rehabilitation of wetlands (refer section 6.3.1).

The EPA project to map Traditional Owner Wetland values (currently incomplete) closely aligns with regional body needs. All workshop participants agreed that a

significant challenge was to better identify and integrate Traditional Owner perspectives on wetlands (refer section 6.1.4).

5.2 Wetland planning arrangements

Key QWP projects in this focus area included: connectivity projects; RIS case studies; wetland prioritization for regulatory framework GBR catchments; additional support for finalization of regulatory framework; and critical support guidelines.

The identification and mapping of ecological, including hydrological, connectivity of wetlands had not been completed at the time of this report. However, the identification of areas that are important in terms of their connectivity will closely align with the needs of regional bodies, as this gap in information was identified as a key challenge for regional bodies (refer section 6.2.2). Also important is the need to ensure that this identification of priorities to enhance wetland connectivity is accompanied with appropriate strategies (e.g. awareness raising and capacity building) and incentives to encourage landholders within these priority areas to undertake the required work to better conserve wetlands. This lack of social science research is an existing gap that could form an important priority in future QWP activities.

The critical wetland support guidelines (EPA) relating to assessment of wetland condition, the application of the wetland definition and the wetland buffer guideline had not been released to regional bodies at the time of this report. The wetland condition assessment toolbox will align closely to regional body needs. Some regions (e.g. CY) have invested funds into developing specific assessment tools suited to their local conditions. EPA's guide to help regional bodies decide on the most appropriate wetland assessment methodology will align closely with regional body needs. However, not many regional bodies are currently undertaking condition assessments, but are investing heavily in on-ground works. This raises the question of whether there is a mis-match between QWP and the focus of regional bodies. Participants acknowledged the importance of undertaking monitoring and assessment, and this toolbox, if accompanied by sufficient support and technical advice for undertaking the monitoring will be of value to regional bodies.

Several tools in the wetlands planning arrangements suite are not directly related to key regional body activities, e.g. the investigations into a wetlands regulatory framework. However, these projects are complementary to regional body activities. Many workshop participants believed there was a need to secure a more integrated approach for wetlands compared to the current situation where protection occurs across several pieces of legislation (refer section 6.2.1).

The newly funded planning compendium tool to support the retention and management of wetlands is being delivered by NRW. This project will assist stakeholders in accessing relevant legislation and is therefore likely to be useful to regional bodies and their stakeholders.

5.3 On-ground activities

Key QWP projects in this focus area included: pilot programs; decision support system; GBR catchment wetland acquisition; adoption of incentives; nature refuges; GBR wetland plan; and rehabilitation guidelines for GBR catchment. These activities were part of the GBRCWPP and affected regional bodies within the GBR catchment only.

The pilot programs involved 22 projects in coastal areas and were undertaken by a consortium lead by Conservation Volunteers Australia, involving Wetland Care Australia, and ACTFR. Not all projects had been reported on at the time of this report, however, workshop participants identified these on-ground works as delivering key outcomes for their wetlands programs. In many cases, significant partnerships had been formed with the project officers and technical skills and knowledge transferred to regional bodies and landholders. Due to the on-ground nature of pilot programs, they are well aligned to the business of regional bodies. An expansion of the project through the NHT program could be considered to include non-GBR catchment regional bodies.

The acquisition of two wetlands is important for securing the protection of significant wetlands and complements regional body on-ground works. Future funding for acquisition is an important tool to enhance wetland conservation and should be undertaken in consultation with regional bodies. Regional bodies are generally not engaged in purchases of properties. Hence the integration of acquisition strategies with approaches based on voluntary uptake of land management practice changes provides an important mix of approaches to wetland conservation.

The wetland prioritization and DSS (DEH) was implemented in three regions within the GBR catchment. While not universally applied, this tool enables a more consistent approach to wetland prioritization and with increased application, the tool can be tailored and enhanced.

Other projects that are underway focus on resourcing GBR nature refuge negotiations (EPA), rehabilitation guidelines for GBR catchments (DEH) and various on-ground projects for coastal wetlands (DEH). Similar to the discussion above regarding acquisition of land for wetland conservation, the nature refuge relies on the Nature Conservation Act 1992 and negotiations are generally led by EPA. Activities for protection by regional bodies may be delivered through other mechanisms e.g. use of incentives and other market-based instruments, such as tenders.

5.4 Education and capacity building

Key QWP projects in this focus area included: GLM; communication; management profiles; GBRMPA education products; and GBRMPA wetlands display.

The 15 guidelines to assist land managers in conservation of wetlands (EPA) have been completed and are available on the QWP website. They provide regional bodies with important information to be included and addressed in GLM and FMS discussions with landholders.

Capacity building was a key issue for all regional bodies (refer 4.4) and the upcoming guidelines will closely align with the needs of regional bodies, who are undertaking community education activities such as field days and workshops with stakeholders. Some developed their own material while others relied in agency information. Regional bodies have worked with industry groups, Landcare and Catchment Management groups to raise awareness about improved productivity outcomes, many of which resulted in reduced sediment and nutrient input to waterways and hence improved overall outcomes for wetlands.

The wetlands display and educational package (GBRMPA) provided a range of useful products and is available on QWP web site. Several regional bodies relied significantly on these products in addition to producing locally relevant information.

The wetlands module for GLM (DPI&F) has proved highly relevant to regional bodies' on-ground activities. The wetland module for FMS has not been developed. However, when finalized, it will be an important tool for regional bodies who are addressing horticultural land use practices.

5.5 Communication, monitoring, evaluation, reporting and review

Key QWP projects in this focus area included: monitoring, evaluation and reporting strategy; and regional body wetlands census.

The monitoring, evaluation and reporting strategy related specifically to the monitoring of the QWP's outcomes. It provides an important source of information to guide future projects within the QWP and to ensure that these align closely with the needs and capacities of regional bodies.

The Wetland Census (NRW) – this project – provides a collated summary of regional body investment in wetlands and therefore, an important basis for deciding the future directions of the QWP so that existing investments and the potential for complementarities of future initiatives are maximised.

6.0 Alignment – the challenges

Wetlands were under threat in all regions. Wetland practitioners felt that these threats were increasing in intensity in several locations: rural areas under pressure from expansion of agriculture, grazing and mining interests; coastal areas under development pressure from residential development, and particularly within the urban footprint of South East Queensland; and peri-urban areas faced with the continuing subdivision of large holdings. Many wetlands were also subject to increasing levels of contaminants and suspended solids, which were negatively affecting waterways, seagrass beds and marine biodiversity. Infrastructure development for ports, airports, roads and powerlines was also negatively affecting many wetlands.

The challenges in aligning regional body and QWP activities were highlighted at the regional Wetland Census Workshops, and identified in the Wetland Survey and subsequent interviews with wetland practitioners (refer Appendix 3). These alignment challenges are highlighted in this section in relation to the four main focus areas of the QWP.

6.1 Improving the wetland information base

6.1.1 *Extending wetland mapping*

The wetland mapping and inventory undertaken by EPA (1:50,000 scale in southern and coastal regions and 1:100,000 scale elsewhere in the State) was viewed as important by regional bodies, and for some was their main source of information (4.1.1). It closely aligned with their needs. The challenge identified by some regional bodies related to the need for finer resolution mapping data (i.e. 1:25,000 scale or greater), which was seen as an opportunity to improve effective management of wetlands in several regions, as it would allow for detailed planning at the local or site level (e.g. to assist in the development of property management plans).

6.1.2 *Wetland definition*

All regional bodies acknowledged that the QWP definition of wetlands was very comprehensive, as it included a wide range of wetland types (4.1.2). Through the interviews and workshops, many regional bodies indicated that their stakeholders (e.g. landholders) usually had a much narrower understanding of what comprised a wetland.

Thus, while accepting and supporting the QWP wetland definition, practitioners highlighted a current gap in landholder understanding of the meaning of a wetland. In response, regional body staff, when engaging with their stakeholders would refer to wetland elements, such as marine, riparian, or estuarine, or use the terms wetlands and rivers, for example to ensure the breadth of the land types being discussed was clear.

Selected comments from regional body survey respondents in relation to this complex issue included: in SWNRM, one respondent stated, "... [there]... was a lack of awareness amongst the community about what a wetland is, and their existence in the local area"; and "... management will be delivered applicable to the major wetland types – i.e. riparian, palustrine, lacustrine, estuarine and marine and not at the 'whole of wetland' level in most circumstances".

Thus regional bodies' understanding of what constitutes a wetland is aligned to the QWP definition of wetlands. The current gap and challenge for regional body staff is in relation to the articulation of this definition to stakeholders. One regional body indicated, "I don't think our community is bothered by or thinks about formal definitions. [The] more important question is, where does the definition lead? What are the practical or regulatory consequences of defining a place as a wetland". This view was shared by several regions, and workshop participants indicated that any future regulatory framework for wetlands would need to be accompanied by comprehensive education and awareness raising about the scope and implications for stakeholders.

6.1.3 Research vacuum and knowledge gaps

There was perceived to be a lack of sound science to indicate whether the recommended best practices that were being advocated by regional bodies would improve wetland conservation and also whether there had been any significant change in stakeholder attitudes and values towards wetlands as a result of the investment into capacity building, information products, and awareness raising.

Retention of wetland knowledge was a challenge, with much of the existing knowledge held by a few individuals or organizations. There was concern regarding the loss of knowledge obtained from previous wetland works due to staff turnover in the regional bodies (Cairns Workshop).

Knowledge gaps were identified in relation to wetland rehabilitation, weed removal and fire. In CYP, lack of knowledge of wetland ecosystems was considered a challenge in developing relevant and effective wetland plans.

Regional bodies in the central parts of Queensland expressed concern at the lack of available funding for wetland research. The closure of the Coastal CRC was viewed as having left a research vacuum as wetland research was a key field of interest for this CRC. Regional bodies in the southern GBR stated that they limited investment into wetland research (Rockhampton Workshop).

These research and knowledge gaps highlight the importance of all of the QWP projects, which aim to improve information on wetlands. In particular the WetlandInfo project, which was not completed at the time of this report, will be an important delivery mechanism for many of the QWP projects and is closely aligned to regional body needs. It contains comprehensive information on wetlands, provides statistical information at a catchment and regional NRM basis on the types and aerial extent of various wetland types, descriptive information on wetlands, wetland maps, information on monitoring and assessment, relevant wetland science and information on programs, policy and legislation related to wetlands.

The Gap Analysis project, also not released at the time of this report, will provide an assessment of wetland science and areas in which future investment may be required. This will align closely with the needs of regional bodies, most of whom cited the lack of wetland information as a key challenge. The Soil Indicators project, which reviewed the literature on soil indicators, will provide important information to better identify wetlands. A newly funded QWP project will address the application of this methodology. These projects again closely align with regional body needs in relation to wetland information.

Fifteen Guidelines have been developed by EPA under the QWP and will assist land managers in conservation of wetlands. They will provide regional bodies with important information to be included and addressed in GLM and FMS discussions with landholders.

In general, while regional bodies expressed a range of needs or gaps in relation to wetland information and research, several of these needs have been recognized by the QWP. Several products have been released including Pilot Programs and Case Studies that will “demonstrate” effective strategies, and further products are in development and will become available in the near future (e.g. WetlandInfo, Management Guidelines, baseline data to assess resource condition change in wetlands, and Gap Analysis). In conclusion, however, a key research need identified by regional bodies was a better understanding of the effectiveness of the land management practices being implemented and social research to better understand stakeholder attitudes and values about wetlands.

6.1.4 Traditional Owner engagement

An issue that was highlighted at all the Wetland Census Workshops was the need to improve the engagement of Traditional Owners in the planning and on ground implementation of wetland management projects.

The majority of regional bodies were in various stages of developing Aboriginal ‘Caring for Country’ type plans (e.g. completed in FNQ and BDT, underway in QMD and SEQ) and recording traditional knowledge relating to wetlands. Wetland practitioners agreed that there was a “lack of information on Traditional Owner cultural values” (Rockhampton Workshop), as well as limited Traditional Owner engagement in wetland related projects in all regions. It was felt that “Indigenous communities need to be able to conduct traditional land management practices and carry out traditional practices in wetlands” (Cairns Workshop). In FBA, the Fitzroy Basin Elders Committee was providing assistance to Traditional Owners to enhance their engagement with NRM processes, including wetland projects. Initiatives such as this require continuing support.

‘There is a lack of effective Traditional Owner engagement within projects, policy and program development, in general, across the regions.’
(Cairns Workshop)

“Traditional Owners are lacking capacity to be effectively engaged in wetland protection in many regions.”
(Brisbane Workshop)

The QWP Mapping of Traditional Owner Wetland Values Project (currently incomplete) closely aligns with regional body needs as all workshop participants agreed that a significant challenge was to better identify and integrate Traditional Owner perspectives on wetlands.

6.2 Wetlands planning

6.2.1 Implementation and ‘mainstreaming’ of wetlands

The regional Wetland Census Workshops highlighted that while wetland resource assessment and planning were progressing (refer 4.1 and 4.2), comprehensive implementation of on-ground works was in a preliminary phase. Many wetland projects were pilots and they were also “limited to a small number of sites where there is landowner willingness and capacity” to engage (Rockhampton Workshop).

“We are in the early stages in wetland management... and it is limited to the people who are willing to engage.”
(Rockhampton Workshop)

All regional bodies welcomed the interest and increased funding provided by the QWP into wetlands. This investment was viewed as closely aligning with their NRM plan targets.

It also was considered that if wetland funding was curtailed in the near future, that this would impact significantly on several of the weed and feral animal control strategies that had been established and the gains that had been made, and also that it would be detrimental to the partnerships that were developing with a range of stakeholders. Regional bodies unanimously called for sustained funding to ensure that successful projects were funded into the future. Workshop participants felt that wetland conservation needed to be mainstreamed to become a core funding responsibility of governments at all levels. This would allow regional bodies to proactively plan long-term strategies to effectively address key threatening processes, particularly the potential spread of weeds into highly significant wetlands (e.g. the spread of salvinina into Lakefield National Park and the spread of tilapia into river systems in northern Queensland) and to engage less willing stakeholders.

