2000-2010

The First Decade

People Working Together for a Healthy Environment

PEEL-HARVEY CATCHMENT COUNCIL (Inc.)

This report is to be referenced as:

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About this Report

This report is both a reflection on the PHCC's first 10 years and a celebration of its achievements. As a community-based organisation, the PHCC has achieved much which has not been possible for Government, industry or smaller community groups, because of the collaborative approach and ability to work across the 'silos' with which government and industry are confronted.

The report provides an account of the PHCC's major activities over its first ten years and the events that have shaped the organisation. It draws on a review of PHCC Board minutes, project reports, corporate documents and budgets. Informal discussions have been held with a number of the PHCC's current or past Board members, Executive Officers and staff. While an effort has been made to include all major achievements and projects, there are numerous issues and outcomes which have not been included, either because of time constraints or omissions in formal corporate records.

Like all collaborative ventures, the author trusts that the contributions of all PHCC partners have been properly represented.

Project codes (e.g WQ01) are used throughout the report. For a full list of project codes see Appendix 5.

About the Peel-Harvey Catchment Council

The Catchment Council is an incorporated body formed in 2001 to work for a healthier natural environment in the Peel-Harvey catchment, southwest Australia.

The PHCC Board has members from the community, Local Government and the Departments of Agriculture and Food, Environment and Conservation, Water and the Peel Development Commission. The PHCC Board is skills-based, with membership determined by an independent panel based on experience and understanding of Natural Resource Management.

PHCC staff includes an Executive Officer and small staff to deliver the Council's on ground and capacity building projects. Most PHCC's projects are based on partnerships and include on-ground works, targeted research and studies, awareness-raising, and promotion of better standards of natural resource management.
















PHCC Membership (as at May 2007)

Top Row: Jane Star AM (Chairman), Andy Gulliver (Deputy Chairman), Ian Wight-Pickin (Secretary), Marilyn Gray (Treasurer), Dr Peter Hick (Executive Committee Member)

2nd Row: Don Glenister, Garry Heady, Tony Hiscock, Shane Kelliger, Maxine Whitely

3rd Row: Denise Needham (Local Government, Coastal), Denis Veitch (Local Government, Inland), Neil Guise (DAFWA), Murray Love (DEC), Bob Pond (DoW)

4th Row: Colleen Yates (PDC)

Message from the Chairperson

Many catchment groups across Australia probably realise how challenging catchment management is, especially when it involves both coastal and inland environments. It's a long, hard journey and many in our communities need to be convinced that the trip is worth the effort.

In the Peel-Harvey the business of understanding and restoring the estuary and its catchment has been going on for some forty years, and we are only just beginning to address the biggest and most complex parts of our challenge. It is indeed a 'wicked problem'.

Since our incorporation in 2001, the Peel-Harvey Catchment Council has brought together the efforts of government, landowners, the private sector and the volunteer community to protect and manage the Catchment.

Through this report we give thanks to all of those groups who have helped the PHCC try to bring about a healthier catchment. We hope it demonstrates our commitment to building the social capital of the catchment community. We also hope that it helps the PHCC and other organisations to learn how to do things better in the future.

As the PHCC enters its second decade, our organisation faces a new challenge. We now know what measures and tools are available and required to meet the water quality goals for the Estuary, but we, as a society are reluctant to make the tough decisions to bring about the necessary changes in development and land use. There is much work to be done.....

Jan Star AM
Founding Chairperson
(2001-present)

Chairperson Jan Star with Federal Minister for the Environment, Hon. David Kemp (2001 – 2004)

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Acronyms

APS	Australian Public Service
ASS	Acid Sulphate Soils
BMP	Best Management Practice
CCI	Coastal Catchments Initiative
CCW	Conservation Category Wetland
CfOC	Caring for Our Country funding program
CMP	Catchment Management Plan
DEC	Department of Environment and Conservation
DEWHA	Department of Environment Water Heritage and Arts
DAFWA	Department of Agriculture and Food WA
DoE	Department of Environment
DoW	Department of Water
DSS	Decision Support System (e.g. Biodiversity DSS)
EPA	Environmental Protection Authority
EPBC	Environment Protection and Biodiversity Conservation (Act)
EPP	Environmental Protection Policy
GAWA	Greening Australia Western Australia
GTCTF	Greening the Catchment Taskforce Inc.
HRRT	Harvey River Restoration Taskforce
ICLEI	International Council for Local Environmental Initiatives (now Local Governments for Sustainability)
LCC	Leschenault Catchment Council
LCDC	Land Conservation District Committee
LG	Local Government
LGWMP	Local Government Water Management Project
LPP	Local Planning Policy
LMU	Load Measuring Unit
LWSP	Low Water Soluble Phosphorus (fertiliser)
MNES	Matters of National Environmental Significance
NHT	Natural Heritage Trust (1997-2000)

NHT II	Natural Heritage Trust II (2001- 2004)
NRM	Natural Resource Management
NRMO	Natural Resource Management Officer
PCWE	Peel Centre for Water Excellence
PDC	Peel Development Commission
PHCC	Peel-Harvey Catchment Council
ppt	Parts per thousand
RAP	River Action Plan
RDA	Regional Development Australia
RDS	Regional Development Scheme
REW	Resource Enhancement Category Wetland
SCRIPT	South Coast Regional Initiative Planning Team
SSJ	Shire of Serpentine-Jarrahdale
SWCC	South West Catchments Council
WALGA	Western Australian Local Government Association
WAPC	Western Australian Planning Commission
WRC	Water and Rivers Commission
WRE	Wellard Rural Exports
WSD	Water Sensitive Design
WSUD	Water Sensitive Urban Design
WQIP	Water Quality Improvement Plan

Key Terms

Landcare (movement) is a community-based movement that grew through the 1980s and 1990s in partnership with Government through programs such as the Decade of Landcare, National Landcare Program and the Natural Heritage Trust.

Landcare (as in Landcare Works or Practices) is a general term to describe actions that aim to repair and restore natural processes and resources such as landform, soil, water, biodiversity and air as part of agricultural production systems. The term urban landcare covers the transfer of this approach to urban scenarios.

NRM or Natural Resource Management is the broad term used to described actions that aim to manage soils, landforms, water, air and biodiversity for the ecosystem services they provide (e.g. sustaining food production, erosion control, climate, etc) as well as their intrinsic values (e.g. species diversity, landscape).

Part A. Introduction

1. Welcome to Catchment

The Peel-Harvey Catchment encompasses an area of more than 1.1 million hectares south of Perth Western Australia and extends from the Peel-Harvey Estuary at Mandurah up to 150 km into the Wheatbelt (Figure 1). Defined by the catchments of the Serpentine, Harvey and Murray Rivers, the catchment is host to extensive agricultural areas, residential populations, state forests, mining and an array of ecosystems across three distinct bioregions. The catchment encompasses all of the Peel Region and parts of the Perth Metropolitan Region and Wheatbelt Region.

From the air, the catchment can be categorised into four main zones, being the:

- Upper catchment - largely cleared inland country under broadscale agricultural land use
- Middle catchment- well vegetated State Forests and water supply catchment
- Lower catchment - heavily cleared coastal plain under mixed agricultural and rural residential land use
- Estuarine System and coastal lakes - including the Peel-Harvey Estuary and Peel-Yalgorup Ramsar System.

The following is an overview of the natural resource, economic and social aspects of the catchment. More comprehensive information is available in the following publications:

- Natural resources - Land Assessment (2005) and Weaving (1999)
- Economic development - Peel Development Commission (2006)
- Social – Peel Development Commission – Peel 2020 Final Report (2006).

Mandurah and the Peel Inlet, Ocean Channel

1.1. Natural Resources

The catchment's natural resources include water, soils and landforms, ecosystems and habitats, many of which form the basis of economic development and social activity.

In many ways, the key natural asset in the catchment is the Peel Inlet and Harvey Estuary (Peel-Harvey Estuarine System). The Estuary, and the broader *Peel-Yalgorup System* (Wetland of International Importance - Ramsar Site No.482), are recognised as wetlands of international importance under the Ramsar Convention by the Australian and State Governments (Figure 2). The Ramsar Site is the most important site for waterbirds in south-western Australia and is of the highest ecological value. It includes numerous large freshwater, saline and estuarine wetlands, and is home to the largest known lake-bound, living thrombolite reef in the southern hemisphere, at Lake Clifton.

For its ecological values, the catchment is an important part of the internationally acknowledged South West Biodiversity Hotspot; recognised for its incredible diversity, high levels of species endemism and the high level of threat to this biodiversity. High value environmental and natural resource assets throughout the catchment include the Ramsar Site, Jarrah Forest, Dryandra Nature Reserve and other inland remnant vegetation, major river corridors, coastal wetlands and woodlands, and the coastal tuart forest.

With most of the catchment's brooks and rivers originating in the forested scarp, the catchment's water resources form the basis of extensive water supply infrastructure including groundwater aquifers and surface water dams supplying a significant portion of the state's potable water supply. Whilst all river systems in the catchment have portions which are severely degraded and deliver high nutrient loads to the Estuary, the Murray River is too saline for potable or irrigation purpose because of extensive clearing in the upper catchment.

Rainfall and stream runoff in the catchment (and greater south west of Western Australia) has fallen significantly over the past 35 years and this remains a key concern for not only water resource management, but the impact on biodiversity, fire regimes and emergency management. The findings of the Indian Ocean Climate Initiative also point to a corresponding gradual increase in temperature and a very sharp decline in stream flows in the south-west (IOCI, 2002).

The catchment's soils, whilst nutrient poor, have been able to sustain broadscale agriculture if given adequate/ appropriate fertiliser application and pH management. However, dryland salinity, soil acidity, eutrophication of wetlands and waterways and retention of topsoil are key land management issues.

The Peel-Harvey Estuary has a long and well documented history associated with eutrophication and poor water quality. This history culminated in the late 1980's with EPA reports (Bulletins) and Ministerial Conditions which recommended a Catchment Management Plan and authorised construction of the Dawesville Channel. The Channel was opened in 1994, and yet algal blooms, "cappuccino scums" and large scale fish kills continue to occur in the lower reaches of the river systems and the estuary remains in a stressed state (Rogers et al., 2010). The Estuary still receives twice the amount of Phosphorus that Government and the community recognise is the limit for a 'healthy ecosystem' (EPA, 2008). A Catchment Management Plan has still not been prepared. For a detailed description of the catchment's history, see 'Peel-Harvey: Decline and Rescue of an Ecosystem (Bradby, 1997).