“Many [wetland] programs and projects are pilots – these need to be mainstreamed.”
(Cairns Workshop)

Workshop participants also indicated that wetlands had failed to be mainstreamed into related planning processes. For example, several of the regional strategic plans and growth management strategies had not incorporated targets that would positively impact on wetland conservation and management. Wetland practitioners from SEQ highlighted the inclusion of many wetlands within the region’s urban footprint and the failure of the SEQ Regional Plan to provide statutory protection to these wetlands. In general, across all regions, wetland practitioners indicated that “wetlands do not have a strong legislative framework to ensure secure protection” (Brisbane Workshop). All workshops identified the lack of relevant wetland legislation as a significant challenge to achieving on-ground outcomes for wetlands. In particular, this included a general lack of recognition of wetlands within regional growth frameworks, and local government planning schemes and related policies.

“Good wetlands management requires long-term commitment.”
(Cairns Workshop)

Engagement with local governments on wetland management was restricted to a few councils with proactive planning approaches and capacity. While current local government planning mechanisms were viewed as being unable to address comprehensive wetland management issues (Rockhampton Workshop), it was considered essential for local government planning to effectively incorporate, or mainstream wetland issues.

While it is acknowledged that wetlands are regulated in Queensland by several pieces of legislation, the calls by regional body wetland practitioners are for a more integrated approach which ensures that important wetlands are conserved for future generations. In particular this should focus on engagement with local government and statutory regional planning frameworks, where they exist. While several projects within the QWP are addressing wetlands planning and regulation, these were not released at the time of this reporting.

6.2.2 *Achieving connected landscapes*

Wetlands in many of the coastal regions, which were subject to significant development pressures, were fragmented, small in size and often isolated. This resulted in a loss of biodiversity values and increased risk and vulnerability to a range of threatening processes, including the predicted impacts of climate change. Similarly, many of the regions' waterways were controlled or had obstructions which prevented the free passage of fauna e.g. fish. Achieving greater landscape connectivity was challenging in many regions (e.g. SEQ, Burnett Mary, the Condamine catchment and BDT) due to extent of loss of wetlands, the need to engage collectives of landholders within sub-regions or sub-catchments, and the costs associated with long-term incentive funding to facilitate stakeholder engagement.

“Achieving wetland connectivity is difficult and challenging and requires field officers to work with neighbouring landholders to achieve collective action...”
(Rockhampton Workshop)

The QWP has recognized this problem and its Connectivity Projects are aimed at addressing this issue. The identification and mapping of ecological, including hydrological, connectivity of wetlands was not completed at the time of this report. However, the identification of areas that are important in terms of their connectivity will closely align with the needs of regional bodies. There is also a need to ensure that this identification of priorities to enhance wetland connectivity is accompanied with appropriate strategies (e.g. awareness raising and capacity building) and incentives to encourage landholders within these priority areas to undertake the required work to better conserve wetlands. This social science research is an existing gap that could form an important priority in future QWP activities.

6.3 On-ground activities

6.3.1 *Primary production versus wetland conservation*

Landholders in general were perceived by regional body wetland practitioners to have placed production values on their properties above wetland conservation values. Hence an important challenge in production landscapes (e.g. grazing, sugar, cotton areas) was to integrate improved wetland outcomes with improved production outcomes. The QWP's incorporation of a wetland module into the GLM program has aligned closely with the needs of regional bodies and was enabling consideration of wetlands in property management planning. This was an effective way to improve wetland outcomes. However, other strategies were considered necessary when the perceived public benefit from the on-ground action, potentially outweighed the perceived private (production) benefits to the landholder.

The extended drought in many areas of Queensland has resulted in some wetlands (e.g. intermittently flooded areas) becoming less visible in the landscape and as a consequence, the Wetland Census Workshop participants indicated that wetlands were perceived by many landholders to be less significant i.e. their wetland values were not immediately obvious and their production values were a priority. In such situations, it was difficult to raise landholder awareness to achieve improved wetland outcomes. However, it should be acknowledged that the drought has also highlighted the importance of other types of wetlands (e.g. riparian areas) to landholders, who increasingly depend on these areas in drought and thus are striving to conserve these areas and protect their values.

“The lack of water is making wetlands hard to relate to and ... of lower priority for landholders than production efforts.”
(CA)

In general, regional bodies indicated that the pace of change and acceptance of wetland conservation by landholders and other stakeholders was slow. Thus, while regional NRM plans and RISs had recognized wetland investment into a range of programs and projects, this was only part of the solution, as a significant difficulty remained in subsequently identifying landholders who were prepared to implement projects in the priority areas. In particular, it was viewed as difficult, at times, to coordinate collective responses by landholders within sub-catchments to achieve improved wetland outcomes. This was especially challenging in urban and peri-urban settings (Brisbane Workshop).

“Current wetland management in SEQ is opportunistic and builds on community and land-manager willingness to undertake works.”
(Brisbane Workshop)

The choice of language was seen to be very important by wetland practitioners, with several regional bodies stating that they found it best to focus on specific issues such as ‘weeds’, ‘feral animal’ and ‘fire’ management projects rather than label them biodiversity or wetlands management, even though these outcomes might also be achieved (Brisbane Workshop).

6.4 Education and capacity building

6.4.1 Valuing wetlands

Wetland practitioners stated that in general, people in the community “don’t take ownership or stewardship of wetlands in their neighbourhood” (Brisbane Workshop). Practitioners from SEQ indicated that this was particularly true “... in urban settings where wetlands are fragmented by infrastructure, such as major roads” (Brisbane Workshop), which limit the community’s access to and connectedness with these landscapes. In production landscapes, landholders frequently placed the production values of their property above its wetland values (6.3.1). There was also general agreement that some landholders who were undertaking wetland projects were reluctant to advertise this amongst their neighbours as they did not want to be seen as “greenies” (Brisbane Workshop). Changing stakeholder attitudes was viewed as difficult by many wetland practitioners.

“Wetland management in DCQ is currently opportunistic, making use of landholder interest in other issues such as weeds and productivity.”
(Brisbane Workshop)

Achievement of regional NRM plan targets for wetlands relies heavily on investment in, and uptake of, incentives programs. However, the experience of BDT was that landholder interest and subscription to the incentives programs involving wetlands

had been less than anticipated. BDT indicated that a key difficulty they faced was the lack of wetlands within the region due to previous draining of wetlands for production purposes (e.g. sugar cane), combined with a lack of understanding and knowledge of wetlands by landholders. SWNRM expressed similar sentiments in relation to landholders' limited understanding of wetland ecology.

In terms of alignment, education and capacity building are a key focus area of the QWP. Their projects relating to GLM, FMS, communication, developing management profiles and GBRMPA's education products and wetlands display, are all important in helping to break down the barriers and raise awareness about the ecosystem services provided by wetlands and their importance in the landscape. All regional bodies in the GBR catchment had used and contributed to GBRMPA's educational products and found these highly useful.

6.4.2 Resource and capacity limitations

Almost all regional bodies were limited by staff shortages and experienced high staff turnovers. More remote regions (e.g. CYP and SWNRM) found it particularly challenging to retain good staff and had relatively low staffing levels compared to some of the larger organizations addressing NRM in coastal areas and the QMD. Additionally, in NHT-only funded regions, regional bodies indicated that they had been unable to fund dedicated wetland management staff and that this had limited, to some extent, the outcomes for wetlands. However, shortages of staff were not limited to regional bodies, as Brisbane Workshop participants indicated that, in a range of organizations, there was a lack of staff, as well as a lack of those who had specific skills and capacity in wetlands management and planning. BDT cited the difficulties in obtaining relevant data from outside organizations, largely due to the paucity of people with detailed knowledge of wetlands and hence the time it frequently took to obtain data.

“...lack of technical expertise (in the regional bodies) can impact wetland management and influence the long-term success of projects.”
(Rockhampton Workshop)

Several regional bodies, particularly in remote locations (e.g. CYP) identified that the lack of resources to access communities and to undertake works were significant barriers. Land and Sea Management Centres in CYP were particularly limited in their ability to undertake on-ground works and this was hindered further by often long periods of adverse weather conditions (e.g. summer cyclones). These comments do not in any way suggest, however, that regional body activities have represented a poor outcome in relation to the funding provided by the State and Australian government. The funding has been well received and the outcomes significant for wetlands, the challenge has been to complete projects within short time frames, with limited staff and/or capacity.

“Wetlands on Cape York are diverse, vast and difficult to access, and wetlands management is only touching the surface of what is required.”
(Cairns Workshop)

6.5 Other challenges

Several other challenges were identified by respondents to this census. These included:

- in CYP, the lack of regional institutional arrangements were considered to have limited the outcomes for all assets including wetlands;
- in some regions, wetlands have not yet been prioritised and this had limited investment planning for wetlands (Brisbane Workshop);

- the timing of the QWP and its products did not corresponded to the first phase of NRM planning and implementation cycles of the regional bodies e.g. several regional bodies undertook the development of regional NRM plans and investment strategies without good wetland mapping data (Brisbane Workshop). This presents an opportunity for future QWP priorities and the next phase of regional NRM plans and RISs to incorporate the new information and resources available;
- much of the regional body focus in relation to wetlands has been on water quality, and wetland practitioners believed there was a need to “broaden the scope to include other issues (e.g. biodiversity and social/cultural values)” (Cairns Workshop); and
- monitoring of wetland extent and condition by regional bodies was limited, although initial achievements had been made in monitoring several wetland assets (e.g. water quality, seagrass, mangroves and reefs).

7.0 Opportunities and Ways Forward

In this section, several opportunities are identified to provide a constructive way forward for improved wetland conservation through capitalizing on the potential for greater alignment of the investments by regional bodies and any future QWP. This information is based on the responses provided by participations to the various components of this census study.

This section focuses on the five focus areas of the QWP. Important opportunities and ways forward are: wetland information (wetland research, monitoring and evaluation; extending wetland mapping; incorporating Traditional Owner wetland values); wetland planning (collaborative partnerships to mainstream wetlands; prioritization; integration and coordination; focus on wetland connectivity; and statutory protection); on-ground activities (continue to improve land management practices; comprehensive incentive schemes; and adequate and effective resourcing); education and capacity building (raise awareness, improve capacity and fill knowledge gaps); and communication, monitoring, evaluation, reporting and review (establish a Wetlands Network; and improve reporting mechanisms).

7.1 Improving the wetland information base

7.1.1 *Wetland research, monitoring and evaluation*

Existing research efforts varied among the regions, with central Queensland regions identifying the need for further investment in research (acknowledging that research is not a key focus of QWP). Future research needs identified by regional bodies included studies to address:

- ecological gaps in understanding e.g. wetland hydrology especially in irrigation areas, weed and feral animal impacts, appropriate fire management regimes and rehabilitation guidelines (Note: Rehabilitation guidelines have been developed by QWP);
- social gaps in understanding e.g. an evaluation of attitudinal change by stakeholders in relation to investment directed towards improving wetland outcomes; and
- climate change by developing local climate change scenarios that address predicted impacts of climate change on wetlands and recommended adaptations to minimise these predicted impacts. This is a critical issue requiring a significant level of support and resources and collaboration with other key agencies such as research organizations and all three levels of government in planning and risk assessment from social, ecological and economic perspectives.

It should however be noted that several of the QWP projects in relation to wetland science and information (e.g. WetlandInfo, and Science and Research Online) were

not released at the time of this report and will align closely with regional body needs in the future.

Monitoring and evaluation of wetland extent and condition were viewed by all workshop participants as an important basis for understanding wetland change over time and being able to implement appropriate actions in an adaptive management framework. Funding to enable effective long-term monitoring of wetland values was viewed as essential. This needed to be based on better and more deliberative target setting in relation to wetlands. The proposed Wetlands Network (refer 7.5.1) is a suitable forum to further discuss and refine monitoring and evaluation frameworks, reporting procedures, and the roles and responsibilities of key stakeholders.

7.1.2 Extending wetland mapping

Continue to align the QWP's wetland mapping with the needs of regional bodies in their efforts to develop sub-catchment and local planning priorities. This will require finer resolution mapping and development of appropriate strategies to incorporate the results of regional body research, monitoring and evaluation of wetlands. For example, several regional bodies have undertaken finer resolution mapping of selected wetlands and local governments in some regions (e.g. BDT) and this information needs to be incorporated into the QWP wetland mapping data. The process to enable this needs to be developed in conjunction with regional bodies and other relevant stakeholders (refer 7.5.1).

7.1.3 Incorporating Traditional Owner wetland values

Traditional Owner engagement was in its early stages for wetland management in most regional bodies (refer section 6.1.4) and all regional bodies agreed that future efforts (e.g. from the QWP) could usefully focus on Traditional Owner cultural values. It is acknowledged that the products of the Traditional Owner Wetlands Values project will assist in meeting this need of the regional bodies.

7.2 Wetland planning

7.2.1 Collaborative partnerships to mainstream wetlands

Wetlands are one component of a complex landscape. Many of the activities that threaten wetlands (e.g. weeds, ferals, poor land management practices and poor water quality) require coordinated approaches across catchments and involving landholders, government agencies, industry and conservation groups. Regional bodies have established an array of partnerships (refer section 3) to deliver wetland management initiatives and need to continue to develop and implement collaborative partnerships.

*“Collaborative partnerships are the key to achieving on-ground outcomes”
(Cairns Workshop)*

Local government is engaged in traditional areas such as weeds and pest animal management and some water efficiency initiatives. The recent restructuring of local government boundaries provides a potential opportunity to forge new and expanding interactions between regional bodies and the new local government authorities. This will provide an opportunity to increase the profile of wetlands in local government planning and management processes. Similarly, local governments need to take a

more proactive role in avoiding or limiting the impacts of development in significant wetlands. The ongoing collaboration between regional body staff and local governments is crucial to achieving more long-term effective outcomes for wetlands.

Planning schemes, growth management strategies and statutory regional plans provide an opportunity to facilitate positive outcomes for wetlands management, for example through effective identification of wetlands in strategic plans, conservation overlays and nature conservation strategies, through incorporation of guidelines for wetlands in relevant codes, and the development of specific policies that relate to wetlands. It is essential that planning schemes comprehensively address wetlands at all levels from their desired environmental outcomes to performance indicators and targets. This may be achieved by regional bodies providing management support and personnel to work with local government, particularly in the development of planning schemes and tools. Overall guidance in policy and strategy could be provided by the Queensland and Australian Governments (in particular through the EPA) and technical expertise with on-ground management projects be provided by wetlands partners (e.g. through the consortium lead by Conservation Volunteers Australia).

Partnerships with industry groups (e.g. AgForce, BSES, GrowCom etc) provide an opportunity for regional bodies and government to have input into the development of recommended best management practices that have beneficial outcomes for wetlands. It will also facilitate direct engagement with landholders who are involved in a range of production oriented activities that have the potential to negatively affect wetlands. As indicated in this report (refer section 6.3.1) landholders frequently placed production values above wetland conservation values, and hence there is an opportunity to achieve wetland outcomes if changed land management practices can produce both production and wetland conservation improvements. The extent to which this is possible, in situations where the wetland outcome has a higher public than private benefit, will depend on the incentives offered to landholders (refer 7.3.2). However, the majority of respondents to this report indicated that the further expansion of GLM and FMS were priorities, along with the development of PMPs and other on-ground activities (e.g. weed and feral animal control) to achieve improved wetland outcomes.

Continuing partnerships with State Government agencies are important to deliver cross-regional outcomes. EPA's wetland mapping has been a significant resource for a number of regional bodies and its on-going refinement is important. Other products (e.g. WetlandInfo, Science and Research Online) will provide important resources in the future. DPI&F's involvement with the identification and management of fish barriers and improving wetland connectivity, and assisting with assessments of in-stream habitat values are also valued. State agencies involved in the development and implementation of statutory regional growth management strategies also provide an opportunity to comprehensively address wetland conservation and management (refer 7.2.1)

Effective engagement with Traditional Owners is important e.g. developing Caring for Country Plans which incorporate wetlands of importance, identifying Traditional Owner cultural values relating to wetlands, and establishing well supported Traditional Owner engagement strategies (refer 7.1.3).

“Effectively engage Traditional Owners in mainstream activities related to wetlands.”
(Cairns Workshop)

Future collaborations with the mining industry were seen to be important, particularly in areas of mining expansion (e.g. CA, QMDC, FBA and MW), to minimize the impacts of mining on wetland values, to gain future funding, and to form strategic partnerships for wetland management.

7.2.2 *Prioritisation*

Prioritisation of wetlands is essential to direct future investments. This should be based on a clear identification of remaining wetlands and an assessment of their current condition and should include extensive consultation with the key stakeholders, particularly landholders. In some regions, this is not yet being achieved and will require further resources and effort to become well established in their operations.

More robust prioritization processes are likely to result from the improved resource information currently being produced (e.g. the DSS and EPA wetland maps). Regional bodies will continue to need technical support to refine the mapping as it comes available to make it useful for sub-catchment, local area and property scale planning activities.

Overall, regional bodies need to strike the balance between what regional bodies may consider priority wetland sites and what the landholders and other community members are willing to contribute to through their land management practices. Moving beyond 'working with the willing' will require a comprehensive consideration of appropriate strategies and incentives and this is an important area for future consideration within the QWP.

7.2.3 *Integration and coordination*

Regional body practitioners acknowledged that wetland outcomes will be achieved through multiple planning and implementation processes. It is important that work continues to 'mainstream' wetland values and outcomes into complementary planning and management processes (refer 6.2.1). Hence, it is important that a clear vision is established for wetlands, particularly as part of the regional NRM plan review process, which will be undertaken by most regional bodies over the coming 18 months, and that their important role within the broader landscape is identified.

Regional bodies indicated the importance of WQIPs as a basis for achieving long term outcomes for wetlands in relation to improved water quality and the Cairns workshop participants expressed the need for WQIP to be in place for all catchments in northern Queensland.

Improved coordination of wetland activities with local governments are an important way forward (refer 7.2.1). Regional bodies can continue to play a key role in linking wetland programs and initiatives to local government activities.

However, workshop participants highlighted that there was a need to ensure integration and coordination of activities, but to avoid over-consultation and burn out by regional body staff (Brisbane Workshop).

7.2.4 Focus on wetland connectivity

Wetland connectivity and effective buffers for wetlands are important and should be maintained or reinstated across regional landscapes (Rockhampton Workshop) (refer 6.2.2). Several regional bodies (e.g. BDT, MW and BMRG) identified that they will continue to focus on the removal of fish barriers to enhance wetland connectivity. DPI&F is currently placing a greater emphasis on enhancing fish habitat areas with a particular focus on removing barriers or other works to improve fish passage (Ian Yarroll, DPI&F, pers. comm.). Connectivity projects have also been funded under the QWP and will continue to provide close alignment with regional body needs.

The need for initiatives (and incentives) to improve wetland connectivity is an issue that should be considered in the broader context of maintaining biodiversity and native remnant vegetation cover across the landscape. Wetland connectivity is considered as part of the prioritization process used by many regional bodies. However, the predicted impacts of climate change and greater climate variability need to be considered in this prioritization process to ensure that wetland outcomes are considered at multiple levels from property, to sub-catchment, to catchment, to NRM region and bioregion. Close cooperation and partnerships with local government and statutory regional planning authorities (e.g. OUM in SEQ) are also needed, particularly in rapidly developing coastal regions where wetlands are under increasing levels of threat.

7.2.5 Statutory protection

Workshop participants believed that there were limited mechanisms to ensure the secure protection of important wetlands. Important ways forward were identified as: a review of relevant legislation relating to wetlands; a review of the institutional barriers for whole of government wetland protection; identification of possible mechanisms to enhance the protection of wetlands, including the investigation of the development of a biodiversity (wetland) State Planning Policy; incorporation of wetland issues into relevant statutory regional plans, as well as local government planning schemes (refer 6.2.1)

“Wetlands need integrated statutory protection and enforcement. They are not race tracks, rubbish dumps or development sites” (Cairns Workshop)

7.3 On-ground activities

7.3.1 Continue to improve land management practices

The focus of regional bodies’ existing on-ground activities has been related to improving land management practices, and regional bodies indicated through their draft RISs for 2007/08 that this emphasis will continue. There was a strong sense from the wetland practitioners (except CYP) that regional body RIS funding should be directed to achieving on ground outcomes, rather than more resource assessment and wetland planning. As indicated previously (section 6.3), landholders frequently placed the production values associated with their properties ahead of their wetland conservation values. Hence, regional bodies proposed focus of effort in wetlands will remain with improving land management practices (particularly in situations where landholders co-invest in wetland projects). Thus the inclusion of wetland specific information with GLM and FMS packages are important to spread wetland information more widely among producer groups. The stated focus of most regional

bodies in relation to on-ground works in the next three years was the continued construction of wetland fencing, the provision of off-stream watering points, and reducing erosion, sedimentation and nutrient contamination (Wetland Survey).

In achieving this outcome it is also important to recognize the potentially conflicting views of stakeholders in relation to wetland management. For example, in several regions, graziers viewed hymenachne as a food source for their cattle, while ecologists viewed it as a significant weed species in need of removal. Continuing engagement with landholders is needed to establish collaborative approaches to such problems and to produce “win-win” solutions.

Many wetland practitioners also believed that it was essential to continue working with the landholders who were willing to engage. It was expected that wetland awareness would be raised through the transmission of information by landholders and other key stakeholders, thus achieving a multiplier effect across the landscape. However, it is important to identify priority areas for wetland conservation and to target landholders in these locations (refer 6.4).

“We need to work with the willing...”
(Rockhampton Workshop)

7.3.2 Comprehensive incentive schemes

Landholders and other key stakeholders need to be supported by a comprehensive range of incentives schemes and extension programs to undertake wetland conservation. Co-investment by the regional bodies, relevant industry groups and government will be effective in supporting landholders to implement recommended best practices that will have positive outcomes for wetlands.

In situations where there is a public benefit and little private gain to the landholder from undertaking wetland conservation, it may be necessary to increase the incentive funding and potentially provide all of the wetland project costs (e.g. Raglan Creek fishway projects). Rate and tax relief mechanisms should also be investigated to produce improved wetland outcomes.

7.3.3 Adequate and effective resourcing

To maintain ongoing work in wetlands it will be important to maintain (or increase levels of) skilled staff and to provide career opportunities in the regional bodies. This is especially necessary in more remote regions (e.g. CYP, SGC and SWNRM). Regional bodies called for a longer planning and funding horizon to enable more proactive planning and management (refer 6.2.1).

Significant gains have been made in several western and northern regions in relation to linking weed and feral animal control (of interest to landholders) with wetland management outcomes. Regional bodies from across the State clearly stated that ongoing investment was essential to ensure not only the removal of existing weeds which threatened wetland integrity, but also to be proactive in preventing the spread of weeds and feral animals into sensitive wetland areas (refer 6.2.1). Fire management was another area requiring attention and ongoing resources.

7.4 Education and capacity building

7.4.1 Raise awareness, improve capacity and fill knowledge gaps

A continued focus of regional body programs to improve awareness of wetlands is necessary across a range of stakeholder groups. In particular, landholders need to be engaged to consider not only production outcomes, but long-term sustainable production systems that incorporate consideration of wetland conservation and management. The “Cattle to catchments” initiative within BMRG is working successfully in its initial stages to incorporate business models that take account of land capability to ensure long-term outcomes for wetlands.

Regional body staff also require improved capacity, including enhanced knowledge in relation to technical aspects of wetland conservation and management and a better understanding of local government planning instruments and how they can be used to improve wetland conservation.

Enhanced knowledge of wetland biodiversity and ecosystem services is necessary and should be made accessible to a wide range of stakeholders, particularly decision makers (e.g. through incorporation into State agency databases) (Rockhampton Workshop). In particular, wetland practitioners wanted a better understanding of “how [wetlands] work and what values are lost from wetlands because of a range of uses” (Rockhampton Workshop). Improved wetland science was seen to be particularly necessary in northern and central Queensland (e.g. CYP, SG, NG and MW). New knowledge also needs to be accompanied by better application of the scientific knowledge that exists in relation to wetlands. It should be noted however, that the QWP has invested into a range of educational tools and on-line information to address these gaps (refer 4.3.2 and 6.4.1) and this has been a significant contribution to wetland conservation and management.

There is a need for regional bodies to continue to develop a range of products to disseminate information about wetlands and the wetland initiatives that have been undertaken. This could include case studies, field days, wetland festivals, documentaries and DVDs, conferences and wetland management fora (refer 6.3).

7.5 Communication, Monitoring, Evaluation, Reporting and Review

7.5.1 Establish a Wetlands Network

Problems frequently identified by regional bodies in relation to wetlands were the limited skills and capacities of their staff, the existence of wetland expertise in one or a few individuals, the failure to transfer knowledge about wetlands and the failure to benefit from many of the learnings that have occurred from previous investment into wetlands (refer section 6.1.3). A Wetland Network which enabled greater sharing of the accumulated knowledge of wetland management would be beneficial in contributing to the intra- and inter-generational transfer of knowledge within and between regions.

EPA, through the QWP should take a supporting role with regional bodies, in partnering and facilitating the development of a state-wide Wetlands Network. The Network should provide support, information sharing, and opportunities for collaboration on cross-regional projects. It could also address information regarding relevant training programs for interested stakeholders. The precise role and responsibilities of the proposed Wetlands Network would need to be considered by all interested stakeholders. Similar networks may also be useful within regional bodies. For example, BMRG has established an effective wetland network that shares information, knowledge and resources on wetland management and promotes wetland conservation.

7.5.2 Improve reporting mechanisms

The existing system for reporting by regional bodies on their wetland related activities presented several difficulties. Wetlands are not usually identified as a single asset category within regional NRM plans and generally do not have specific funding programs attached to them within RISs. Regional NRM plans are holistic, multi-asset based plans. Hence, much of the funding that is directed to wetlands is provided through a range of programs that may relate to sustainable landscape production, coasts and marine, water quality, biodiversity, cultural heritage and community capacity. Many projects may be designed specifically to provide production outcomes, but have secondary outcomes related to improved wetland values. Hence it was difficult for the regional bodies to identify specifically the projects or actions that have been undertaken that have wetland outcomes and to attach dollar values to these projects. In many cases, these were components of larger programs. This is one of the Census' limitations noted in section 1.7.

The recent focus on wetlands by the QWP has provided significant funding to regional bodies to undertake wetland projects. Workshop participants generally believed that reporting on wetlands was necessary to enable regional bodies to assess their investments and achievements towards wetland management.

Reporting was seen to have several functions each of which might take different forms e.g. outputs reporting for accountability, performance reporting / story-based reporting to account for short-term changes, and resources condition reporting which would be more long term.

Key characteristics of any future reporting framework should aim to:

- include a consistent reporting format – across the regional bodies and with other reporting requirements that regional bodies need to fulfill;
- include information that is developed and implemented in a way that is useful to regional bodies in their future planning and management activities, in particular, takes advantage of the improvements in wetland information coming from the QWP in the regional NRM plan and RIS reviews over the coming 12 months;
- include reporting on the actual scientific results of the work or data that was gathered, the value of that data, the management actions completed or required and an assessment of the effectiveness of the projects in terms of their wetland outcomes (rather than a simple output based reporting of the tasks that were undertaken);

- tie in with other reporting systems e.g. the State of Region reporting and incorporate this information into the Reef Report Card and water quality report card;
- recognize that monitoring may be necessary at several scales e.g. landholder property based monitoring, community monitoring to build capacity, and monitoring associated with large scale projects and undertaken by universities and other research institutions or consultants; and
- consider the use of reference sites to aid monitoring and reporting on a more extensive scale.

On an annual basis, the Queensland and Australian Governments are interested in the outputs (and outcomes) from the combined investments into wetlands management (through direct investments via the QWP which has a dedicated reporting process and via the funding of regional body activities). The ability to have the broader picture of activities being undertaken and outcomes being delivered is an important achievement for the government investors.

Currently, enQuire is the Queensland system used by regional bodies for six monthly and annual performance reporting. Using project codes, it captures progress against milestones and information regarding variances. With the cooperation of the regional bodies, it is possible to identify and ‘tag’ the activities that are contributing to wetlands management in the regions. This is a significant task and would require resources to implement (Note: BMRG undertook this task for this Census and estimated it took 6 full days. The result was a very comprehensive census of projects, project names/identifiers, funding amounts and sources). One avenue where the negotiation of this cooperation could be achieved is through the proposed Wetlands Network as it will include regional body staff who are directly involved in wetlands management. Together, the regional bodies, NRW (Community Partnerships) and EPA (QWP) can investigate the capacity of enQuire to expand its functions and report on wetlands projects (level of investment and outcomes achieved) across the range of regional bodies’ programs.