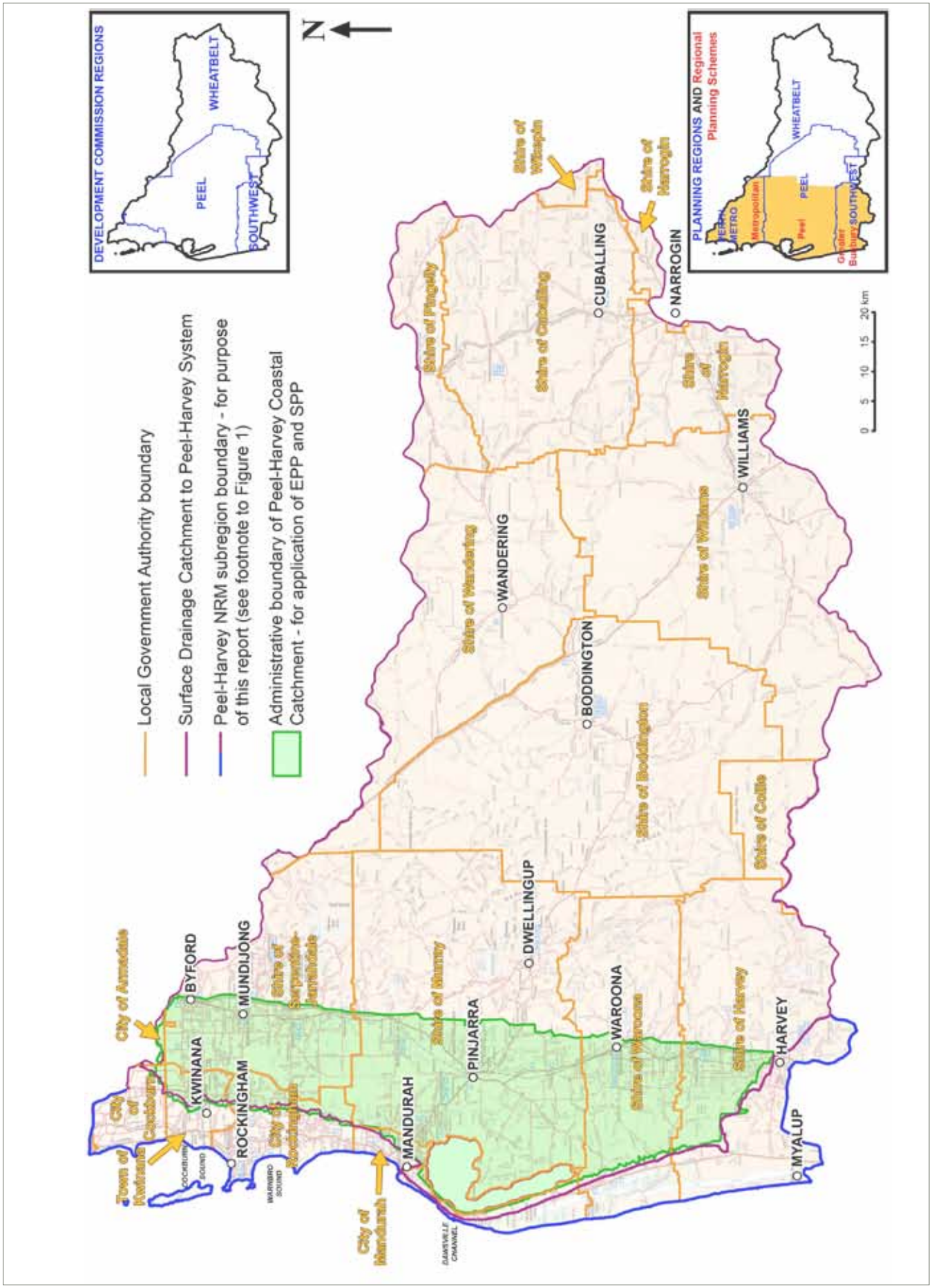


Figure 1: Peel-Harvey Catchment and Administrative Boundaries

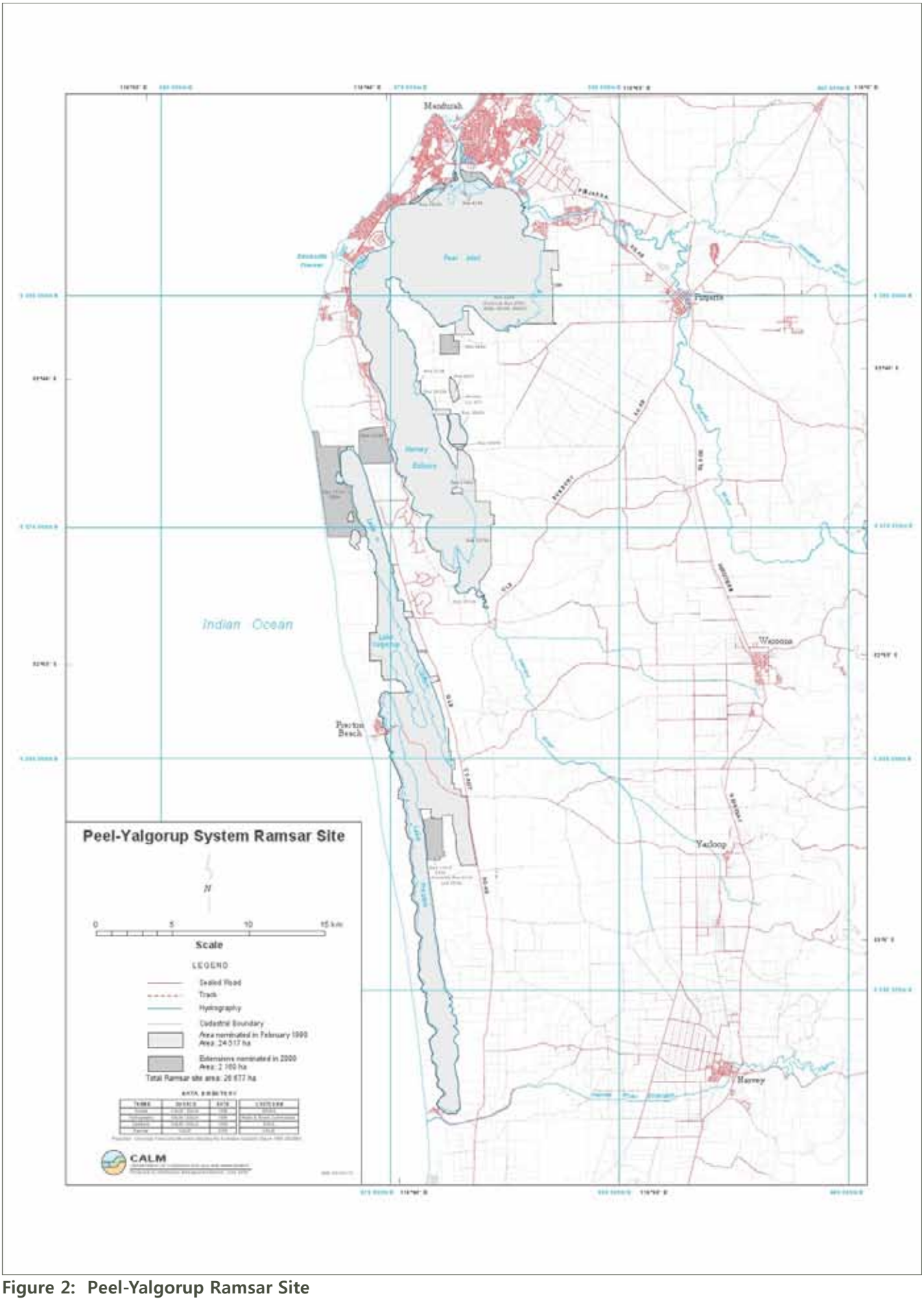


Figure 2: Peel-Yalgorup Ramsar Site

1.2. Land Use and Economic Development

The upper and lower catchments are the most intensively used, modified and developed, with the predominant land use being broadscale agriculture. The upper catchment is made up of the Eastern Darling Range Zone (65% cleared) and Southern Zone of Rejuvenated Drainage (approximately 90% cleared) (Land Assessment 2005). The predominant land use in these zones is the grazing of sheep and cattle and cropping of oats, barley, lupins, canola and wheat.

The middle catchment is characterised by Jarrah Forest (Western Darling Range Zone and Darling Escarpment). Here, predominant land uses are water supply catchment, forestry, forest-related recreation, and mining for bauxite and gold. Agriculture is mostly confined to the valleys where soils and water supply support horticulture including the growing of apples, stone fruit and wine grapes.

In the lower catchment, west of the Darling Escarpment, is the Coastal Plain, where competition for land use is most intensive. The land use mix includes broadscale and intensive agricultural uses, rural residential areas, growing urban settlements, commercial and light industrial areas and quarries. Much of the pressure for new urban and rural residential areas flows from the southern expansion of the Perth Metropolitan Region and the desire to live near the coast.

Critically, much of the catchment's growing population, recreational attraction and future development are planned around the Estuary and Ramsar Site wetlands.

The Peel Region is one of the fastest growing regions in the state and nation with projections of 185 000 new homesites over the next twenty years. It is the third fastest growing regional economy and the fourth biggest contributor to WA's regional economy (PDC, 2010).

1.3. Social and Cultural

Aboriginal People lived in close connection with the catchment for thousands of years before European settlement. These connections to the environment, of local Noongar groups such as the Binjareb people, show a rich cultural heritage which includes an understanding of resource availability, seasonal variations, and a sense of place as they moved through the landscape (Cuthbert, *et al.*, 2007).

Today, the Region is home to over 275 000 residents, most who live in the coastal strip between Mandurah and Kwinana. Other major settlement areas include Pinjarra, Byford, Mundijong, Waroona, Harvey, Boddington and Williams. The Estuary provides a focus for settlement, recreation and tourism and supports the largest professional and amateur estuarine fishery in WA.

2. Events Leading up to the Formation of the PHCC

The PHCC evolved in late 1999 from an informal collective of representatives of the local community Landcare groups, Land Conservation District Committees, Local Government and State Government who came together as the "Integrated Catchment Management Group Steering Committee" and built on past groups such as the GOTAG (Government Officers Technical Advisory Group) that operated in the early 1990s.

To look at how the PHCC was formed, it's worth examining events in the catchment in the decades leading up to 1999, and how the community responded to those events. This also means telling some of the Estuary's story, especially its declining water quality.

2.1. Nutrient Pollution – in the Catchment

Eutrophication of the Estuary had become evident as far back as the 1950's, and 'by the late 1950's, it was obvious that the estuary was not just suffering a temporary fluctuation' (Bradby, 1997). If the 1960's were characterised by consolidation of the problem, the 1970's brought the confirmation that the Estuary's ecological health issues were due to excessive nutrient pollution, mainly phosphorus from superphosphate fertilisers, entering the estuary from the catchment. This was exacerbated by the highly surface drained (man-made) nature of the coastal catchment to enable European settlement.

Throughout the 1980's, the Government and the farming community increased efforts to develop or implement options to address the problem, but this was somewhat in isolation from each other.

The Government's approach culminated in a formal environmental assessment and the Minister for Environment imposing (legally binding) conditions attached to the Peel-Harvey Estuary Management Strategy (Government of Western Australia, 1989). The Dawesville Channel, catchment management approaches and aquatic weed removal were the three main solutions. These conditions bound the Minister for Transport, Minister for Agriculture and (then) Minister for Waterways.

The bottom-line was that the amount of phosphorus pollution entering the Estuary had to be halved if it was to become a healthy ecosystem once again. That target is yet to be met.

Algal Bloom in the Serpentine River, 2006.

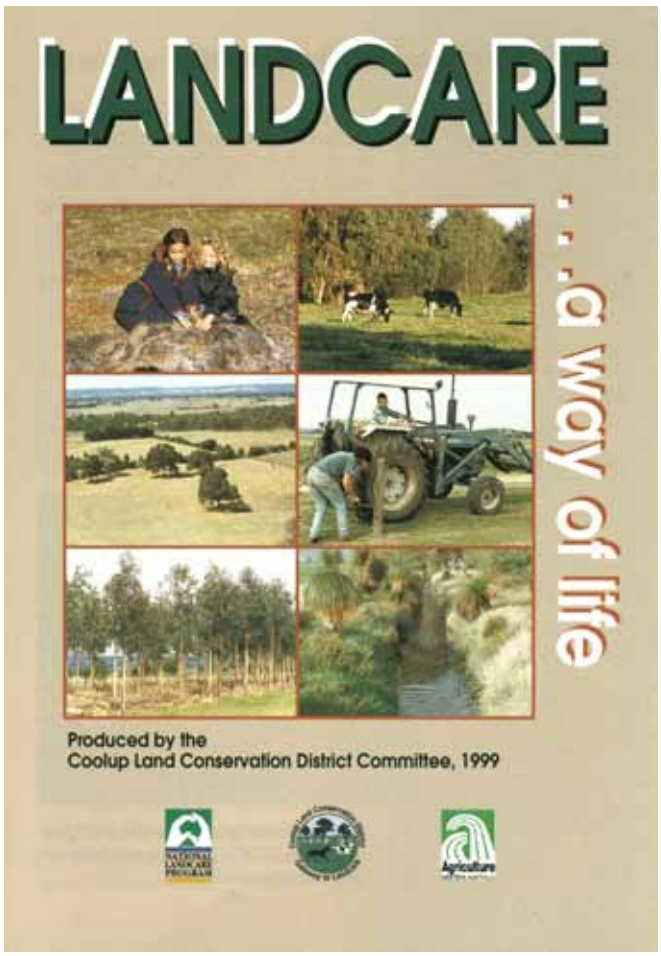
2.2. Formation of Landcare Groups

The community's response in the late 1980's and 1990's to the Estuary's excessive nutrients was manifest in the:

- formation of landcare groups and Land Conservation District Committees (LCDC)s
- changes to paddock fertiliser inputs with advice from the Department of Agriculture (e.g reducing amounts of fertiliser and changing time when applied)
- undertaking on-ground landcare works and awareness-raising.

In early 1989, farmers formed a Land Conservation District Committee in the Serpentine Catchment, and by the end of the year Coolup LCDC and Meredith-Uduc LCDC had been formed (Bradby, 1997). Similar groups formed to the east of the jarrah forest in response to concerns over salinity in the wheatbelt, declining soil condition and loss of vegetation cover.

> *By the end of 1995, there were over fifty landcare and environmental groups undertaking hands-on environmental work in the coastal plain section of the Peel-Harvey catchment. The approach being taken during the 1990s could hardly be more different than that promoted during the 1980s. The narrow focus on phosphorous and fertiliser management has been replaced by a broad environmental awareness. Catchment management has changed from a concept focused on the health of the estuary to a series of loosely connected work programs that improve the health of the catchment. There is no single document or organisation, but a vigorous flowering of diverse groups and interests scattered across the landscape. Government agencies have changed their emphasis from providing direction to providing assistance."* (Bradby, 1997).



Coolup LCDC Publication, 1999

2.3. Pinjarra Community Catchment Centre

By the end of the 1980's, with the release of the EPA's reports and Ministerial announcements (e.g. Government of Western Australia, 1989) there was a Government commitment to undertake catchment management and change the way that land in the catchment was managed and used. However, there was little love between the government and the farming community. Hence, in 1990, with independent advice, the Minister for Agriculture established the Pinjarra Community Catchment Centre to progress catchment management and assist landholders to reduce nutrient loss.

The Catchment Centre was well received by the local community and gave much needed practical assistance and encouragement to farmers to address the eutrophication problem, biodiversity and other landcare issues. This approach was participatory, practical, effective and adaptive. One of the important legacies of the Catchment Centre was the manner in which it up-skilled, educated and built the landcare leaders that went on to help form the Peel-Harvey Catchment Council.

Construction of the Dawesville Channel commenced in 1990 and was opened in April 1994. Around this time the Government and EPA also gazetted two important policies specifically addressing nutrient management in the catchment: an environmental protection policy and a state planning policy (respectively, Government of Western Australia, 1992a; and Government of Western Australia, 1992b). These policies are still in force today.

But still a formal Catchment Management Plan had not been prepared at this stage, as had been expected by various people in Government, including the Minister for Environment, but much work had occurred on the ground. The standards and Government policies, required to support catchment management, were still in their infancy at this stage.

Drain management was the first major issue to be tackled by the new alliance of farmers and the Community Catchment Centre staff, and 'streamlining' was born (Bradby, 1997). There was much action on the ground by farmers in the 1990s – the "Decade of Landcare".

The Community Catchment Centre continued to support community and Government catchment efforts throughout the decade and nurtured the catchment community, building the skills and confidence of local farmers and others who were interested in improving the way their area was managed, and reducing nutrient loss to the waterways.

2.4. Natural Heritage Trust and Landcare Centres

In 1997, catchment management was given a significant financial boost Australia-wide through the Federal Government's Natural Heritage Trust (NHT) Program. The NHT's financial incentives significantly increased the scale of works on the ground to address a wide range of catchment issues, including nutrient management, biodiversity conservation and sustainable agricultural production.

The Peel-Harvey was uniquely and fortuitously positioned. With the support of NHT, the capacity of LCDCs and landcare groups was substantially increased. In partnerships with local government and NHT, the LCDCs and landcare groups were able to establish landcare centres at Mundijong (1998), Waroona (1999) and Wandering (1999). The Wandering office later moved to Boddington.

These centres provided important hubs that supported the community-driven-bottom up landcare action. The employment of community landcare co-ordinators provided technical guidance, a support network, validation of ideas and a paid professional officer to do much of the paperwork leaving the volunteers to get on with the job out on the ground.

With the help of NHT funds, major landcare projects started in Serpentine-Jarrahdale, North Dandalup, Waroona (Dandalup-Murray, Coolup and Harvey River – previously Meredith-Uduc - LCDCs), and the inland catchments of the Hotham and Williams Rivers (sub-catchments of the Murray). These projects were community-managed with LCDCs and local governments working in partnership as project proponents.

Increased funding required the landcare community to be better organised, planned and strategic, and by the year 2000 there were moves by the Federal Government to deliver NHT funds at a more strategic, regional scale. The Mundijong and Waroona landcare centres are in operation to this day.

2.5. Catchment Centre Converted into a Government Office, and Closes

In 1999, a change in government policies and Department of Agriculture priorities, meant that the Pinjarra Community Catchment Centre morphed into a more standard Department of Agriculture Office. It later closed in 2002 when the Department's offices in Pinjarra and Harvey were shut and relocated to the new departmental District Office in Waroona.

The loss of the Pinjarra Community Catchment Centre and the Department's Pinjarra office was a significant blow to community catchment management efforts. No longer was there close support from professional staff to develop and implement new on-ground projects or address small issues before they became 'big problems'. No longer were there professional staff attending to the coordination of activities across the whole catchment, or planning for future catchment-wide initiatives.

Thankfully, not long after the Community Catchment Centre was converted into a standard Department of Agriculture office, local department staff including Jenny Mercer, started working with the local community and other stakeholders to consider options for sustaining and coordinating catchment management into the future. These were the first steps that led to the formation of the Peel-Harvey Catchment Council.

2.6. Discussions to Form the Peel-Harvey Catchment Council

Throughout 1999, representatives of the landcare community, key state government agencies, the Greening the Catchment Taskforce, and local government met as the Integrated Catchment Management Steering Committee to consider options for the formation of a Peel-Harvey catchment body. A similar process was being undertaken at the much larger scale of the south-west that ultimately led to the formation of the South West Catchments Council (SWCC; incorporated 2001).

Some of the key issues discussed at the Peel-Harvey level included:

- the specific purpose and role of a catchment body for the Peel-Harvey
- the relationship of a Peel-Harvey catchment body to any future similar organisation that was being considered for the entire south-west of Western Australia
- the inclusion of the full hydrological catchment rather than just the coastal plain catchment (as gazetted by the EPA in 1992 through *Statement of Planning Policy No 2 - the Peel - Harvey Coastal Plain Catchment*. Taking on the full watershed catchment moved the focus beyond just the coastal catchment to a whole of catchment approach.

After a series of meetings over several months, including discussion of the benefits and disadvantages of creating a catchment management group, the Peel Harvey Catchment Council was formed in November 1999 (PHCC, 2000). At the time of its formation "*a commitment was made by the community and natural resource management agencies*

to work together and value both community information and scientific information" (PHCC, 2000). The Council's foundation Chairperson was Jan Star and Deputy Chairperson was Joe Varris. Jan was local government councillor at the Serpentine-Jarrahdale Shire with a strong connection to landcare and catchment management. Joe was secretary of the Coolup LCDC with a similar passion for landcare and catchment management.

Crucial to the group was its structure with community membership being skills-based not representative, the inclusion of local government (inland and coastal) and the key NRM agencies of the then Departments of Agriculture and Food, Environment, CALM, Planning and Infrastructure and the Peel Development Commission.