8.0 Conclusion

The purpose of this report was to identify and assess how regional body activities are and will contribute to the achievement of the QWP's actions and objectives. The project methodology included a desktop review of regional NRM plans, RISs and related performance reports, the results of a questionnaire designed for regional body staff, in-depth interviews, and a series of clustered workshops with wetland practitioners. This triangulation of responses provides a sound basis as to the reliability of the results presented in this report.

The key findings of this report are summarized in relation to the specific objectives of this project, which were:

- a) *Review regional bodies' investment in management actions and activities that support the objectives of the QWP*

Regional bodies have made significant early gains in relation to wetland conservation and management. Efforts to date have focused on on-ground actions in several regional bodies (e.g. FBA, SWNRM, QMDC, CA, SEQC, NGRMG, SGC and DCQ) with particular emphasis on riparian areas (e.g. fencing, off-stream watering points, wet season spelling and rehabilitation), application of GLM and FMS at the property scale, the development and implementation of PMPs to improve land management, and weed and feral animal control, all of which are expected to have some outcomes for improving wetland values.

The wetland mapping produced by EPA was an important resource for regional bodies where it was available, enabling wetland planning and management actions to be prioritized and commenced in some regions. Several regions (e.g. CYP, TS and BMRG) focused effort on resource assessment and planning activities to provide baseline assessments of the condition of wetlands and threats to wetlands. Monitoring of water quality, seagrass, mangroves and turtles was undertaken across relevant regions.

Wetland priorities were determined largely through the comprehensive regional NRM planning process and the development of RISs. This usually involved comprehensive consultation with a wide range of stakeholders, input from regional body boards and staff, and the opinions of expert panels. MW utilized a scoring exercise to rank individual wetlands based on their values, threats and the capacity to undertake works. The DSS workshops ranked and prioritised wetlands based on an agreed weighting given to the values, threats and capacity and then stakeholder input. QMDC utilized a sub-catchment planning process to firstly engage landholders and discuss options, with funding for wetland projects provided on the basis of "first in first served".

The QWP definition of wetlands was used by regional body staff in a formal sense. However, this comprehensive definition was not fully understood by stakeholders,

who had a narrow view of wetlands based on terminology that distinguished between riparian, estuarine, saltmarsh, marine and riverine. Further, as many wetlands in the drier parts of Queensland were only periodically inundated they were not regarded as wetlands by landholders. This gap in understanding of what constitutes a wetland would be a significant issue if regulations were introduced to conserve and manage wetlands. However, the current QWP wetland definition causes few problems for practitioners in achieving improved outcomes for wetlands.

b) Identify the strategies that regional bodies are employing to manage, protect and rehabilitate wetlands

The main strategies or tools identified by regional bodies included: fencing, riparian management and off-stream watering points; weed and feral animal control; working with landholders (e.g. GLM and FMS); capacity building and raising awareness, using a range of education tools; improving water quality; and incentives. Other less used tools included: removal of pondage banks which restricted wetland connectivity; property management planning; formal protection of wetlands; assessment, monitoring and evaluation of wetland condition; revegetation and rehabilitation of wetlands; enhancing wetland connectivity; and fish passage reinstatement.

Other important approaches included the development of collaborative partnerships with a range of stakeholders including all levels of government, research institutions, industry groups, non-government organizations, Traditional Owners, and the media. All regions had undertaken some resource assessment and planning and prioritised wetland actions, as well as developed a range of information products to raise awareness of wetland issues.

Particularly successful projects included: the Demonstration Reach Project by QMDC which incorporated a geo-referenced aerial video to identify important information on rivers, combined with a rapid river health appraisal and the subsequent prioritization of management areas; BDT's collaborative partnership between landholders, the regional body and local council to control the spread of weeds in riparian areas; BMRG's clustered approach to liaising with local governments and State of Estuarine Environments reporting project; CA's use of Greening Australia staff to implement on-ground actions in relation to wetlands; FBA's Priority Neighbourhood Catchment approach which prioritises wetland activities to key sites and provides incentives for landholders to undertake works; TS's initiation of six land use plans which will incorporate effective wetland management and the future expansion of this project to other islands in the TS; SEQC's focus on mobilizing the efforts of the many willing and interested community groups in their highly populated region through their range of incentive funding programs; and NGRMG's focus on progress through the GLM initiative and dedicated planning and management activities on a key wetland in their region.

c) Make recommendations for using or improving existing reporting mechanisms to facilitate easier collation and linking between regional activities and the QWP.

On an annual basis, the Queensland and Australian Governments are interested in the outputs (and outcomes) from the combined investments into wetlands management

(through direct investments via the QWP which has a dedicated reporting process and via the funding of regional body activities). The ability to have the broader picture of activities being undertaken and outcomes being delivered is an important achievement for the government investors.

Currently, enQuire is the Queensland system used by regional bodies for six monthly and annual performance reporting. With the cooperation of the regional bodies, it is possible to identify and ‘tag’ the activities that are contributing to wetlands management in the regions. This is a significant task and would require resources to implement. One avenue where the negotiation of this cooperation could be achieved is through the proposed Wetlands Network as it will include regional body staff who are directly involved in wetlands management.

d) Identify the key strengths, constraints, gaps, risks, opportunities and potential synergies for improved regional NRM delivery of wetlands outcomes.

The eight key challenges identified in this Wetland Census Report that regional bodies face included:

- increasing understanding (and acceptance) of the ‘official’ wetlands definition;
- ‘mainstreaming’ of wetlands into the broader NRM priorities;
- increasing the value placed on wetland areas through greater understanding of the range of services and roles wetlands play in the landscape;
- getting a balance between primary production and wetland conservation outcomes;
- managing programs and initiatives in the context of resource limitations;
- addressing the gaps in knowledge and data limitations;
- working to achieve connectivity in the landscape as one ‘player’ amongst many; and
- improving Traditional Owner engagement in wetland initiatives.

The key opportunities and ways forward for wetland management by regional bodies included:

- continuing to build the collaborative partnerships with key stakeholders involved in wetland management and related activities;
- continuing to improve land management practices to address wetland management and protection outcomes;
- building a Wetlands Network amongst regional body practitioners involved in wetlands work to share information and support across the State;
- raising awareness, improving the capacity of staff and stakeholders in the business and filling the knowledge gaps that exist in baseline and other resource information to assist management;
- improving integration and coordination of programs, funding and initiatives to improve the effectiveness of resources that are available to regional bodies;
- refining prioritization processes based on improving wetland inventory and management data sets;
- focusing on wetland connectivity at the local and regional scales;
- continuing to build comprehensive incentive schemes to mobilize the efforts of the community;
- ensuring adequate and effective resources are allocated to wetland management activities;

- supporting research, monitoring and evaluation efforts to increase regional body understanding of wetland management activities;
- supporting the development of statutory protection mechanisms by the relevant agencies; and
- supporting reporting mechanisms that allow information gathering to improve understanding of what is being achieved from investment activities.

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Personal communications

Ms Noeline Gross, General Manager, NGRMG – 17 July 2007

Mr Ian Yarroll, A/General Manager, Fisheries Resource Protection, Fisheries
(previously General Manager, Fisheries and Aquaculture Industry Development),
DPI&F, - 18 July 2007

APPENDIX A

Terms of Reference

TERMS OF REFERENCE

Regional NRM Investment Strategies (RIS) and Coastal Catchments Initiative (CCI) project alignment to Queensland Wetlands Programme with agreed Reporting Arrangements (*Census of regional body wetlands activities*)

1. SCOPE OF THE PROJECT

The Department of Natural Resources and Water (NRW) is seeking offers from interested parties to enter into an Agreement for provision of services to identify and assess how regional natural resource management (NRM) body activities will contribute to the achievement of the Queensland Wetlands Programme actions and objectives. The analysis is to include the identification of investment by regional bodies relevant to wetlands. Investment will include projects/activities related to management action targets (MATs) and resource condition targets (RCTs) funded under the Natural Heritage Trust (NHT), National Action Plan for Salinity and Water Quality (NAPSWQ), the Coastal Catchments Initiative (CCI) and other sources of funding. Recommendations for using existing and proposed NRM reporting arrangements to enable wetland related activities to be easily collated is also required.

2. BACKGROUND INFORMATION

The Queensland Wetlands Programme (QWP) represents a \$23m investment by the Australian and Queensland governments over 5 years to establish a long term framework to protect and conserve wetlands in Queensland. The QWP is supported through two sub-programmes – the Natural Heritage Trust Queensland Wetlands Programme and the Great Barrier Reef Coastal Wetlands Protection Programme. Opportunities to leverage these investments need to be considered. This requires a good understanding of the programs and projects related to wetlands that are being undertaken throughout the state. The regional NRM bodies are significant contributors to wetland management through their collaborations and investment programs. Therefore, there is a need to analyse the extent and magnitude of alignment between QWP projects with the current and proposed management actions by regional NRM bodies.

The objective of the Natural Heritage Trust Queensland Wetlands Programme is to develop and implement measures to support Queensland in the conservation and management of wetlands as outlined in the Bilateral Agreement (2004). To this end the Australian Government has allocated \$7.5 million cash which will be matched by \$7.5 million in-kind funding by the Queensland Government to implement the relevant provisions of the Natural Heritage Trust Bilateral Agreement. The Programme will target wetlands across Queensland.

All regional NRM bodies are encouraged to regularly review regional NRM plans consistent with an adaptive management approach, and some regional bodies will commence plan review in 2007. The information generated through this project will provide a useful baseline for the review and may act as a trigger to develop new MATs, RCTs or targets, or revise components of the plan, consistent with an adaptive management approach.

The Coastal Catchments Initiative (CCI) projects are also to be delivered complementary to regional NRM plans. The CCI seeks to deliver significant reductions in the discharge of pollutants to agreed hotspots. Following the identification of agreed hotspots, water quality improvement plans are prepared identifying the most cost-effective and timely projects for investment. Funds are subsequently allocated for projects which deliver improvements through the implementation of management strategies. The Australian Government funds Regional NRM Bodies, local councils and the Moreton Bay Partnership to deliver the CCI in Queensland. The delivery of the CCI is also undertaken in collaboration with the Queensland state agencies such as the EPA and NRW.

For the purpose of this study, wetlands are defined as by the Queensland Wetlands Programme, as areas of permanent or periodic/intermittent inundation, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m. To be a wetland the area must have one or more of the following attributes:

- (i) At least periodically the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or
- (ii) The substratum is predominately undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
- (iii) The substratum is not soil and is saturated with water, or covered by water at some time.

Examples under this definition include:

- those areas shown as a river, stream, creek, swamp, lake, marsh, waterhole, wetland, billabong, pool or spring on the latest topographic maps
- areas defined as wetlands on local or regional maps prepared with the aim of mapping wetlands
- wetlands Regional Ecosystems (REs) as defined by the Queensland Herbarium
- areas containing recognised Hydrophytes as provided by the Queensland Herbarium
- saturated parts of the riparian zone
- artificial and constructed wetlands such as farm dams
- water bodies not connected to rivers or flowing water such as billabongs and rock pools.

Examples under this definition exclude floodplains that are intermittently covered by flowing water but do not meet the hydrophytes and soil criteria and the riparian zone above the saturation level.

3. REQUIRED OUTCOMES OF THE PROJECT

Outcomes from the project will be:

- a review of how regional NRM bodies are approaching the investment of management actions and activities that support the objectives of the Queensland Wetlands Programme, including a review of mechanisms used to allocate funding to wetlands projects, identification of methods and strategies used to prioritise investments across wetland projects, and a review of how wetlands are defined by regional bodies. This may include activities brokered by regional NRM bodies which are only partly funded through the regional NRM bodies, as for example regional monitoring alliances
- documentation and description of the strategies that regional bodies are employing to manage, protect and rehabilitate wetlands (including constructed wetlands), the collection of some 'good news stories' of successful and innovative approaches, and description of natural resource outcomes from current and completed projects
- identify linkages between regional wetland projects and products and outputs from the Queensland Wetlands Programme and make recommendations for using or improving existing reporting

mechanisms to facilitate easier collation and linking between regional activities and the Queensland Wetlands Programme.

- the identification of, and recommendations for, improvements in relation to key constraints, gaps, risks, opportunities and potential synergies for improved relationships with respect to regional NRM delivery of wetlands outcomes.

4. PROJECT TASKS

- a. Through document analysis supported by discussions, interviews, focus groups or workshops with regional body staff and boards, describe regional NRM body activities, MATs and RCTs against the criteria listed in Attachment 1. Activities should be directly related to wetlands (eg not including activities undertaken upstream that may indirectly contribute to wetland improvement).
- b. Document and synthesise regional body strategies to deliver on wetland outcomes. Document successful and innovative approaches applied in different regions.
- c. Identify methods of prioritisation for wetland investment decisions. Document mechanisms for incorporating differing stakeholder priorities and for prioritising wetland activities in the context of other social, economic and environmental values.
- d. Review existing reporting arrangements for regional NRM bodies and make recommendations for using or improving existing reporting mechanisms to enable information on wetlands activities to be updated.
- e. Identify strategic gaps and opportunities to improve regional NRM delivery towards wetland outcomes through existing or additional resourcing, better and more deliberative target setting and/or improved coordination and delivery mechanisms. Identify alignment with and use of Queensland Wetlands Program products and outputs in regional wetlands activities.
- f. Synthesise all this information into a coherent Evaluation Report with recommendations for presentation to the Queensland Wetlands Joint Government Taskforce. Provide a presentation of the information to the Steering Committee and other interested parties.

5. ACCOMMODATION, FACILITIES AND DEPARTMENTAL ASSISTANCE

Unless otherwise agreed, the successful contractor will be expected to provide their own accommodation and other facilities or equipment (including a computer and telephone) at their own premises while undertaking the Services.

NRW is able to host meeting rooms and provide background information on regional bodies, regional NRM plans and investment strategies. The Reef and Wetlands Team of Community Partnerships, NRW will be able to provide some secretarial assistance and assistance with workshop organisation and catering arrangements etc. at no cost to NRW.

Consultants/Contractors will be expected to confer with the project manager regularly in Brisbane and as required with the steering committee (SC).