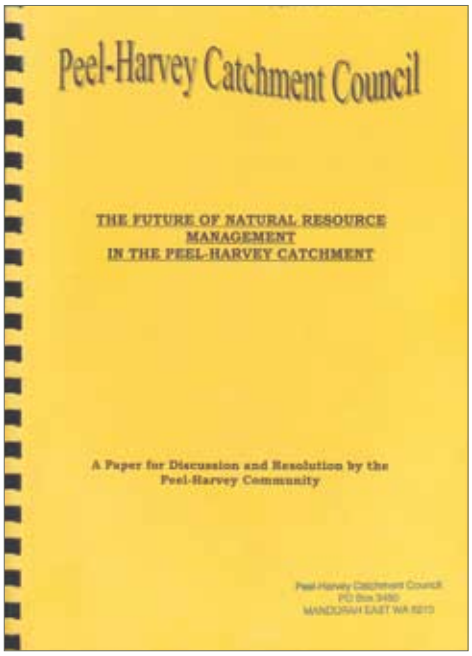
The Peel-Harvey Catchment Council was formally incorporated on 8th May 2001, with a $10 donation from the Chair being the required asset to open the bank account.

Part B - The First Decade – Chronology

The following chronology provides a detailed discussion of the major events and issues that have shaped the PHCC over its first decade. A summarised version is provided in Table 9 (Appendix 1).

3. The Foundation Years (2000 – 2002)

After a formal commitment to form the Catchment Council in late 1999, the PHCC got off to a slow start. In short, the first three years of the PHCC were spent finding its feet, formalising the organisation and working out its place in the rapidly evolving Natural Resource Management (NRM) world.



The release of the *Discussion Paper on the Future of NRM* in the catchment in 2000 (Figure 3), heralded the first major public statement by the Council (PHCC, 2000). It encouraged the community to think about integrated catchment management and the need for a Catchment Management Plan. Both of these terms had been floating around for some time, but it was difficult for the community and Government officers to understand what they meant or how they would be implemented.

Figure 3: The PHCC's First Public Catchment Management Planning Document.

A Community Forum was hosted in late 2000 with the agenda largely focussed around the *Discussion Paper.* Annual Community Forums were to continue to be used throughout the decade to keep in touch with the wider community. It was 18 months later when the next public statement on catchment management was released by the PHCC (PHCC, 2002).

In May 2001, the Catchment Council as an incorporated body, was able to employ its first Executive Officer, Jenny Mercer. Jenny was an employee of DAFWA and based at the Pinjarra Community Catchment Centre. She had already played an important role in helping the community come to the realisation that a community-based catchment organisation was an important and necessary step for the Peel-Harvey. Jenny resigned after less than a month in the position to take up a more lucrative position in the commercial agricultural world. She was replaced by Greg Wyvill for the remainder of 2001.

3.1. Board, Constitution and Objectives

In addition to a ten-person Board with members from community, State Government and Local Government, a Peel Harvey Officers Group (PHOG) was established which allowed all NRM professionals working in the catchment to meet and discuss common issues and provide technical assistance to the Council. This enabled the momentum that had been built during the on-ground action of the 1990s and during the process of establishing the PHCC to continue.

Foundation community members of the Board were:

- Jan Star
- Joe Varris
- Marilyn Gray
- Peter Leafe
- Andrew Gulliver
- Tony Hiscock
- Michelle Mullarkey
- Mark Angeloni
- Graham Elliott

Participants at the PHCC's Annual Community Forum, 2007.

Throughout the 2000-2001 period, PHCC Board members actively participated in the formalisation of the South West Catchments Council (SWCC). SWCC was being created as a NRM Regional (as directed by the Australian and State Governments) and representative body of six sub-regional groups, of which Peel-Harvey was but one.

The Constitution was endorsed and the objects of the PHCC have changed little since 2001. They are to:

- Inform, inspire and involve people in sustainable NRM within the catchment
- Provide strategic direction for NRM within the catchment by facilitating an integrated NRM planning process, encouraging the implementation of the integrated NRM Plan, and monitoring and evaluating the Plan, the planning process and the outcomes of the Plan
- Provide leadership on NRM matters within the catchment and facilitate partnerships with the State and Commonwealth Governments to promote the sharing of responsibility for NRM with all levels of government
- Actively seek and promote support for the integrated NRM planning process and the integrated NRM Plan at all levels of government, community and industry
- Identify and seek resource opportunities for environmental improvement of the catchment and for organisations who undertake this role
- Coordinate the efficient allocation of resources for NRM across the catchment and assist agencies to target their actions to be compatible with catchment priorities
- Encourage institutional reform to achieve sustainable outcomes
- Support communication and information sharing to improve the co-ordination of NRM activities within the catchment
- Actively assist with implementation of any relevant regional NRM strategy.

(PHCC, 2009a)

Whilst the PHCC had not the capacity, nor was it a priority, to be the proponent of new NRM projects it did manage a number of new or continuing projects over 2000-2001. This included managing the Greening the Catchment Taskforce (GTCTF) grant funding program with projects such as wetland rehabilitation works associated with Wellard Rural Exports, and a Landcare Landscapes Demonstration Network. The project management role of the PHCC was to grow rapidly over the remainder of its first decade.

The PHCC also made submissions or raised concerns with State Government over matters relevant to its new constitution. This included matters as diverse as the proliferation of small farm dams on creeks and the Lakes Road Industrial Development project. This quasi-development assessment role was also to grow over the years, particularly in the period beyond 2006 with the work of officers such as Kim Wilson. This stemmed from the philosophy that it is better to protect important existing natural assets then try to rehabilitate or 'fix' them at a later date.

The PHCC Board – Skills-Based Membership

It is appropriate at this stage of the PHCC's history to discuss the features of the Board and volunteerism in the catchment. All of the members of the organisation's Board are either community volunteers or representatives of Government agencies or Local Government. The Board is made up of seven to ten community representatives, a representative from each of the State Government's NRM agencies (currently five agencies) and two Local Government representatives (one coastal and one inland). Each member is able to vote on all decisions.

As the Catchment's peak environmental community body, the Board is able to speak on behalf of the community, whilst receiving direct input from State Government professionals and Local Government elected members or staff.

This has sometimes meant politely and professionally providing critical comment to State Government agencies or private sector proposals. It should be noted that agency members are recognised as providing valuable input and links to and they abstain from voting or commenting on government issues, as appropriate.

Despite a diversity of opinions, those on the Board are united by a common interest in building a healthier catchment, regardless of their affiliations. This diversity of opinions, skills and knowledge and common purpose has maintained the strength of the PHCC and its ability to work constructively in various spheres.

3.2. A New Executive Officer

By the beginning of 2002, the PHCC had a new Executive Officer, Ian Wight-Pickin, and a number of major initiatives were in full swing. Foremost was the opportunity to build the capacity of the PHCC to support and coordinate NRM activities across the catchment. That opportunity came in the form of NHT II.

3.3. Natural Heritage Trust "Mark II"

Between 1997 and 2001 NHT had distributed funds directly to local catchment groups, Local Government and many other local level groups. This built on the volunteer base of the extensive landcare group network and had the effect of building up significant levels of local community participation and expertise in landcare. For example, in the southern coastal catchment, *Crossing the Boundaries* project, supported by Landcare Development Officer Kim Wilson had built a strong partnership between local communities and the Shires of Waroona, Murray and Harvey. The broader catchment benefited from having eight NRM professionals (based out of Mandurah, Mundijong, Waroona and Wandering) working with local groups to complement the expertise of State Government officers already working in the catchment. Over time the role of agency officers would be reduced through internal budget cuts (e.g. the gradual withdrawal of actual time for Commissioner's Nominees to support the LCDCs) and in turn the importance of community-based Project Officers increased.

NHT II heralded a major shift in approach, that of investing in the development of regional NRM strategies and strategic management actions. It was the 'end of the vegemite approach' where it was said that limited resources were being spread too thinly across the landscape. The changes also meant that the Federal Government wanted to work more closely with regional groups such as the South West Catchments Council (SWCC) which was being created to encompass six sub-catchment groups that existed across the southwest of Western Australia, including the PHCC. This South West NRM Region was based on the Department of Agriculture's region and had little to do with bioregions or effective scale for NRM delivery.

This period was characterised by significant levels of uncertainty for all – the community, NRM professionals working in the catchment and even State Government. The PHCC seized the opportunity and worked constructively with both the community-managed landcare centres in the catchment, SWCC and state government agencies. Working with SWCC was important as the PHCC, as a sub-region would become restricted from the funding bids to the Federal Government which would eventually be made through that organisation. The PHCC and catchment landcare centre staff were expected to contribute towards the formation of the SWCC Natural Resource Management Strategy, and ultimately work towards implementation of that regional strategy. A draft SWCC regional strategy was released in January 2002 at the PHCC's annual forum held at Fairbridge.

In an ambitious move, the PHCC attempted in 2002 through NHT II to fund core staff in the Catchment's five landcare centres and create five other PHCC positions for landcare, bushcare, rivercare and coastcare, and evaluation and monitoring. This bid was not funded, but did mark the first effort to create professional NRM capacity within the PHCC in addition to maintaining the support to the community-volunteer based landcare centres throughout the catchment.

3.4. The '10-Steps Catchment Management Plan'

The year of 2002 also saw further work on the development of a Catchment Management Plan for the Peel-Harvey by the PHCC. The Plan, '10 Steps to a Sustainable Future 2001- 2006 Catchment Management Program' was endorsed by the PHCC Board as a draft in March, and referred to the Environmental Protection Authority (EPA). The EPA replied in April stating that it would defer its comment until a joint EPA/PHCC workshop in May 2002 at Fairbridge.

The Plan, released as an 'Action Plan for the Peel-Harvey' had been developed from the ground up by the Peel-Harvey community and professionals, including Government Officers. It had been designed, where possible to fit into the then draft SWCC Regional NRM Strategy. Much of the work on the '10-steps' Plan was undertaken by Bob Pond, of the then Department of Environment, Water and Catchment Protection. This illustrated the support that the PHCC was now getting from DEWCP, who had unofficially become PHCC's State Government agency partner, as the Department of Agriculture's focus shifted away from its 1990s Landcare development role.

The EPA eventually declined to provide formal comment on the '10-Steps' plan probably on the basis that the EPA and Federal government environmental agency had started discussions on a potential Coastal Catchment's Initiative in May 2002. From the PHCC's perspective, this was an opportunity missed by the EPA to work with the PHCC to prepare the Catchment Management Plan that both the EPA and Minister for Environment had wanted since the late 1980's. So it is one of the wry lessons of history that the EPA, in its report on compliance with the original 1989 Ministerial conditions, noted that 'the Catchment Management Plan required by the Environmental Conditions has yet to be developed (EPA, 2003).

3.5. Chasing Funding and a Better Governance Deal

The above events illustrate two key points which are as relevant today as they were in 2002. The first is that the PHCC has had to play two games concurrently for most of the decade. One game has been the 'Funding Chase Game' (e.g. project delivery; endeavouring to maintain Officer positions to continue to facilitate community involvement in NRM; SWCC and regionalisation) and the other is the Better Governance and Catchment Management Game (e.g. EPA, Water Corp etc). This is a valid approach for a 'low-power base' organisation such as PHCC, but it does require appropriate resourcing. This has largely been possible through the efforts of the Council Chairperson and Executive Officers, with support from the various project-based NRM Officers at the landcare centres and key agency representatives.

The second key point has been the matter of better governance of catchment management issues in the Peel-Harvey including an EPA-recognised Catchment Management Plan. Apart from a general outline to guide the preparation of a Catchment Management Plan (Appendix 4) the EPA have not held a firm vision for the CMP nor have they seen it as their role to assist development of the CMP. This situation is compounded by the absence of any contemporary Government policy providing support for preparation of a CMP, even though it is still an outstanding Ministerial Condition.

On a final note for the period, 2002 included three other important achievements. These were:

- Attracting ICLEI Water Campaign™ funding to PHCC to trial the campaign in the catchment (funding announced in June 2002 for the PHCC to engaged a Water Campaign™ Officer who commenced in January 2003)
- Formal efforts to lobby State Departments and politicians to support the formation of the Peel-Harvey as a separate NRM region (i.e. separate from the SWCC)

- A formalised partnership between Alcoa and PHCC to deliver Alcoa's *Rivers Wetlands and Habitats Program* in the catchment, which to that point had been delivered through the LCDCs and the Serpentine-Jarrahdale and Crossing the Boundaries Officers.

The ICLEI Water Campaign went on to be a great success story for the PHCC (See Section 8.1). The PHCC's campaign to recognise the Peel-Harvey as a region in its own right continues to this day.

These and other initiatives showed that after 3 years, the organisation had begun to make significant steps towards better management of catchment's natural resources.

In September 2003 two Rivercare Officers based at S-J and Waroona were appointed. Alex Hams' focus was the Serpentine and Murray Rivers whilst Jesse Steele supported the Harvey River Restoration Taskforce. It was the Taskforce's on-ground funds (an off-set for the Stirling-Harvey Redevelopment Scheme) that were used as matching funds for these positions and in time a Foreshore Rehabilitation Officer to be based at the City of Mandurah to work on both sides of the lower Serpentine River (in the City of Mandurah and Shire of Murray). This previously part grant funded position is now a permanent role at the City and works have expanded to all waterways in the City. This successfully demonstrates the long term benefits that have evolved through sound partnerships, in this case with the PHCC, Department of Water, City of Mandurah and Shire of Murray.

The Western Power Greening Challenge drove much on ground action in the Hotham Catchment.

4. Growing up and Building Capacity (2003 – mid 2005)

For numerous reasons, 2003 was a pivotal year. These include the commencement of a number of PHCC-led projects, external interest in the Peel-Harvey, and commencement of preparation of the Peel-Harvey NRM Plan.

4.1. Getting Down to Business

Firstly, all the work undertaken in 2002 to attract funding to the catchment from NHT II finally started to pay off. NHT II funds that had been due to be received in September 2002 eventually flowed in the PHCC in the second half of 2003. By July 2003, the organisation had secured funding through SWCC for the following projects and positions:

- Rivercare Project
- An extension to the Water Campaign™
- Part-funding for an Executive Officer
- Funding for the existing Natural Resource Management Officers (NRMO) in the catchment. The local NRMO network included:
  - Mike Barr – Coordinator Williams –Narrogin Community Landcare Centre (CLC)
  - Darralyn Ebsary – Coordinator Hotham CLC
  - Cathy Lyons – Coordinator Serpentine-Jarrahdale CLC
  - Kim Wilson – Coordinator *Crossing the Boundaries Project* - Waroona).

This funding signalled a significant shift in NRMO positions from being locally-led and directly funded to being regionally coordinated and funded. Unfortunately, the ongoing delays in funding between NHT and NHT II that occurred around this time were a factor in the loss of some staff from landcare centres in the region in 2003.

Earlier in 2003, the Water Campaign™ had got off to a flying start, and was in some ways, the first major PHCC-led project in the catchment, establishing stronger relationships with Local Governments. The Water Campaign™ designed by ICLEI, initially worked with four of the Local Governments in the coastal catchment to conserve and protect water resources. The Campaign Project Officer was Damien Postma who was later to become the organisation's Executive Officer in 2006 (See Section 5.6). The Water Campaign was later taken up by the WA Local Government Association with support from the Water Corporation.

In addition to the Water Campaign™ a number of other projects and people started in the latter half of 2003:

- In July 2003 the PHCC engaged consultant Martin Wells to prepare the Catchment's NRM Plan, released as a draft for public comment in March 2005. The Plan was designed to fit within the context of the evolving regional NRM framework
- In September 2003 Rivercare Officers Alex Hams and Jesse Steele commenced. The *Rivercare Program* became a significant PHCC achievement through to 2008. Rivercare activities continue through the work of the Harvey River Restoration Taskforce Officer and City of Mandurah Foreshore Rehabilitation Officer and related projects
- In November 2003, Biodiversity Project Officer, Peter Hick was contracted as a biodiversity consultant to work on the Peel-Harvey Decision Support System Biodiversity toolbox with the aim of capturing the private land contribution to biodiversity in addition to that managed by DEC.

Additionally, the PHCC had recognised the importance of keeping the wider catchment community informed of its activities, and by the end of 2003 had developed a Communications Plan. Unfortunately, the Plan did not feature significantly in the organisation's corporate knowledge, and strategic communication with the general public has been somewhat of a neglected area in the first decade.

4.2. The EPA's 2003 Catchment Review

In 2003, the EPA released its long-awaited report on the compliance of Government proponents with the conditions that had been set by the Minister for Environment in 1989 (and 1991 and 1993) in regard to management of the Peel-Harvey Estuary and Catchment (EPA, 2003). While the PHCC agreed with the EPA's findings (that the ministerial conditions had not been met, for example, in relation to production and implementation of a Catchment Management Plan), the PHCC considered that 'the report was not balanced in reporting on progress and compliance' (PHCC, 2003). Central to this concern was the failure to:

- recognise the efforts of those who were working in the catchment with relatively few resources
- the cooperative arrangements between government and the community that were achieving on-ground change.

Despite the community's frustration, the EPA's report stood as an excellent review of what is required in the catchment to achieve the necessary reductions in nutrient pollution flows into the Estuary. With the benefit of hindsight, the EPA's review provided a significant opportunity for the PHCC to lobby Government for an appropriate response to the EPA's recommendations. However, it also demonstrated the EPA's mis-reading of the Peel-Harvey situation with respect to the community's frustration with the lack of high-level Government support.

4.3. Environmental Protection Biodiversity Conservation (EPBC) Act

A project planning meeting with partners in February 2004 led to the first submission for a Ramsar focussed project. The Commonwealth EPBC Act had come into effect in July 2000 and locally recognition of the Act and its implications was slow to be recognised. The WWF ran a series of training sessions to enable the community to understand and apply the Act. The Act was considered significant to the Peel-Harvey as it supports and is home to many *Matters of National Environmental Significance* (MNES), including listed threatened species and communities, migratory species and the ecological character of Ramsar sites, protected under the new Act.

4.4. The Coastal Catchments Initiative and the WQIP

Later in 2003 a $2.1 million Coastal Catchments Initiative (CCI) program was established by the Federal Government in partnership with the State in the Peel-Harvey to address the sources of nutrients flowing into the Catchment. The CCI program was made up of seven project components and led to release of the Water Quality Improvement Plan (WQIP) for the Rivers and Estuary of the Peel-Harvey System – Phosphorus Management (EPA, 2008). Most of the CCI projects were substantially completed by 2006.

The story of the WQIP and its development is interesting from the PHCC's point of view. While the PHCC was never funded or officially recognised as managing the CCI program or WQIP, the organisation was actively involved in much of the delivery of the seven CCI projects, and the drafting of the WQIP. The PHCC also played a coordinating role in the development of the WQIP by regularly calling all CCI project managers together to facilitate information exchange, better cooperation and delivery.

As a sign of how important the PHCC saw the CCI project, it formed a Memorandum of Understanding (MoU) with the EPA to ensure the best possible outcomes for the catchment from the CCI project. The MoU also provided some clarification of the roles and relationships of the EPA and PHCC. The PHCC was keen to keep abreast of the CCI's technical aspects and hence was briefed as early as December 2003 by Christian Zammit and Peta Kelsey on the first stages of the CCI's Decision Support System for the Peel-Harvey. This project was to introduce the PHCC to the LASCAM computer model being applied to the coastal Peel-Harvey area to model the catchment's hydrology and nutrients. LASCAM was later replaced by the SQUARE model, still used by the Department of Water today. This work has led to new and improved hydrological and nutrient modelling of the Peel-Harvey Catchment by the Department of Water (Kelsey et al., 2011).

In the end, the EPA was formally responsible for coordinating the preparation of the WQIP and contracted out its seven component projects. As it had done with the CCI project, the PHCC was actively involved in proposals to establish a governance framework to implement the WQIP in 2006 and 2007. This is discussed further in Section 5.

The resultant Water Quality Improvement Plan (WQIP) was released by the EPA in November 2008, more than five years after it commenced. The PHCC carried responsibility for the media release regarding the WQIP and presented the long awaited report to various stakeholders to ensure that the recommendations were embraced by those who could assist in its implementation, e.g. Local Governments. The Department of Water now officially has responsibility for coordinating implementation of the Peel-Harvey WQIP.