6. REPORTING

Confirmation of planning arrangements for the regional visit(s) will be presented prior to the discussions with regional bodies. An interim progress report will be presented to the Wetlands Alignment Steering Committee following the regional visit(s). A draft Evaluation Report will be lodged with the SC for feedback in preparation for the final Evaluation Report due to the Queensland Wetlands Programme Taskforce. A presentation on the findings will also be given to the Steering Committee and interested stakeholders.

7. DOCUMENTATION

- The Consultant/Contractor will provide two hard copies and one electronic version of the Interim draft report, the draft and final Evaluation Reports as well as a catalogue of all documentation developed and acquired during the contract.
- Copyright of all data produced during the Project will be held by the Department of Natural Resources and Water.

8. PROJECT TIMETABLE

Milestones	Tasks	Completion
	Consultants appointed	February 2007
Milestone 1	Analyse RISs and CCI project plans against QWP objectives	April 2007
	In consultation with Steering Committee, identify relevant stakeholders and appropriate key informants; agree appropriate evaluation questions and instruments	April 2007
	Set up interviews and timetable	April 2007
Milestone 2	Interim draft report to SC (incorporating RIS and CCI evaluation and evaluation instruments)	May 2007
	Conduct interviews/focus groups in regions	April-August 2007
Milestone 3	Analyse responses and integrate into previous analysis of plans and RISs	September 2007
	Draft evaluation report to SC	September 2007
Milestone 4	Final evaluation report to QWP Taskforce	October 2007

9. REIMBURSEABLE EXPENSES

Reimbursable expenses may only be claimed within the total budget allocated for the project. Reimbursable expenses incurred in the performance of the Services will be limited as follows:

- Accommodation and meals will be reimbursed at the rate applicable for equivalent public services officers

- Fares for travel by air will be reimbursed at actual cost limited to the cost of cheapest available economy class air travel
- The cost of other agreed expenses will be reimbursed at cost.

10. QUALITY ASSURANCE

For this purchase a documented Quality Assurance System is not required.

11. MANAGEMENT OF PROJECT

The Project Manager is:

Paul Lawrence
Department of Natural Resources and Water
GPO Box 2454
BRISBANE QLD 4001

Phone: (07) 3224 7761
Fax: (07) 3224 2072
Email: Paul.lawrence@nrw.qld.gov.au

The Project Manager will manage the Project on a day-to-day basis and the Consultant/Contractor will report and address correspondence, including claims for payment, to this officer in the first instance.

12. PAYMENTS

In addition to the provisions of *Section 6 – Payment* of the Conditions of Contract the following conditions will apply to the Project:

- a. The Consultant/Contractor will be paid upon the submission of a Tax Invoice for services rendered and relevant documented expenses incurred for necessary travel and accommodation following regional visits and again following submission of the final evaluation report (within the total budget for the project).

13. SUBMISSION OF PROPOSALS

- a. Interested contractors are requested to submit their proposal indicating the following items (as a minimum):
 - Proposed activities and deliverables to a timeline consistent with requirements
 - Firm contract prices and estimates of expenses as per the Budget Breakdown table (Offer Form D)
 - Relevant experience and expertise of the offerers
 - Details of availability within the proposed timeframe
- b. Where Offerers propose a consortium of contractors to undertake separate parts of the Project, the Principal contractor will be identified.
- c. No sub-contractors may be used without prior written permission of the Project Manager.
- d. Submissions will also include all the completed Offer Forms (A-D).

14. ADDITIONS TO CONFORMING OFFERS

If the Consultant/Contractor considers that additional tasks or alterations to tasks are necessary to satisfy the objectives of the Project, the Consultant/Contractor may include these in the submission, but a conforming Offer must also be provided.

15. EVALUATION CRITERIA

The Qualification-based Evaluation Process will be used to select the successful Consultant. The following criteria will be used to evaluate the submissions:

Evaluation Criteria

- i) Availability to begin and achieve the required outcomes within the required timeframes
- ii) Understanding of regional arrangements and delivery mechanisms across various Queensland regions, and the Queensland Wetlands Programme
- iii) Experience in evaluation of community-based NRM programs for broad-scale resource condition outcomes
- iv) Value for money
- v) Ability to develop good working relationships with regional NRM bodies and government agencies

16. CONTRACT REQUIREMENTS

The successful applicant will enter into a standard contract with NRW. Any adjustments to the standard contract need to be proposed in the applicant's Response to Tender.

All Consultants are required to maintain Public Liability Insurance both for the protection of NRW and to promote the distinction between employees and Consultants who are expected to take greater responsibility for their own actions. Public Liability Insurance for a minimum amount of AU\$10 million is mandatory for all Consultants (the amount of \$10 million is the standard amount across industry and government).

Public Liability Insurance covers the Consultant's legal liability to pay compensation in respect of personal injury (including death) and/or damage to property, not only for the Department and its officers but also for third parties.

Professional Indemnity for this consultancy has been assessed at \$1 million. Professional Indemnity Insurance is required for a period of six years (being the time limit for institution of legal proceedings under the Statute of Limitations) after completion of the Consultancy Services.

ATTACHMENT 1: Criteria for describing wetland activities

Criteria	Options
Wetland activity/project/management action	
Description	Description of activity
Scale of activity	Local (eg related to a specific wetland) Landscape or subcatchment Catchment scale Regional scale (eg education, policy etc)
Activity type	On-ground activities Capacity building Planning Resource assessment Additional unfunded outcomes
Wetland type(s)	Marine Estuarine Riverine Lacustrine (eg lakes) Palustrine (eg swamps, bogs, marshes) Natural, modified or constructed
Spatial location	Latitude and longitude or GIS polygons for local scale activities; polygons or catchment/basin name for catchment and regional scale activities. This is to support the addition of information to the WetlandInfo website and collation of wetland inventory data. If spatial information for specific wetlands is confidential, it may be added at a coarser spatial scale (eg name of subcatchment rather than lat long). The wetland maps have been completed for the GBR catchment and can be provided as a baseline.
QWP focus area	Improving the wetland information base Wetland planning arrangements On-ground activities to protect and rehabilitate wetlands Communication, education and capacity building Monitoring, evaluation and review
Wetland value focus	Wetland processes Intrinsic values Conservation significance Material benefits Material products (production value) Recreational values Cultural resources Local community significance

Related Reef Plan action	
Wetland threat addressed	<p>Clearing, draining and/or filling of wetland</p> <p>Mining and other resource use activities</p> <p>Sediment accumulation and suspension</p> <p>Water pollution (including nutrients, metals and pesticides)</p> <p>Salinisation</p> <p>Alterations to hydrological cycles</p> <p> Excessive water extraction</p> <p> Modification of water regimes through emplacement of dams and other barriers</p> <p>Weeds and pests</p> <p>Aquatic and terrestrial feral animals</p> <p>Vegetation clearing and removal</p> <p>Fire</p> <p>Inappropriate grazing regimes</p> <p>Increased human activity within wetlands</p> <p>Climate change</p>
Inventory data collected (type, scale, access)	<p>Hydrology</p> <p>Fauna</p> <p>Flora</p> <p>Condition monitoring</p> <p>Social</p> <p>Cultural</p> <p>Management issues</p> <p>Management actions</p> <p>Ecosystem services</p> <p>Photos</p>
MAT ID	
RCT ID	
Activity/Project outcomes	Describe the outcomes of the project, including when further outcomes are expected and how outcomes are monitored.
Other comments	

APPENDIX B

Interview Questions

WETLAND CENSUS

Questionnaire for Regional Bodies

Hello, my name is Ann Peterson/Michelle Walker. I am working on a project for the State and Australian Governments that is part of the Queensland Wetlands Programme (QWP) and I would like to ask you some questions about wetlands in your region.

While “Wetlands” were not categorised as one of the 10 areas of activity which define the scope of the Natural Heritage Trust (NHT2), almost all of the defined activity areas could be addressing activities with a wetland focus. The lack of clarity about what people understand a wetland to be and the lack of wetland mapping (up until the mapping recently provided by the QWP) has lead to difficulty in reporting on the extent of wetland activities within Queensland. The NHT Wetland Programme was established to deliver new wetland planning and development arrangements and to that end has been working to establish the tools methodologies, information base and supporting infrastructure for delivery of a wetland policy framework. There has been various liaison and consultation with regional bodies, which have been proceeding with their core business. Hence there is a need to undertake an alignment exercise.

This census project aims to investigate the alignment of wetland related activities in your region with the QWP and to obtain your views on effective ongoing monitoring and reporting of regional body activities in relation to wetlands. The findings of this Census will be used to assist steering wetland policy and NHT delivery.

The questions should take approximately 30 minutes to complete. Your identity and responses will be treated as confidential and anonymous and information obtained will not be directly attributable to any individual responding to this questionnaire.

Do you agree to take part in this interview? Yes No

Do you have any questions before we begin?

I. ADMINISTRATION

Respondent id number :
Regional body id number :
Interviewer :
Location :
Date :
Start/finish time **Start:** **Finish:**

II. QUESTIONS RELATED TO YOUR UNDERSTANDING OF WETLANDS

1. The QWP has defined wetlands as:

‘areas of permanent or periodic/intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m. To be classified as a wetland the area must have one or more of the following attributes:

- at least periodically the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or
- the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or
- the substratum is not soil and is saturated with water, or covered by water at some time.’

Thinking about your region, to what extent is this definition of a wetland consistent with your understanding of a wetland and your approach to wetland management? Please identify and explain any inconsistencies.

2. Thinking about the main stakeholder groups in <RB>, is this how they would also define a wetland? Please explain any differences that you have identified for particular stakeholder groups.

III. QUESTIONS RELATED TO WETLAND PROJECTS

3. In connection to the projects that <RB> has **completed**, or are **underway** relating to wetland conservation and management could you please insert the relevant information in the table overleaf.

Project Name (& code if applicable)	Wetland Name(s) & location (e.g. latitude/longitude, catchment/basin name)	Scale of activity (e.g. local, sub- catchment, catchment, regional)	Objectives	Action undertaken (give details of what, how much, when)	Who was involved?	Funding (give details of amount & funding source)	Products produced and distributed (e.g. data, reports, fact sheets etc)	Effectiveness (give some comments re: limitations & successes)

4. What spatial information products have been produced in relation to wetlands in <RB>? (e.g. wetland maps, sub-regional boundaries etc)

5. Given the competing initiatives that could be funded across all the assets in your region, how are decisions made in <RB> in relation to the allocation of funding **to** wetland projects? (e.g. are the priorities set by the regional NRM plan, and if so how were the priorities determined and by whom?)

6. Where <RB> has funding for wetland conservation and management, please explain how is investment prioritized across the wetlands within the region? (e.g. why have some wetlands received funding and others have not – what are the mechanisms for deciding this prioritization or allocation of funding?)

7. I am going to identify a number of strategies or mechanisms that can be used for managing, rehabilitating or protecting wetlands. In relation to <RB>, I would like you to rate these strategies and mechanisms, using a scale where:
1 = used as a main mechanism for the region 2 = used, but not the main mechanism for the region 3 = proposed to be used in the future, but not yet used 4 = not used at all.
I would also like to you to indicate who the key stakeholders are that are involved with implementing each of the mechanisms or strategies listed.

Mechanism or strategy	1	2	3	4	Stakeholders
Mapping, inventory and assessment					
Mapping wetlands					
Assessing the condition of wetlands					
Monitoring and evaluating wetland condition and extent					
Planning					
Property management plans					
Working with local government in their planning					
Land management strategies					
Fencing of riparian areas/wetlands					
Revegetation of riparian areas/wetlands					
Improving connectivity between wetland areas e.g. along					
Pest animal control programs for species that impact on					
Weed control programs for species that impact on wetlands					
Reinstating fish passages to benefit native fish populations					
Improving water quality flowing into wetlands e.g. land					
Restoring environmental flows to wetlands e.g. managing					
Removal of ponded pastures					
Production related mechanisms					
Grazing Land Management program initiatives					
Farm Management System initiatives					
Wet season spelling					
Provision of off-stream watering points					
Property related conservation mechanisms					
Formal protected status (e.g. national park)					
Nature Refuges					
Land for Wildlife					
Other voluntary mechanisms					
Education and awareness raising					
Fact sheets and other information on wetlands developed &					
Wetland maps available at an appropriate scale for					
Information days, field days, and other community events					
Other: please give details					

8. As a large percentage of wetlands are on freehold land under agricultural production, what strategies or mechanisms does <RB> have to engage these private landholders in improving the management of wetlands?

9. Now I would like you to think about the partnerships that have been formed to improve sustainable wetland management. Could you please list these partners in the table below, and describe the strength of the partnership and its effectiveness. Please provide relevant examples, where possible.

Partner (e.g. local government, Traditional Owners, local producers etc)	Strength of the Partnership (e.g. strong, developing, in the early stages)	Effectiveness in delivering sustainable wetland outcomes (e.g. scale from 1 = very effective to 5 = not effective)

10. How are differing stakeholder priorities incorporated into achieving wetland outcomes?

11. What initiatives or projects best illustrate what <RB> has been able to achieve for wetlands in this region?

12. How does <RB> determine the success of its wetland related projects? In relation to the following criteria, please indicate whether the criterion is: 1 = very important; 2 = important; 3 = neutral; 4 = somewhat unimportant; 5 = not important.

Criteria for success	1	2	3	4	5
Actions were completed					
Project objectives were achieved					
Measurable ecosystem change was achieved					
Stakeholders were satisfied					
Other (please specify)					

13. If you had a total score of 100 which is equivalent to the total effort (i.e. time and resources) <RB> puts into sustainable wetland management , what percentage of effort is being focused / directed to the following activities:

Activity	Effort in wetland management (%)
On ground work	
Resource assessment/data/studies	
Capacity building with stakeholders	
Planning activities	
Monitoring and evaluation	
TOTAL wetland management effort	100

14. How has <RB> been engaging with the wider public and informing them about wetland conservation and management?

15. What factors (e.g. information, support, human resources, skills etc) constrain wetland management in your region?

16. How can existing reporting mechanisms be improved to facilitate easier collation and linking between regional body activities and the Queensland Wetlands Programme?

That's the end of the questions. Do you have any further comments before we finish?

Thank you for your time.