4.5. Catchment Boundary - Are They In or Out?

Also of note in 2003/04 was the ongoing issue of the inclusion of three Local Government Areas in the north of the catchment in the Peel-Harvey – the City of Cockburn, Town of Kwinana and City of Rockingham. Surface and ground waters in these three Local Government areas flow into the Peel-Harvey Estuary or into Cockburn Sound via groundwater or surface drains. The Peel Main Drain is one of the highest phosphorus polluting sub-catchments in the Peel-Harvey. Unfortunately, in the jostling for positions, the three Local Governments had been included in the Swan-Canning Catchment Council (SCC) area, not the SWCC boundaries. Officially, the issue was finally resolved through a Memorandum of Understanding (MoU) between the PHCC and the Swan Region much later in the decade. The MoU essentially agreed to both catchment councils working with the 3 LGAs as appropriate to the Project and NRM issue. Unfortunately the resolution of this issue took up much time and effort, for relatively little benefit, and SWCC boundaries do not align with PHCC boundaries.

4.6. Local Project Delivery and Regional Hold-ups

The mix of developing and delivering projects in partnership with landcare centres, and participating in important external initiatives was something that continued strongly through 2004 up to the middle of 2005. In many ways this became the modus-operandi for the PHCC for the rest of the decade.

By the middle of 2004, the PHCC was working on a broad range of issues the on-ground, political and technical levels. Most of the Local Governments in the coastal catchment were involved in the Water Campaign™, the Peel-Harvey Biodiversity DSS was launched, and the Rivercare team (River Rats) were working in the upper, middle and lower catchments. PHCC staff and landcare centre staff were contributing to the SWCC regional process and preparation of the Peel-Harvey's NRM plan was well underway.

In the first half of 2004, SWCC went through a Regional Review process, and delays were experienced in finalisation of the SWCC Regional Strategy. The latter led to delays in the finalisation of the Peel-Harvey NRM Plan even though it was largely complete. The draft Peel-Harvey NRM Plan was circulated to stakeholders by August 2004, and was finally released as a public draft in March 2005.

Of note during this period was the tension that existed throughout the NRM community over the fact that the Regional NRM Strategies (and related Investment Plans), had not been accredited by the Federal Government, thereby preventing a release of several years of funding to the regions, and sub-regions such as the PHCC. Whilst the PHCC continued to operate throughout this period, stress was felt by staff and councillors alike.

4.7. Less Attention to the Grassroots

Around late 2003/early 2004, local Community Landcare Coordinators (or NRMOs) began to report more frequently to the PHCC. Whilst these officers were still formally accountable to their community based local management committees, they were in large part working at the sub-regional (PHCC) scale. This development was a natural progression given the shift of attention from local landcare activity to regional NRM delivery.

By the middle of 2006, the PHCC was to be hit by the cut in funding from the Australian Government and SWCC. Capacity to deliver projects was again to be hit in May 2009 when the Federal Government moved away from funding NRMO's and sub-regional groups such as the PHCC.

The impact of these changes in government policy will probably not be fully realised for a number of years. The benefit of funding local groups to employ facilitators was that it empowered people and their community to take action in their patch, and developed their knowledge and expertise in NRM and adaptive management skills, so vital for successful outcomes. Many of these people (staff and volunteers) supporting the sub-regional and regional NRM groups are not able to provide as much support at the local level.

The other major benefit of local level funding is that it enables on-ground actions to occur more easily as landowners know and trust the professionals that are needed to secure and acquit funds and to help implement the on-ground changes. Unfortunately, the Federal Government seized upon instances of mis-management of funds (across Australia) to justify the change in their approach from 'funding' to 'investment'.

4.8. Consistent Representation and Advocacy

PHCC meeting minutes from 2004 indicate that the demands of the Regional NRM process and of the CCI projects did not prevent the PHCC from getting involved in a wide range of sub-regional development-based issues and representing the interests of the catchment. Examples of this include:

- Approaching the Water Corporation in regard to homeowners close to the Murray River who were yet to connect to the available deep sewerage
- Lack of attention to environmental issues in the *Pinjarra to Brunswick Sustainability Strategy*
- Delays in commissioning the Narrogin Oil Mallee Plant
- Feasibility of a Peel Waterways Institute.

In 2005 the PHCC continued to grow its representation of the catchment, including involvement in big studies or development projects such as the New Perth-Bunbury Highway (Peel Deviation; now Forrest Highway), Pinjarra-Brunswick Sustainability Study, the State Government's NRM Review (Hicks Review) and the Tuart Response Group.

All these issues and more were discussed at the PHCC Board level and various actions and submissions were made to the relevant organisations.

In 2004 the PHCC and its chairperson also began to meet more frequently with Ministers to discuss various issues and needs, including the Ministers for the Environment and Water and Planning, on issues such as drainage and the Peel Regional Park.

4.9. The Peel-Harvey NRM Plan – 2005

The Peel-Harvey NRM Plan project, which had commenced in March 2003, invariably became entangled in the development of the *SWCC Regional NRM Strategy.*

In February 2004, consultant Martin Wells reported to the Board that "his role in 2003 had been to provide Peel-Harvey input into the SWCC Regional Strategy and his new role for the first 3 months of 2004 was to work on a Catchment Plan or NRM plan for the Peel-Harvey" (PHCC February meeting minutes, 12 Feb 2004).

It was not until the second half of 2004 that SWCC put out its 'Direction for Investment' document following on from its Regional NRM Strategy, calling for projects proposals by October 2004. Existing Foundation and Priority Project funding for the PHCC and NRMOs had to last till 30 June 2005.

By March 2005, the PHCC was able to finally release its draft NRM Plan. As the PHCC chairperson states in its foreword:

> *"When the PHCC became a sub-group of the SW NRM region later that year (2000) it was overtaken by the demands of the South West Catchments Council and the development of the Regional Strategy. From then the two groups' planning has interwoven, with a Peel-Harvey Action Plan in 2002 following the first South West Regional Strategy. This current Plan uses the SW Regional Strategy for NRM (SWCC, 2004) as a base and in particular the PHCC contribution to it."* (Land Assessment Pty Ltd, 2005)

The 2005 Peel-Harvey NRM Plan did two important things in addition to linking the Peel-Harvey's NRM needs to the SWCC Strategy. It:

- described the state of natural resources in the catchment in some detail, and not just water quality issues or the Estuary
- listed 151 future actions required to adequately manage the catchment's natural resources.

This second aspect sheds light on one of the main challenges for the PHCC relating to 'What business are we in?" The fact that the 2005 NRM Plan identified 151 valid actions to manage the catchment's natural resources demonstrates the scale of the task at hand. The challenge was that the PHCC is a relatively small organisation, faced with two herculean mandates, not just one. One is to manage all natural resources in the catchment, and the other is to play some role in the halving of nutrient pollution entering the Peel-Harvey Estuary. Addressing challenges of this scale has had implications for how the PHCC prioritises effort and resources.

It is encouraging to report that by the end of 2009, work towards many of the 151 actions had been undertaken by the PHCC and other organisations.

5. Hustle and Bustle (2005 – 2008)

5.1. A Significant Injection of Funding

By mid -2005, funding had at last begun to flow to the PHCC from the Federal Government and SWCC through the NHT II (and NAP – the National Action Plan for Water Quality and Salinity)Accredited Strategy model. Much of the hard work over the past two years working with SWCC was beginning to pay off.

In addition to a continuation of the Rivercare Program and Water CampaignTM, the PHCC and its partners had a number of projects to deliver including:

- development of a **Ramsar Site Management Plan** (PHCC, 2009d)
- various **training projects** (biodiversity small landholders, and river restoration)
- **biodiversity linkages** on the Swan Coastal Plain and Dryandra woodlands
- a **Management Plan for Goegrup and Black Lakes**, led by the South West Aboriginal Land and Sea Council.

With the increase in activity came a growth in staff. The previous team of Ian Wight-Pickin, Damien Postma, Alex Hams and Jesse Steele were joined by numerous other staff both at the Peel Waterways Centre and the local Landcare Centres. At the time:

> *"Kim Wilson mentioned that a MoU with the Shire of Waroona may be appropriate with four full-time and two part-time NRM officers being supported by the Shire."* (PHCC Board Minutes, 11 August 2005).

By the end of 2005, approximately 7 full-time staff was directly employed by the PHCC. The contracts of landcare centre staff were renewed, with funding through SWCC, and a new coastal area NRMO (Urban Landcare) position was created with part funding from the City of Mandurah. This position was eventually continued by the City of Mandurah when Federal funding decreased and continues as a permanent full time position to this day.

By September 2005 a new *Manager Environment and NRM* position had been created to support the Executive Officer and increase the PHCC's effectiveness. This was filled by Damien Postma.

Increased investment in the catchment also enabled the PHCC to enter into informal agreements with the Blackwood Basin Group to deliver a number of projects that covered the inland Peel-Harvey area to the Hotham and Williams River catchments (PHCC Annual meeting of 11 August 2005, Chairperson's Report).

5.2. The Peel-Harvey WQIP

By mid-2005, matters were also progressing with the Peel-Harvey CCI and WQIP and a briefing was given to the Board by EPA Officer managing the WQIP project, Carmel Staniland. One of the key messages was that:

> *"..30 years of volunteerism had made little change to the condition of the estuary and they (the EPA) were now looking at urban and peri-urban areas as a growing contributor to nutrients entering the estuary. She (Carmel) talked about the key players that still needed to be briefed including the State Minister for Planning, Opposition Members of State Parliament and Federal Politicians.* (PHCC Board Minutes, 14 July 2005).

The Chairperson's main response to this briefing was that the *"Peel-Harvey EPP was being proven incorrect in stating that urban (development) was a beneficial land-use in comparison to rural."* (PHCC Board Minutes, 14 July 2005).

The EPA took another three and half years to finalise the WQIP. Despite assurances that the WQIP would lead to changes in the Peel-Harvey Environmental Protection Policy (EPP) and a new State Environment Policy, the EPP remains unchanged and no State Environmental Policy has been released.

The WQIP process illustrated some of the inadequacies in how the State Government has responded to the catchment's water quality issues over the decade. Whilst the EPA has released statements reconfirming the catchment's needs, the State Government has been reluctant to act accordingly, or invest appropriately. In general, each Government intervention is marked by the following characteristics:

- The restricted ability of the EPA to facilitate catchment management
- A re-confirmation of the estuary's problem
- A mis-representation, misunderstanding or over-reliance on the role of volunteerism
- A reconfirmation of the importance of catchment management but a reluctance to properly and consistently invest in catchment management
- An unwillingness to impose the necessary land use planning controls for the future, necessary to meet the known water quality targets.

Despite much good work occurring in the seven component projects of the CCI, the Peel-Harvey WQIP (EPA, 2008) generally failed to deliver on the PHCC's expectations. Its recommendations are generally vague and difficult to implement and audit. There has been no official State Government response to the WQIP and the Government has made no formal statement as to its position on the WQIP or its implementation. When the final WQIP was released, unannounced, on the EPA website, the PHCC Executive Officer was asked to address all media enquiries.

On a brighter note, the PHCC received contracts to implement some of the WQIP recommendations in 2010 and 2011 through State NRM and Commonwealth Caring for Our Country funds. However, much of the mid-level policy and technical work to implement the recommendations at the scale required to make a difference still needs to be done.

5.3. A New Home and a Strategic Framework

Two other notable events in 2005 were the official opening of the Peel Waterways Centre, by the now Department of Water, and the creation of a strategic framework for the PHCC. The Centre brought three PHCC staff under the one roof and provided a central community resource and meeting point.

The Peel Waterways Centre, 21 Sholl St Mandurah, operated in partnership with the Department of Environment, which in time became the Department of Water. The Centre was funded over a four-year period to August 2009 as part of the State Government's Six-point action plan for the Murray River (Minister Judy Edwards). The Centre included a meeting room, foyer and office space for PHCC (four desks), some Departmental staff and a Ribbons of Blue Officer. A South West Catchments Council Coastcare facilitator was also located there for a period of time.

The *Strategic Framework 2006 – 2010* was important in getting the Board to examine the PHCC's roles. Six main roles were identified (See Section C) of which the sixth was Project Facilitation and Implementation (Sustainable Development Facilitation, 2005).

The discussion from the Strategic Framework illustrates that the Board was still coming to terms with its new role as an implementer of projects:

> *"The Council now recognises that the PHCC must, on some occasions, take a stronger role in implementation if the targeted outcomes are to be achieved. The discussion led to the realisation that the Objectives in the Constitution may need to be changed to more clearly articulate this purpose of the organisation*
>
> (Sustainable Development Facilitation, 2005).

5.4. 2006...Thinking Bigger

By the beginning of 2006, the PHCC was starting to think and act with a higher level of authority and confidence. This may have been due to:

- the knowledge that the PHCC was likely to get further funding in 2006 – 2008 under SWCC's Second Investment Plan (IP2)
- the organisation and staff's work on CCI & WQIP related issues
- previous groundwork in 2003 – 2005 to establish the organisation's projects.

Whatever the reasons, a number of achievements from 2006 are used to demonstrate the organisation's capacity at that time:

Triggering the EPBC Act in the Peel

In February, it was reported that one of the PHCC's submissions to the Federal Department (DEWHA) had resulted in a development proposal for Lot 1 Dawesville being 'called-in' under the EPBC Act. This was considered a significant milestone - the first referral to trigger an action in the Peel-Harvey, thereby putting the area on Canberra's radar.

A Biosphere for the Peel-Harvey

Initiated at the February 2004 project planning session, the PHCC was briefed by Craig Perry and Andrew Del Marco on the *"Man in the Biosphere" Feasibility Study.* The Study looked to list areas as Biosphere's where there are major human interactions with areas of significant biodiversity and other natural values. The Fitzgerald Biosphere is one example in Western Australia. Given the level of community and political support needed to successfully list an area, it was eventually decided that whilst beneficial to long-term health of the estuary, it was premature to progress the Biosphere project.

Bringing the Water Corporation to the WQIP Table

In April 2006, a meeting was held between EPA, PHCC and Water Corporation in regards to the Water Corporation's involvement in the CCI (WQIP) projects. This meeting gave the Corporation's officers the chance to raise concerns, but also reflected the ongoing complicated dance between the Corporation (who undertake licensed rural drainage maintenance for flood control) and those groups with an interest in water quality improvement.

A Proposed Governance Framework for the Peel-Harvey

By March 2006, the PHCC was actively involved in discussions on development of an overall Peel-Harvey Governance Framework, with the initial priority of implementing the WQIP. These discussions, led by the chairpersons of the WAPC and EPA covered issues such as 'the statutory basis, geographic responsibility and agency host of the proposed body. (PHCC Board Minutes, April 2006).

Involvement in the Peel 2020 Process

The PHCC formed a strong working relationship with the Peel Development Commission through the development of the Peel 2020 Sustainability Strategy where the PHCC provided much of the environmental expertise. The Strategy was developed by regional partners in government, industry and over 200 community members to develop a vision and action plan for the future.

Commenting on Land Development Proposals

February 2006 also saw the PHCC being briefed by the Satterley Property Group in regard to proposals to develop land to the south of the existing South Yunderup townsite. This heralded the PHCC's increasing interaction with the development sector and provision of comments on development proposals, such as Point Grey, Port Bouvard and Preston Beach.

Commenting on Mining Proposals

2006 also saw the PHCC commenting on the potential environmental impacts and environmental policy and legislation considerations in regard to proposed mining proposals including the Boddington Gold Mine, Worsley Alumina Pty Ltd and the Keysbrook Mineral Sands Proposal Public Environmental Review.

5.5. Influencing Land Use Planning and Development

By mid 2006, the Board discussed the PHCC's role in the catchment and in particular:

> *"By working with proponents and developers the PHCC was having an influence on NRM... Some hesitation was expressed in the PHCC getting too involved in the aspects of planning that are expressly the responsibility of Local Government as LGs can be very protective of 'their patch'; the PHCC would not want to lessen strong relations with LGs... Much work was being done, but that there is a need to show 'real-life' examples of good environmental planning in action, to put a reality to the concept, as for many this is lacking....The lack of DPI (Department of Planning and Infrastructure) representation on the PHCC was again raised and considered to contribute to some of the difficulties faced but that the Peel-Harvey governance proposals being developed at the state level may address this;*
>
> *The lack of capacity/resources within the eastern Peel-Harvey Local Governments to undertake adequate environmental planning in advance of the development boom (caused by mining activities in the region) was noted as a significant problem."* (PHCC Board Meeting Minutes, July 2006).

The above points show the relatively high level of interaction and independent thinking about the PHCC's business, and recognition of the broad challenges to be met to bring about a healthier catchment and estuary.

5.6. Another New Executive Officer

With a reduction in funding from SWCC, 2006 saw a change in Executive Officer from Ian Wight-Pickin to Damien Postma. Transitioning from one leader to another can be difficult, but this was made relatively smooth through the foresight of Ian, and good working relationships between Ian, Damien, the chairperson and the Board. Ian had helped build the organisation up from a one-employee, low budget community group to a well known and respected organisation managing numerous projects and a $1.5 million annual budget. His public service background and accounting qualifications had helped build a strong foundation for the organisation, and he also joined the PHCC Board as a Community Representative.

At this time the PHCC gained Damien as Executive Officer. Unfortunately, this coincided with a cut to the funding of Damien's previous position, *Manager Environment and NRM*. This was a first step in declining capacity as government funding strategies started to change to regional investment.

Moreover, Ian had helped build and maintain strong relationships with a wide range of people across government, industry, development and community sectors. Ian's departure was summed up in these words by the Chairperson:

> *"Naturally I am very sorry to lose Ian's services, he has been here for five years, has laid a very sound management practice and been a great help in getting (us) to where we are. He has also organised his succession very well for which I am very grateful."* (PHCC Board Minutes, May 2006).

Damien took over as Executive Officer in July and proved to be another great asset for the organisation. Kim Wilson, still based in Waroona, partly picked up the responsibilities of the NRM and Environment Manager role whilst maintaining her existing activities and role as Program Manager.

5.7. State Government and NRM in the Peel

One of the interesting issues that came up in 2006 was the splitting of functions and regions between the new structures of Department of Water (DoW) and Department of Environment and Conservation (DEC). The former DEC, Department of Environment (DoE) and Catchment Protection were no longer and were split into a DoW and a DEC. At the time (September 2006), it was noted that the Peel-Harvey and Swan River Catchments were proposed to be managed by the DEC and all other catchments to be managed by the DoW. As it turned out, catchment management in the Peel-Harvey eventually came to be managed by the DoW, an arrangement that continues to this day.

In some ways, this Governmental dilemma reflects an issue which is addressed by the PHCC on a regular basis. In its first decade, the PHCC has come from a broad, wholistic approach to NRM. This was a natural position given its landcare origins and the supportive government policy from the late 1990's through to about 2007/08. However, with the advent of Caring for Our Country (CfOC) and its investment through a Business Plan in Matters of National Environmental Significance approach, plus changes in State and Federal government late in the decade, the PHCC has had to become more targeted in its projects and objectives (e.g. delivery of water quality outcomes, protection of Ramsar values). This may not be entirely a bad thing.

2006 also saw the Chairperson declare that it was still unclear as to what position the State Government took on the regional delivery model for NRM. This acknowledgement captured the sense of the unknown with respect to the State Government's position and the Federal funding for NRM. It was only to be another eighteen months (May 2009) before the unknown became the impossible with regard to funding.

In November 2006, numerous meetings were held with people who could help deliver a healthier catchment – John Ruprecht of the Department of Water in regard to water quality monitoring and stormwater management, Prof John Bailey Chairman of the Conservation Commission in regard to Ramsar Sites, and a briefing of State Minister of Environment, Hon Mark McGowan in regard to the Water Quality Recovery Project. This last meeting led indirectly to exposure of the Peel-Harvey in the Saturday's West Australian newspaper. A subsequent meeting with the EPA covered the *"Peel-Harvey WQIP* (then in draft form), the *PHCC-EPA MoU*, *mining in Marradong Reserve*. *The Ramsar Management Plan*, and very importantly the *Peel-Harvey Catchment Plan*" (PHCC Board Minutes Meeting November 2006).

5.8. Managing Finances and Project Administration

As a sign of maturity, by March 2007, the organisation had successfully passed a financial audit of all eight of the PHCC's SWCC Investment Plan 1 (05/06) projects. 'This a pleasing result that required significant work on behalf of all PHCC Project managers' (PHCC Minutes, March 2007).

On the financial front, the PHCC was selected as part of a State Government audit of NRM and in May 2007:

> *"The Executive Officer reported that he was satisfied with the audit and no real surprises would be expected from the report. It was anticipated that comments would be made that our processes are generally good but our reporting and record keeping of key decisions and processes within projects would be found lacking. Some of this had already been addressed, additional measures could be implemented immediately and others would require greater investment....."* (PHCC Board Meeting Minutes May 2007).

These comments by Executive Officer Damien Postma, brought home the reality that for such a small, dynamic, poorly resourced organisation as the PHCC, business practices and corporate structures can often not be afforded. This is something that may need to be addressed in the PHCC's second decade.