APPENDIX C

Workshop Outcomes

Working with Wetlands – Fora for Regional Body Practitioners

Cairns, Monday 13 August 2007, 9.15am – 3.30pm

Rockhampton, Thursday 30 September, 10.30am – 4.30pm

Brisbane, Friday 14 September 2007, 9.15am – 3.30pm

Workshop Agenda

Forum objectives:

- to provide a forum for wetlands practitioners to listen, share and reflect on regional wetland activities
- to obtain specific details and insights about wetlands' management across the full spectrum of 'activities' undertaken by regional bodies
- to identify key strategic elements which regional bodies are addressing to make their wetlands management more effective

Preparation for Workshop

Prior to the workshop, participants were asked to identify the main wetland projects that had been undertaken within their regions and to reflect on the achievements, 'breakthroughs' and 'breakdowns'. Most participants had been invited to respond to this report's questionnaire (Appendix ?) and to check the results of the desktop analysis (refer Appendix ?), which detailed wetland actions in relation to resource condition targets and management action targets.

Program:

9.15 *Arrival and refreshments*

9.30 Project background, introductions

9.50 What regional bodies have been up to in wetlands management – a conversation panel

11.00 Main mechanisms and main barriers – group discussion

12.15 *Lunch*

1.00 Key statements for wetland management by regional bodies – group review

2.00 Future Wetlands management and reporting

3.30 *Close*

Cairns Workshop

Participants

Diana O'Donnell	Burdekin Dry Tropics NRM, Program Coordinator (Water)
Rachel Allan	Burdekin Dry Tropics NRM, Program Coordinator (Coastal and Marine)
Steve McDermott	Terrain NRM, Program Planner (Coastal Landscapes)
Peter Bradley	Terrain NRM, Douglas WQIP Officer
Joann Schmider	Indigenous Involvement in Reef Water Quality and Wetlands Management FNQ and BDT (Cooktown to Bowen)
Matt Vickers	Southern Gulf Catchments, Project Officer
Peter Thompson	Cape York Peninsula Development Association
Kim Stephan	Cape York Marine Advisory Group

Apologies

Noeline Gross Northern Gulf RMG Ltd.

Discussions and outcomes

Participants identified a comprehensive range of projects that were undertaken within their regions. This detailed information is incorporated into the matrix of activities (refer Appendix 2) and regional profiles (refer section 3 of report). In this part, the overall achievements and limitations are highlighted.

There was general agreement that a start to wetland management and conservation had been achieved, including:

- the development of wetland management plans was a major achievement, although the general consensus was that there has been limited implementation of the plans to date;
- WQIPs (e.g. developed in Douglas and a draft plan for Tully) were an important basis for achieving wetland outcomes in the long term, although there was a sense that much of the planning related to wetlands was linked to water quality and that there was a need to broaden the scope to include other issues (e.g. biodiversity and social/cultural values);
- wetland mapping undertaken by EPA is an important resource for regional bodies;
- collaborative partnerships are the key to achieving on-ground outcomes, as evidenced by BDT's effective management of riparian weeds, incorporating contributions from local government, the regional body and landholders, particularly in riparian areas, where maintaining and enhancing connectivity is important (see Wetland Partners below);
- assessment of fish passages undertaken in several regions (e.g. BDT) to prioritise appropriate actions for improvement;
- with limited funding, on-ground work has been the focus, particularly weed and feral animal control (e.g. removal of pigs on beaches in CY), riparian rehabilitation, fencing, development of off-stream watering points for stock and the introduction of a range of best management practices through the GLM program and FMS;
- recognition of the importance of raising awareness of wetlands among stakeholders, especially in relation to what constitutes a wetland, threats and appropriate actions to better conserve and manage wetlands (Note: The definition of wetlands is still a source of discussion, as many regional body practitioners use wetlands to refer to discreet areas of water and vegetation, similar to the use by landholders and other

- stakeholders in their regions. Many practitioners felt that the ‘official’ definition was too broad and conflicted with common usage of the term by their stakeholders);
- initial stages in the development of Traditional Owner Caring for Country Plans (e.g. FNQ, BDT) and the recording and mapping of traditional knowledge and cultural heritage; and
 - monitoring of water quality, seagrass, mangroves, reefs was an important basis for understanding change over time and implementing appropriate actions in an adaptive management framework.

Some of the problems associated with wetlands management discussed by participants included:

- limited vision from the Australian government on future directions for the Wetland Programme, e.g. it was felt that wetlands were a current priority, and that there was emphasis on spending the money that had been allocated for wetlands, without a strong focus on the priority issues and areas. In particular, participants indicated that funding was opportunistic, and as a consequence actions were undertaken because funding was available, rather than the reverse situation, where good planning is undertaken and funding is allocated to implement priorities. This approach was seen as problematic, with perhaps poor long term outcomes for wetlands, especially in the area of weed and feral animal control and building stakeholder capacity;
- limited feedback from the Australian and State government agencies on the results that have been achieved from project funding;
- poor coordination within government agencies concerning wetland planning and management;
- a focus on wetland planning, rather than also resourcing to allow effective implementation of plans;
- knowledge gaps and insufficient research in several areas (e.g. rehabilitation, weed removal, and fire), limited capacity (e.g. knowledge held by a few individuals or organisations) and a failure to transfer knowledge;
- staff shortages and staff turnover impacting on knowledge of past projects;
- finer resolution mapping of wetlands is needed to enable the development of property management plans and more effective on-ground decision making;
- lack of regional institutional arrangements in Cape York is limiting outcomes for all programs and assets including wetlands;
- many projects are pilot in nature, with separate, variable levels of funding and need to be mainstreamed;
- lack of effective Traditional Owner engagement within projects, policy and program development, in general, across the regions;
- proactive funding is essential to prevent the spread of weeds and feral animals, rather than seeking funding to react to established problems (e.g. the potential spread of salvinia into Lakefield National Park and the spread of tilapia into river systems);
- the limited capacity of some communities, local governments and landholders to undertake wetland conservation and management;
- limited incentive schemes available to attract stakeholders to undertake wetland conservation activities; and
- failure of regional strategic plans and growth management strategies to incorporate targets that would positive impact on wetland conservation and management.

Wetland partners

Workshop participants identified their main partners involved in improving wetland conservation:

- State agencies e.g. QPWS/EPA, NRW, DPI&F;
- Australian government agencies e.g. DEW;
- local government e.g. Cook, Burdekin, Thuringowa, Townsville, Bowen, Palm Island, Burke, Cardwell, Douglas, Cairns, Hinchinbrook, Johnston, Yarrabah;
- regional organisations of councils e.g. HESROC, FNQROC;
- industry e.g. sugar and grazing;
- government-owned or quasi-government organisations e.g. water boards and port authorities;
- non-government organisations e.g. Conservation Volunteers Australia, Wetland Care Australia, Wetlands International, landcare and catchment management groups, National Aquatic Weed Group;
- Traditional Owners and related organisations e.g. Balkanu, Kowanyama, Pompuraaw, Aurukun, Wulgurukaba, Waanyi, Mungalla, Mamu, Girrigun, Aboriginal Rainforest Council);
- research organisations e.g. CSIRO and universities, ACTFR, MTSRF;
- consultants e.g. E-concern, Alluvium;
- schools e.g. Reef guardian schools;
- media; and
- police (e.g. to enforce appropriate recreational activities in wetlands).

Statements about wetlands

The workshop discussions about wetland activities, successes and barriers were followed by a segment that encouraged participants to identify a number of statements that they felt reflected the current wetland conservation and management in their region or area of work. These included:

- For Traditional Owners, wetlands are story places, occupation sites, resources and nurseries. People talk about pure water in wetlands and the drying up of wetlands as a result of land clearing, urbanization, and impacts of poor land management. Indigenous communities need to be able to conduct traditional land management practices and carry out traditional practices in wetlands.
- Good wetlands management requires long-term commitment.
- Wetlands need to be prioritised, their funding increased, with a greater capacity to monitor on-ground projects in the long term.
- Wetlands on Cape York are diverse, vast and difficult to access and wetlands management is only touching the surface of what is required.
- Why prioritise between wetlands in the modified coastal strip when all we have left is a relic of past landscapes? All remaining wetlands in these modified environments should be managed and conserved.
- How do we maintain the status of wetlands in a modified environment which is subject to climate change and the impact of habitation and surrounding land uses, declining connectivity and changed hydrologic conditions?
- Wetlands need statutory protection and enforcement. They are not race tracks, rubbish dumps or development sites.
- Wetlands management – do we know what we're doing?
- Modified wetlands can be of high environmental value and should be conserved.

Future directions for wetlands

Participants were encouraged to reflect on the activities that had been undertaken by regional bodies and to identify the main actions that were needed in the future to achieve improved outcomes for wetlands up to June 2011.

2007- 2008

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • establish a clear vision for wetlands and their role within the broader landscape • complete draft wetland management plans and begin implementation • understand the role of weeds and feral animals in wetlands (e.g. impacts on biodiversity and other values) • better understanding of the functionality of wetlands (FNQ) • continue wetland condition assessments to enable trend analyses (particularly in CY) • prioritise wetlands for conservation and identify management actions (except CY) • identify Traditional Owner involvement in water strategies (FNQ, DBT, CY) • support landholders (e.g. through a comprehensive range of incentive schemes and extension programs) to undertake wetland conservation • identify ‘champions’ to progress wetland projects 	<ul style="list-style-type: none"> • NRM plan review process

2008-2009

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • WQIPs prepared for all regions and appropriately funded • base-line wetland condition assessments undertaken • implement wetland management plans • enhance linkages to newly re-structured local governments and take advantage of the opportunities this may provide in increasing the profile of wetlands and their management within local government planning and management processes • effectively engage Traditional Owners in mainstream activities related to wetlands 	<ul style="list-style-type: none"> • build a diverse range of effective work teams to undertake on-ground work (e.g. Traditional Owner consultants, volunteers, community action group, and Indigenous rangers)

2009-2010

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • improved understanding of the role of fire in the landscape, and its influence on wetland values • develop local climate change scenarios that address predicted impacts of climate change on wetlands and recommended adaptations to minimise these predicted impacts 	<ul style="list-style-type: none"> • community education and public awareness programs are in place, including programs for Councillors and council employees, and these are

<ul style="list-style-type: none"> • establish a Wetland Network for regional body staff, to provide support to staff, information sharing, collaboration on cross-regional projects, and awareness raising • prevent aquatic weeds from becoming further established in wetlands 	appropriately funded
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2010 – 2011

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • ensure Water Resource Plans provide for sufficient environmental flows to conserve wetland values • WQIPs in place for all catchments (FNQ) • development and implementation of adaptive management frameworks • funding available to allow comprehensive monitoring of wetland values • dedicated wetlands position in all/most regional bodies 	<ul style="list-style-type: none"> • consistent, single catchment health reporting process, with appropriate indicators to complement other reporting processes (e.g. State of Region reporting)

Reporting on wetlands

Participants believed that reporting on wetlands was necessary to provide an accurate reflection of current status in relation to a range of wetland values. It was seen as an important process to accurately demonstrate change in indicators of wetland condition and trend.

Issues raised included:

- clearly identify all funded projects that are linked to wetland planning, management and conservation;
- develop consistent reporting format and indicators to ensure consistent data gathering across the regions; and
- include wetland reporting in the State of Region reporting and incorporate this information into the Reef Report Card.

Wetland definition

Participants raised several issues in relation to the QWP definition of wetlands, including:

- the QWP definition is very comprehensive, incorporating a wide range of wetland types (e.g. inshore reefs, estuarine areas, rivers, lakes, riparian areas, salt marshes, dunes, and beaches etc) and this has implications for management, as stakeholders tend to have a much narrower understanding of what a wetland incorporates and feel that now, “wetlands encompass everything”;
- previous extension and education efforts have focussed on a different terminology e.g. marine, estuarine, coastal, riverine, riparian, wetland etc; and
- there is a need to increase stakeholder awareness of the meaning of wetlands and this will need to be appropriately funded to ensure that stakeholders are aware of whether they have wetlands within their properties or area of responsibility.

Rockhampton Workshop

Participants

Matt Blorr	Mackay Whitsunday NRM, Coordinator (Coastal and Marine)
Nathan Johnston	Fitzroy Basin NRM, Regional Coordinator (Water Quality)
Kate Wilson	Fitzroy Basin NRM, Field Officer, Mackenzie Catchment
Rhys Kellow	Fitzroy Basin NRM, Biodiversity Officer, Emerald
Rachel Bryan	Fitzroy Basin NRM, Water Quality Officer, Boyne/Calliope and Dawson
Shane Westley	Fitzroy Basin NRM, Coastal and Marine Coordinator
Louise Willy	Fitzroy Basin Elders Committee, Indigenous Wetlands and Water Quality Facilitator
Lurlene Henderson	Traditional Owner Working Group, Burnett Mary Regional Group
Tony Radcliffe	Natural Resources and Water, Community Water Quality Monitoring
Susan Cunningham	Environmental Protection Agency, Rockhampton

Discussions and outcomes

Participants identified a comprehensive range of projects that were undertaken within their regions. This detailed information is incorporated into the matrix of activities (refer Appendix 2) and regional profiles (refer section 3 of report). In this part, the overall achievements and limitations are highlighted.

There was general agreement that the funding provided for wetland related actions was beneficial and several outcomes had been achieved, including:

- management of riparian areas is a focus (as a mechanism to reduce sediment and nutrient inputs into waterways);
- it has been important to identify the types of wetland projects that stakeholder groups are interested in e.g. in the GBR pilot projects local government was interested in undertaking works in the Kinka Wetland (FBA) and this was a beneficial partnership with good outcomes for the wetland; and in coastal areas of FBA, individual landholders were approached to identify those who were willing to construct coastal and riparian fencing;
- the Fitzroy Basin Elders Committee is providing assistance to Traditional Owners to enhance their engagement with NRM processes, including wetland projects;
- Aboriginal Corporations are currently engaged in six projects that will have outcomes for wetlands (e.g. riparian fencing);
- many landholders are expressing positive sentiments about wanting to become involved in projects;
- incentive funding is an important mechanism for achieving wetland outcomes, and co-contributions are an effective mechanism to sustain long term benefits from individual projects, although it is important to effectively audit or monitor the long-term results of the funded projects;
- many partnerships have been formed to address wetland management;
- community water quality monitoring is important for raising awareness of wetland values;
- pest management plans are relevant to wetland areas;
- actions are being undertaken for capital works to deal with wetlands as a separate management unit;

- actions are being undertaken for wetland connectivity and fish passage reinstatement;
- removal of pondage banks restricting wetland connectivity is occurring; and
- plot/paddock scale trials (through GBRCWPP Pilot Projects) have identified sustainable management strategies for ponded pasture grasses using a combination of fire and grazing where broadscale use of herbicide is not feasible or desirable.

Some of the problems associated with wetlands management discussed by participants included:

- regional NRM plans are holistic, multi-asset based plans and it can take considerable time to clearly identify the actions that have been undertaken by regional bodies relating to a single asset such as wetlands;
- the state government focus on wetlands was welcomed by regional bodies, but the timeframes attached to funding to for achieving on-ground outcomes under the GBRCWPP was believed to be too short;
- participants felt that on-ground components of the GBRCWPP could have been delivered more efficiently if they had been implemented with other RIS related actions;
- for the GBRCWPP, there was some initial confusion about the wetland types that were eligible for funding, some regional bodies believing that the focus of the funding was to be palustrine and lacustrine wetlands, when in reality all wetland types were eligible for funding;
- regional bodies work with existing regional stakeholders to deliver a broad range of wetland actions and the role of regional body personnel as stakeholder engagers and not implementers is often poorly understood and causes misunderstanding;
- achieving wetland connectivity is difficult and challenging and requires field officers to work with neighbouring landholders to achieve collective action (e.g. riparian fencing and weed control);
- the lack of information on Traditional Owner Cultural Heritage values highlights the need to improve understanding of these values and to incorporate them into future planning and decision making;
- Traditional Owners are represented on sub-regional assessment panels in FBA, but there is a lack of regional Traditional Owner capacity to enable increased engagement in NRM processes which affect all NRM assets, including wetlands;
- as landholders were perceived to place production values above conservation values, the focus of effort in wetlands needed to remain with improving land management practices (i.e. in situations where landholder co-investment was important);
- there may be conflicting views on how to address some issues e.g. graziers may value hymenachne as a food source, while ecologists may see it as a significant weed species that needs to be removed – there is a need to engage with landholders and work collaboratively to produce “win-win” situations;
- once wetlands have been prioritised for action, a difficulty remained in subsequently identifying landholders who are prepared to implement projects in these priority areas;
- incentive funding may need to provide 100% of the wetland project cost in situations where there is a public benefit and little private gain to the landholder (e.g. fishway projects at Raglan Creek);
- the closure of the Coastal CRC has left a research vacuum in the central region, as wetland research was a key field of interest for the Coastal CRC. Regional bodies

in the southern GBR now have limited amounts being invested by Government into wetland research;

- engagement with local governments on wetland management has been restricted to a few councils with proactive planning approaches and capacity. Local government planning mechanisms are often unable to address comprehensive wetland management issues.

Wetland partners

Workshop participants identified their main partners (Table A3.1) involved in improving wetland conservation, and these included:

- Community, including landholders;
- State agencies e.g. EPA/QPWS (undertaking wetland mapping to inform the prioritisation of wetlands; staff have local knowledge relevant to regional bodies; provide an extension role; have links to Nature Refuge Program and Nature Assist Program); NRW (engaged in issues related to environmental flows; Central Queensland Regional Water Supply Strategy); and DPI&F (involved in fishway projects and in-stream habitat issues);
- Local government (e.g. pilot projects in Kinka Wetlands; development of pest management plans; NRM officers may be positioned within local government);
- Sub-regional groups (FBA) which organise projects for many on-ground works;
- Integrated Area Wide Management (strong links to the cotton industry);
- Traditional Owners and Land Councils;
- NGOs e.g. Wetlands International, WetlandCare Australia, Greening Australia, WWF;
- Landcare groups, Catchmentcare groups, Coastcare groups;
- Mining companies;
- Industry groups e.g. cotton, sugar, grazing, tourism (not well connected);
- Burnett Mary Regional Group;
- Research organisations – universities (CQU, JCU) and consultants;
- Politicians e.g. GBR wetland funding and NHT.

Table A3.1 Partnerships for Wetlands

Knowledge	Funding
industry groups / IAWM	mining
landholders	landholders
universities	local government
local government	Traditional Owners
EPA	NGOs
NRW	Landcare, Catchmentcare, Coastcare
Traditional Owners	politicians
NGOs	
Landcare, Catchmentcare, Coastcare	
DPI&F	
On-ground works	Drivers (of policy)
landholders	industry groups
local government	landholders
QPWS	community
IAWM	local government
Traditional Owners	EPA
NGOs	NRW
Landcare, Catchmentcare, Coastcare	Traditional Owners
DPI&F	Landcare, Catchmentcare, Coastcare
	DPI&F
	politicians

Participants also discussed the potential future wetland issues and these included:

- increasing urban development is placing increased pressure on remaining wetlands;
- local government needs to take a more proactive role in avoiding or limiting the impacts of development in significant wetlands by introducing relevant provisions in planning schemes and related strategic plans, development assessment and codes;
- impacts of mining on wetlands;
- funding the science to understand the actual improvements that are being made;
- short term funding;
- continuing lack of relevant expertise;
- stakeholder fatigue;
- difficulties of coordination and working cooperatively;
- reinstate the important role that wetlands play in water quality improvement;
- there is a vacuum of research into wetlands in central Queensland;
- opportunities may arise with further investigation of green labelling (e.g. organic beef), offsets and improved communication and collaboration with mining interests.

Statements about wetlands

The workshop discussions about wetland activities, successes and barriers were followed by a segment that encouraged participants to identify a number of statements that they felt reflected the current wetland conservation and management in their region or area of work. These included:

(a) Progress to date

- The importance of wetlands in the NRM picture has been raised.
- We are in the early stages in wetland management (excluding riparian areas) and it is limited to the people who are willing to engage.
- It is limited to a small number of sites where there is landowner willingness and capacity.
- Fish passage and connectivity are established for some of the larger rivers and are currently being identified and prioritised for small rivers and other wetlands.
- Wetlands have been a good place to introduce ponded pastures and many wetlands have been modified hydrologically for this purpose.

(b) Stakeholder activities and perceptions

- Murri awareness about wetlands is improving as a result of better engagement.
- Wetlands are highly productive areas within a grazing setting and due to this can have the potential to be preferentially grazed and degraded. Many property owners are managing their country conservatively and as a result wetlands are protected. Incentives (e.g. for fencing) are in place to attract landholders who are running their properties harder to allow separate management of sensitive areas like wetlands.
- Some local governments see wetlands as “drainage problem areas” rather than a high value asset and this impacts on the way they are managed. In some cases local government may be reluctant to invest in initial rehabilitation, but may maintain sites once a project has undertaken on-ground works.
- In the cane industry, wetlands may be valued more for their water quality polishing role than for their biodiversity values, although there are some landholders who have successfully constructed or re-established wetlands to achieve multiple outcomes.

- Wetlands have a role in providing water for various needs, including environmental flows.
- There are regulatory impediments (e.g. approvals process) to undertaking rehabilitation of in-stream habitat.

(c) Funding and incentives

- Funding initiatives can make wetland management fragmented and inconsistent.
- Short term funding cycles and lack of technical expertise can impact wetland management and influence the long-term success of projects.
- Government funding initiatives can place pressure on regional bodies and their stakeholders. This may be overcome by implementing realistic time frames and human resources to match the demands of their coordination role.

(d) Future prospects

- We need to work with the willing and have understanding of continuous improvement – this is paramount.
- There is little understanding on ground about the impact that may arise from legislation in relation to wetlands. We have not negotiated through this process.
- How do we deal with urban development fringing on wetlands?
- Mining companies present an area of opportunity to gain future funding and form strategic partnerships for wetland management.
- Need to maintain ongoing work in wetlands and to maintain skilled staff and career opportunities in the regions to work on these projects.
- Water storage areas need to be managed for their environmental values in relation to wetlands (e.g. Barattas).

Future directions for wetlands

Participants were asked to identify what their ideal wetland management would be like in five to 10 years from now. They responded:

- Wetlands are still there.
- If wetlands are not there, where possible, they have been reconstructed or reinstated.
- Wetlands are managed for production as well as environmental values (in the past wetlands were viewed more for production values) and there is now substantial policy in place that drives the protection of these environmental values).
- There is good water quality within wetlands.
- There is better public awareness (including councillors and developers) of the roles and values of wetlands.
- There is improved science relating to wetlands e.g. how they work, what values are lost from wetlands because of a range of uses.
- Wetlands and their water storage role are managed for ecosystem services e.g. environmental flow and natural height variation (may require review of regulation to support that change in paradigm).
- Connectivity and suitable buffers are maintained or reinstated across the landscape.
- Artificial wetlands are recognised for their ecosystem services.
- Traditional owners are engaged and they identify with the wetlands and their cultural importance.
- There has been a review of relevant legislation relating to wetlands.

Participants were then encouraged to reflect on the activities that had been undertaken by regional bodies and to identify the main actions that were needed in the future to achieve improved outcomes for wetlands up to June 2011.

2007- 2008

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • focus on conservation of remaining wetlands by engaging stakeholders, including local government (e.g. planning, establishing buffers) • identify what wetlands are present and assess their current condition • enhance the capacity of regional body staff in relation to current regulations (e.g. local government planning) • enhance knowledge of wetland biodiversity values and ecosystem services and make this information accessible to decision makers (e.g. incorporate data into State agency databases) • partner with EPA to identify and map essential habitat of threatened species listed in the EPBC Act and partner with EPA in providing information when conducting wetland assessments • engaged with stakeholders e.g. Traditional Owners, industry and general community • manage productive activities for improved wetland outcomes (e.g. on ground landholder projects – ongoing over time and beginning to connect and buffer wetlands and to construct wetlands) • wetland asset is accounted for in industry BMPs (e.g. incorporation of wetlands into GLM) • wetland layers will be considered in the neighbourhood catchment prioritisation process (FBA) • continue to provide incentives for landholders to undertake wetland projects • more information on reinstated wetlands to improve their future design (i.e. design guidelines for artificial wetlands) • establish an effective reporting framework for wetlands 	<ul style="list-style-type: none"> • disseminate information to community on current understanding of wetlands (review over time) • provide information on relevant wetland science and legislation to regional bodies (e.g. in relation to community based water quality monitoring)

2008-2009

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • funding to independently undertake Traditional Owner projects relating to wetland values • developed Traditional Owner plans and Indigenous communities are undertaking their own on-ground works • cultural heritage values are being identified and inventoried and there is improved knowledge of cultural heritage sites • secure funding for ongoing staffing to address a range of issues e.g. Traditional Owner engagement • start to reinstate wetland values (e.g. riparian areas, wetland buffers, fish passages, and in-stream habitat) • wetland actions are incorporated into the next RIS • better knowledge of wetlands as a result of the learnings gained from previous projects and dissemination of these learnings to key stakeholders • better application of the scientific knowledge that exists in relation to wetlands • understand what is good wetland management to enable implementation of market based instruments in the future • support individual landholders in BMP development (e.g. co-investment from regional body and industry groups) 	<ul style="list-style-type: none"> • identify the legislation that limits good wetland management (i.e. perverse regulations/incentives such as drought relief) and develop improved approaches • policy development in relation to the private and public benefit provided by wetland ecosystem services • convene a meeting of regional body staff to enable them to share the learnings from their wetland projects

2009-2010

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • understand what a wetland should look like in response to climatic variation and provide market based instruments to enhance the environmental benefits from wetland management • report progress on wetland actions through a reporting framework developed for RIS(2) and agreed to by regions, government funders and other funding organisations 	<ul style="list-style-type: none"> • provide resources to assist in water quality monitoring and reporting • assist stakeholders to link with potential partners to obtain funding and share knowledge • take issues and concerns raised by stakeholders to policy makers and water science providers • new developments in urban areas account for ecosystem services (e.g. industry guidelines, UDIA guidelines, construction guidelines and accreditation processes)

2010 – 2011

Wetlands management actions	Other relevant actions
<ul style="list-style-type: none"> • indigenous groups have their own water quality monitoring and have the capacity to be involved in wetland management and activities • wetlands are connected and buffered at the landscape scale • the wetland mapping layer has been improved • examine market based instrument approach and implement good practice 	<ul style="list-style-type: none"> • local laws in relation to new developments that incorporate planning for wetlands (including water sustainable urban design) • begin to change/adapt legislation that acts perversely to the effective management of wetlands • implement legislation to ensure comprehensive outcomes for wetlands, including non-compliant enterprises

Reporting on wetlands

Participants indicated that regional bodies would be willing to improve current reporting for wetland actions to meet the needs of funding institutions and to streamline reporting arrangements. Issues raised included:

- look at Vista (Enquire) for reporting on wetlands projects not currently funded within the RIS; and
- FBA expressed interested in piloting this wetland reporting approach in the future;

Wetland definition

Participants raised several issues in relation to the QWP definition of wetlands, including:

- regional body staff are aware of the comprehensive nature of the definition;
- stakeholders in general have a much more limited view of what constitutes a wetland (e.g. “anything that is wet”);
- EPA mapping is used as the main tool for identifying wetlands and this has been refined with the input of local knowledge;
- Melon hole country is an area of contention in the definition of a wetland;
- communities generally appreciate the values of unaltered wetland sites; and
- government should ensure that the community fully understands the meaning of wetlands, particularly if regulatory provisions are to be introduced.

Brisbane Workshop

Participants

Rachel Lyons	Burnett Mary Regional Group, Biodiversity Conservation Regional Coordinator
Liz Gould	South East Queensland Catchments, Partnerships Manager
Jennifer Springfield	South East Queensland Catchments, Coastal Wetlands Officer
Mark Schuster	Condamine Alliance, Local Government Manager and Nature Conservation
Alun Hoggett	Desert Channels NRM Region, Planning, Monitoring and Reporting

Apologies

Dan Ratray	Queensland Murray Darling Committee
Geoff Edwards	South West NRM

Discussions and outcomes

Participants identified a comprehensive range of projects that were undertaken within their regions. This detailed information is incorporated into the matrix of activities (refer Appendix 2) and regional profiles (refer section 3 of report). In this part, the overall achievements and limitations are highlighted.

There was general agreement that the funding provided for wetland related actions was beneficial and several outcomes had been achieved, including:

- assessment and mapping of wetlands was an important information resource, especially in more remote regions (e.g. DCQ, CA), where lack of knowledge had hindered plan development and priority setting. This resource will provide an important delivery mechanism for future wetland works;
- several projects in the QWP have provided broad support to regional bodies and their wetland works;
- regional bodies are working with a range of partners to deliver wetland outcomes, e.g. in CA, Greening Australia is funded to deliver on-ground wetland projects and staff are working with the feed lot producers to buffer and rehabilitate wetlands, BMRG are working with several community catchment groups, also DPI&F on fish passage projects, DCQ are engaged with cross-border groups e.g. South Australian groups to address wetland issues relating to the Great Artesian Basin;
- some regional bodies (e.g. DCQ) are working with Bush Heritage to enhance wetland conservation;
- efforts are focussed on improving wetland connectivity e.g. in CA, the bioregional corridors program aims to reconnect wetlands and improve biodiversity;
- positive outcomes are being achieved in riparian areas in relation to fencing and off-stream watering points;
- landholders are becoming more involved in wetland projects, and participants indicated that some landholders are managing their properties not only for production outcomes, but to enhance long term sustainability (including wetlands). However it was noted that a focus by landholders on production outcomes frequently resulted in improved wetland outcomes e.g. by addressing weed problems, wetland biodiversity may be improved and productivity increased;
- language is important, with a number of the regional bodies stating that they have found it best to focus on ‘weeds’ and ‘fire’ management projects – and not to label

them biodiversity or wetlands management, although these outcomes might also be achieved;

- capacity building to improve knowledge and raise awareness, and property management planning (PMP) are important in achieving improved wetland outcomes, but it is difficult to know at this stage whether this is resulting in improved wetland outcomes;
- it is difficult to measure attitude change against a background of increased awareness about water scarcity and global climate change. It was felt however, that attitude change was a big part of what regional bodies were achieving;
- the Wetland network that has been established in BMRG is effective in sharing information, knowledge and resources on wetland management and promoting wetland conservation;
- WQIPs are important for improving wetland water quality; and
- incentives are an important mechanisms to achieve improved wetland outcomes.

Some of the problems associated with wetlands management discussed by participants included:

(a) wetland assessment, mapping and knowledge

- prioritisation of wetlands has not been undertaken in several regions and this limits future investment planning for wetlands;
- prioritisation could extend beyond ecological significance to include social and economic criteria;
- there is a lack of sound science to indicate whether the recommended best practices that are being advocated will improve wetland conservation;
- there is a lack of baseline data to address resource condition change in relation to wetlands;
- there is a lack of effective coordination across agency programs (e.g. DPI&F undertaking soil mapping and EPA undertaking wetland mapping, and both using different parameters) and within agencies (e.g. EPA, local government, and regional bodies);
- the timing of the QWP and its products has not corresponded to the planning and management needs of the regional bodies e.g. several regional bodies (e.g. SEQC) have undertaken the development of NRM plans and investment strategies without good wetland mapping; and
- lack of early engagement of regional bodies by the relevant state agencies with the QWP has meant that much of the early program planning and design has not included regional bodies' outcomes and needs effectively. Consultation has come once the products are well progressed or have been developed and regional bodies felt they were going to be left with the delivery of many of them without there being adequate involvement throughout their development.

(b) threats

- wetlands are threatened e.g. within SEQC, many important wetlands are included in the Urban Footprint under the South East Queensland Regional Plan and are threatened by development pressures and infrastructure development (e.g. roads, powerlines, airports, and ports). In more rural regions, wetlands are also disappearing under pressure from agriculture, grazing and mining. In peri-urban settings across all the regions, subdivision of large holdings continues to threaten wetlands;

- drought conditions have resulted in wetlands becoming less visible in the landscape and as a consequence they are of reduced significance to many landholders across the landscape. This makes it difficult for regional bodies to raise awareness;
- local government decisions are contributing to the decline of wetlands;
- wetlands do not have a strong legislative framework to ensure secure protection;
- there is a lack of secure protection for wetlands; and
- the investment in wetland projects may not result in long term outcomes.

(c) on-ground works

- the QWP has not directly assisted with the funding of on-ground works;
- wetlands are the “flavour of the month” and are prioritised for funding, but a more integrated approach is needed to ensure long-term sustainable outcomes;
- wetland activities tend to be opportunistic and undertaken by stakeholders who express interest in specific actions; and
- it is difficult, at times, to coordinate a collective response by landholders within a sub-catchment to achieve improved wetland outcomes. This is especially difficult in urban and peri-urban settings.

(c) capacity and valuing of wetlands

- lack of staff in a range of organisations (e.g. regional bodies, local and state government) with wetland specific skills and capacity;
- rapid staff turnover within several organisations limits the learnings to be gained from the results of previous works;
- people in the community don’t assume ownership or stewardship of wetlands, especially in urban settings where wetlands are fragmented by infrastructure e.g. roads;
- changing landholder attitudes is difficult at times e.g. some landholders are undertaking wetland projects, but are reluctant to advertise this amongst their neighbours as they do not want to be seen as a “greenie”;
- Traditional Owners are lacking capacity to be effectively engaged in wetland protection in many regions;
- limited capacity among regional body staff and state agency staff, especially in relation to wetland values and knowledge (e.g. limited understanding of climate change and the impacts of fire on wetlands); and
- there has been a lack of time and resources to effectively focus on wetlands due to regional body staff engagement with multiple planning processes and limited staff numbers and capacity.

Possible solutions to these problems identified by the participants included:

- improve the capacity of regional body staff and their skills and knowledge in relation to wetland conservation and management;
- improve coordination between state agencies and regional bodies, but avoid over-consultation and burn out by regional body staff;
- improve relationships with local government to secure more effective outcomes for wetlands. This may include providing management support and personnel to work with local government, particularly in the development of planning schemes and tools;

- raise community awareness, e.g. one approach is to focus landholders' interest on adopting long term approaches to their land holding (e.g. "Cattle to catchments" approach within BMRG);
- improve our knowledge of wetlands and develop a range of products to disseminate information (e.g. case studies, documentaries, DVDs, etc);
- adopt more proactive approaches to wetland planning and management;
- work with stakeholders to prioritise wetlands and manage accordingly, rather than focus wetland actions solely on opportunistic circumstances. This will require achieving a balance between regional body priority sites and community willingness to participate;
- groups that are undertaking wetland activities (e.g. Landcare and catchment management groups) need to adopt a more commercial / business oriented approach to their undertakings;
- engage more effectively with the mining industry;
- state agencies (e.g. EPA) need to effectively engage with regional bodies in developing knowledge, tools and plans for wetlands.

Wetland partners

Workshop participants identified their main partners (Table A3.2) involved in improving wetland conservation, and these included:

- landholders;
- local government;
- state agencies (e.g. EPA/QPWS, DPI&F, NRW, Education Qld., Qld. Museum);
- conservation NGOs (Greening Australia, Wetland Care, Wetland International);
- other regional Bodies in Queensland and inter-state;
- corporations;
- development industry;
- research institutions (e.g. universities);
- philanthropists; and
- Traditional Owners.

Table A3.2 Partnerships for Wetlands

Knowledge	Funding
Greening Australia Wetland Care Wetland International local government universities Qld Museum other regional bodies inter-State regional bodies EPA/QPWS peak industry bodies Traditional Owners State agencies (e.g. DPI&F, NRW) Education Qld)	Greening Australia Wetland Care land managers local government other regional bodies inter-State regional bodies EPA/QPWS corporations State agencies (e.g. DPI&F DEW development industry philanthropy e.g. Bush Heritage
On-ground works	Drivers (of policy)
Greening Australia Wetland Care land managers local government inter-State regional bodies EPA/QPWS rural industries community groups Traditional Owners development industry philanthropy e.g. Bush Heritage	Greening Australia Wetland Care land managers local government other regional bodies inter-State regional bodies EPA/QPWS rural industries community groups Traditional Owners State agencies (e.g. NRW) (+/-) mining (+/-)

Statements about wetlands

The workshop discussions about wetland activities, successes and barriers were followed by a segment that encouraged participants to identify a number of statements that they felt reflected the current wetland conservation and management in their region or area of work. These included:

- Wetland management in DCQ is currently opportunistic making use of landholder interest in other issues such as weeds and productivity. We intend to build proactive capacity building and on-ground programs based on an improving knowledge base and better collaboration with agencies and other stakeholders.
- Wetland management in SEQ covers many aspects from seagrass watch, to shorebird issues, and estuarine monitoring, through to riparian area restoration. As local government is the landholder/manager of most of the coastal wetlands and due to their ignorance of wetland issues or management, most local governments get no further than weed control.
- Current wetland management in SEQ is opportunistic and builds on community and land-manger willingness to undertake works. Some prioritisation, assessment and mapping has been undertaken, but further resources are needed to be proactive in implementing the outcomes of these.
- Wetland management has made its impacts in CA. Assessment work from partnering with EPA has allowed the topic to gain notice. Planning and on-ground management works are now progressed to ensure the long term survival of a critical, and often undervalued, component of our fragile Darling Downs environment.
- Wetland management in BM is very diverse and multifaceted, funding responsive, yet under-funded, but is becoming more coordinated, integrated and proactive

across the internal portfolios of BMRG, the implementation programs and the stakeholders, including community and agencies.

- There is limited long-term secure protection of wetlands.
- There is a need to build wetlands management into a long-term, sustainable land management approach (e.g. “Cattle and catchments” approach in BM) – this incorporates developing business models which take account of land capability to ensure long term outcomes for wetlands.
- It is important to document leadership and initiatives in the community and to promote these (e.g. field days, documentaries etc).

Future directions for wetlands

Participants were asked to identify what their ideal wetland management would be like in five to 10 years from now. They responded:

- supporting institutional arrangements for wetlands will be in place e.g. water resource planning;
- suites of successful wetland projects are well documented throughout the regions;
- connectivity of wetlands across the landscape is achieved;
- funding that reflects the importance of wetlands (e.g. maintaining critical process for agriculture and water quality) is secured;
- a wide range of land managers are involved in wetland management (e.g. throughout government and community);
- there is perpetual protection of wetlands through legislation;
- everyone is working towards clear targets for wetlands based on good information;
- a wide range of educational programs have been developed;
- healthy wetland monitoring systems are in place; and
- there is community acceptance of the “value” of wetlands (including environmental value).

Participants were then encouraged to reflect on the activities that had been undertaken by regional bodies and to identify the main actions that were needed in the future to achieve improved outcomes for wetlands up to June 2011.

2007- 2008

Wetlands management actions
<ul style="list-style-type: none"> • wetland promotion to general public (eg. wetlands festivals) • learnings about wetlands are shared (e.g. conference and forums) • wetland network state-wide to enable regional body staff (e.g. wetland practitioners) to increase capacity and knowledge • “matters for targets” indicators identified and clarified (enhance consistency and integration) • regional bodies engage with agencies and other experts in developing RCTs, MATs and monitoring framework • wetland network to address setting of RCTs and MATs and to share learnings and resources • monitoring and evaluation programs identified by stakeholders • ensure adequate RIS funding for on-ground works and awareness raising for wetlands • identify and actively seek new resource opportunities (e.g. corporate sponsorship and more overall funding)

- use EPA mapping to assess and prioritise wetlands for management action
- integrate wetlands into local government planning (e.g. overlays etc)
- investigate biodiversity (wetland) SPP
- fire/weed workshops (targeted)
- baseline data collection and monitoring undertaken
- initial wetland leadership projects identified and filmed
- Decision Support System to aid in prioritisation of wetlands is available to all regions

2008-2009

Wetlands management actions

- increase RIS funding for wetland management
- demonstration reach approach to enhance wetland connectivity
- environmental flow requirements for wetlands built into WRP ROPs
- festival/celebration of wetlands
- research information gaps and develop local case studies to enhance local relevance
- rate and tax relief mechanisms for wetlands
- targeted on-ground works based on identified priorities
- on-going monitoring and research
- leadership projects comments monitored and refined

2009-2010

Wetlands management actions

- review of institutional barriers for whole of government wetland protection
- legislative review and enhancement of protection mechanisms

2010 – 2011

Wetlands management actions

- link wetlands on-ground works with integrated sub-catchment plans across the “real landscape”
- outcomes of leadership projects monitored, evaluated and filmed then heavily promoted before new projects are advertised
- review the learnings with wetland experts to improve MATs and RCTs

Reporting on wetlands

Participants highlighted a number of issues concerning future reporting about wetland outcomes and outputs. These included:

- it is important to monitor and report on wetland related activities to enable regional bodies to assess their achievements;
- ViSTA has streamlined the reporting process and made reporting a less onerous process however is only able to deal with output reporting at the project level;
- regional bodies are able to report that projects have been undertaken (‘outputs’ reporting), but it is more difficult to assess the effectiveness of these projects in terms of wetland outcomes;
- the current focus on output reporting has some benefit, but does not accurately reflect the actual outcomes for wetlands;
- much of the reporting to funding organisations undertaken by regional bodies does not provide effective information to inform future planning and management;

- any reporting system must be developed and implemented in a way that is useful to regional bodies in their future planning and management activities;
- the cost of effective wetland reporting must be recognised and factored into future funding of regional body activities;
- it is currently difficult for regional bodies to report on resource condition change and the achievement of RCTs, as the information is currently not available to indicate whether a range of on-ground and other activities are effective in producing improvements in resource condition;
- RCTs are long-term targets and annual reporting on wetland achievements may not accurately indicate whether change is occurring;
- many wetland projects are dispersed throughout the landscape and it is difficult and expensive to monitor and measure change over the long term;
- monitoring may be necessary at several scales e.g. landholder property based monitoring; community monitoring to build capacity; and monitoring associated with large scale projects and undertaken by universities and other research institutions or consultants;
- the use of reference sites may be useful to aid monitoring and reporting on a more extensive scale; and
- it is difficult to ensure that landholders who have undertaken wetland related projects then undertake monitoring.

Reporting was seen to have several functions each of which might take different forms e.g. outputs reporting for accountability, performance reporting / story-based reporting to account for short-term changes, and resources condition reporting which would be more long term.

Wetland definition

Participants raised several issues in relation to the QWP definition of wetlands, including:

- regional body staff believed that wetland definitional issues are important, and that the QWP definition needs to be translated or communicated to improve stakeholders' understanding;
- understanding the definition of wetlands and what is included in this definition is important in a reporting sense for regional bodies, to ensure that all wetland activities are accurately reported.