Two years later, in 2009, the PHCC was selected for an audit prepared by URS on behalf of SWCC of its delivery of the Water Quality Recovery Program. The URS audit report stated that:

> *"Funding provided to the PHCC through SWCC and the earlier CCI has enabled it to act, and develop capacity as a bridging organisation. Over the course of the five years of the two funding rounds the PHCC has been able to develop an integrated and holistic plan of action. The CCI enabled the development of the WQIP and the SWCC funding has enabled implementation of some of the (many) management measures contained within the WQIP but there remain significant challenges to overcome."* (URS 2009)

The outcome of the audit was well received by the Board, and demonstrated the shift in maturity and effectiveness of the PHCC. At the same time, it highlighted the lack of action at a State agency level on water quality improvement.

5.9. Proposals for a Peel-Harvey Governance Body Draw Closer

As 2007 progressed, some saw hope that the talk of a Peel-Harvey governance body could become a reality under the State Labor Government. In May,

> *"An EPA meeting with Director Generals had bedded down the governance structure. Local Government will have a seat on the 'Peel-Harvey Water Quality Improvement Council'...It (the governance proposal) is to go to Cabinet soon for a decision when the WQIP is released in June."* (PHCC Board Meeting Minutes, May 2007).

In July 2007, the Executive Officer reported that a meeting of Ministers had been briefed on the proposed Peel-Harvey Governance Framework and:

> *"All ministers and officers had engaged with the idea and very pertinent questions were asked demonstrating they were truly considering the ramifications of what was being proposed. The outcome of the meeting was in-principle support from all Ministers with more information and development required from the Minister for Planning, Alannah MacTiernan, in respect to the planning aspects. This would be progressed by the Executive Officer (of PHCC), Leon Brouwer (DoW), Colleen Yates (PDC) and Cameron Bulstrode (DoP). Ministers requested the proposal be presented to CONRACE (Committee of Natural Resource Agency Chief Executives) for comment and then progress to a full cabinet submission."*

PHCC commissioned a report from Planning Consultant, Brian Curtis titled *"Effective incorporation of the Land Use Planning System into the Peel-Harvey Governance Framework"* (Curtis, 2007). The recommendations of this report had been incorporated into the Cabinet submission.

The governance proposal to Cabinet also contained recommendations in relation to the establishment and management of the proposed Peel Regional Park, another significant issue which had been largely ignored by Government. Unfortunately, the inclusion of the Peel Region Park may have diverted attention away from the formation of the governance body.

As it turned out, the governance proposal never came out of Cabinet and neither was any direct action taken on the Peel Regional Park. By September 2008, the State Government changed at the State Election. The final WQIP was quietly released in November 2008, with few details for implementation and no commitment from Government.

Some of the features of the proposed governance framework, including the formation of a Peel-Harvey Water Quality Improvement Council, are summarised in Appendix 2.

5.10. The Mother of all Wetlands

At the March 2007 Board meeting, Board members floated concepts to create large (in the order of 1000 ha) wetlands within the catchment. These discussions were triggered by the Southern Gateway Alliance/Perth to Bunbury Highway project and the talk of legacy projects. These wetlands were to mimic the natural filtering functions that had been lost by the creation of the artificial drainage network – the concept of "wetland banking" (PHCC Board Meeting Minutes, March 2007). One such site for wetland re-creation involved diversion of Peel Main Drain.

Discussion of this type of works made sense on a number of fronts. Much of the coastal catchment had once been significantly flooded wetland (flood plain) and portions should be able to be returned to wetland with careful modifications to the drainage system. Given the extent of nutrient pollution that needed to be stopped from entering the Estuary, it also stood to reason that the works had to create wetlands that were on a very significant scale.

Whilst this did not come to fruition as part of the New Perth to Bunbury Highway (now Forrest Highway) project, the PHCC subsequently commissioned hydrologist Matt Giraudo to identify opportunities for the construction of biofilters in the catchment. This report, Desktop Assessment of Wetland Drainage Modification for the Peel-Harvey Catchment (PHCC, 2009c) became invaluable in the PHCC project work in 2010 and the *Filtering the Nutrient Storm* project.

5.11. An Example of Change at the Grassroots – Closure of Landcare Centres

In May 2007, Darralyn Ebsary of the Hotham Community landcare centre reported to the Board that her position had changed significantly since 2002 and had moved much more towards servicing small landholders (biosecurity, soils and fencing).

Darralyn also noted:

- The Boddington Goldmine had caused a huge influx of people into the Hotham Catchment and surrounds
- Fifteen Envirofund applications have been received with over $300,000 of works in on-ground activity
- Target-setting for the Hotham Williams Murray River Salinity Recovery Project and Dryandra Salinity Project is almost complete
- Only one catchment group (LCDC) is still remaining – in east Yornanning.

(Minutes, May 2007)

Darralyn's report demonstrated some of the significant changes that local landcare communities had gone through since the creation of the PHCC, especially growth in the number of rural residential properties in the catchment.

Unfortunately, due to a lack of funding, the Hotham Landcare Centre and the Williams-Narrogin landcare centres would be closed by the end of the decade.

5.12. Significant PHCC Reports and Projects: 2007/2008

At the same time as external issues were being addressed (e.g. Peel-Harvey Governance & future of SWCC funding for PHCC), PHCC staff continued to deliver on major project commitments. Some of the highlights of the 2007 to 2008 period include:

- Draft Peel-Yalgorup Ecological Character Description; The final document, *Ecological Character Description of the Peel-Yalgorup Ramsar Site*, Report to the DEC and the PHCC was released in 2007 (Hale & Butcher, 2007)
- Draft Ramsar Management Plan, *Peel-Yalgorup Ramsar Site Management Plan* (PHCC, 2009d)
- *Hotham Williams Murray River Salinity Recovery Project*
- Peel-Harvey Coastal Catchment *Water Sensitive Urban Design Technical Guidelines*
- PHCC Water Sensitive Design Land Developers Forum
- Local Government Officers Water Sensitive Design Workshop
- Peel-Harvey Drainage Reform Plan
- *Groundworks* Project.

During this period SWCC "purchased" outputs through the PHCC Executive Officer, which provided a form of 'core' funding for the position. SWCC also endeavoured to ensure NRMO/Community Landcare positions were maintained during NHT II, primarily through partnerships with Local Government. This focus by SWCC to maintain the network of community facilitators/NRM Officers was very much appreciated by the community.

Hence, in her report at the AGM of October 2008, the Chairperson proudly announced that:

> *"We have expended over $2.3m in the Hotham Williams, Groundworks, Rivercare, Dryandra, HRRT, Ramsar and more, and our Landcare Centres have been involved and also added to this. Noteworthy is that more than $2.05m of this was direct project expenditure. It has been a monumental effort by all."*
>
> (PHCC AGM Meeting, October 2008).

Some of the more intangible achievements during this period were also highlighted by the Chairperson:

> *"The awareness of Ramsar has increased significantly, partly through good work from our staff, partly by increased application of the EPBC Act – and good work from staff, and partly through increasing insistence from community groups such as PPG and FRAGYLE"* (PHCC AGM of October 2008)

Meanwhile, the PHCC staff and board were continuing to establish and initiate new projects. Discussions were held with tertiary institutions on collaborative research programs to cover the Estuarine System. The PHCC Chair also initiated discussions on a new Peel Region Climate Change Policy Development Project. Both initiatives went on to become successful projects coming to fruition in 2010 as the Science Strategy for the Peel-Harvey Estuary (Rogers *et al.*, 2010) and Peel Climate Change Adaptation Project.

Example of Significant On-ground Works Managed by PHCC, Harvey River Riffle Installation, 2007.

In early 2009, the Executive Officer commenced a project to capture the PHCC's position on acceptable land development standards with respect to environmental issues. This report was finalised by mid-2010. The intent of the project was to capture the organisation's main position on land development and reduce the time that was spent on preparing submissions or making comments on development proposals. This role had become important, but was substantially unfunded, and drawing on considerable staff resources. A draft report was provided to the PHCC in mid-2010 and distributed to some representatives of the development industry for feedback. It is yet to be finalised.

These initiatives and achievements were set against a growing concern over the future of the core funding to which the PHCC had become accustomed and built its modus operandi. This funding had enabled the PHCC to deliver a wide range of projects and provide State and Local Government, industry and the community with specialist advice on NRM at no cost. In many regards, the PHCC was unofficially delivering the State Government's commitment to catchment management in the Peel-Harvey.

5.13. The End of Uncertainty: July 2008 to September 2009

In November 2007, a Federal Labor Government had been elected, and by mid 2008 they had declared a very different approach to NRM funding. Gone was the commitment to regional strategies. In its place a more nationally–focused set of funding objectives. The new program, Caring for Our Country (CfOC), was probably the single biggest factor that changed the operations of the PHCC from the second half of 2008 onwards.

Whereas in the 2007/08 year the PHCC had successfully bid for Federal funding through SWCC of $1.5 million, no direct funding was received through this same source in 2008/09. Only $181,000 was received from the Federal Government in 2008/09, allocated specifically for a Peel-Harvey Ramsar project.

The PHCC was not the only one to be hit by the changes, with SWCC funding being reduced from $15 million down to $5.2 million in the same period. The significant changes in funding policy hit SWCC hard, and PHCC Executive Officer Damien Postma was seconded to SWCC in May 2009 to help get the SWCC through this difficult period. This period became known as the "Great NRM storm" for the PHCC. It was a paradigm shift from "grass-roots up" delivery to "top-down" focus on Nationally-identified major projects. NRM, especially in WA, did not feature, and SWCC may have been slow to recognise the gravity.

The crux of the issue was that the Federal Government had not only slashed funding to SWCC, but it declared that it would not accept SWCC funding the six sub-regional groups including PHCC, either directly or through sub-contracting project delivery.

The main impacts on the PHCC of this sudden loss of funding were an inability to plan for future projects, loss of significant staff, a resultant drop in organisational morale and the loss of all funding to NRMO's in the catchment. With funding lost, the PHCC went into crisis control. Wages for the A/Executive officer were paid from the PHCC's meagre savings, members agreed to stop receiving sitting fees, most refused travel expenses and the Chair refused receipt of the annual stipend.

PHCC staff losses through this period included Harvey River Restoration Trust Rivercare Officer Jesse Steele (late 2008), Damien Postma (June 2009), and Rivercare Program Manager Alex Hams (August 2009). These three staff had contributed a total of eighteen years of service to the organisation.

The loss of staff and their corporate knowledge was compounded by the closure of the Peel Waterways Centre on the 14th August 2009 when the Department of Water moved to new premises in the Mandurah Marina. With no office, the PHCC's A/Executive Officer (Kim Wilson) had to re-locate to the Waroona Landcare Centre and the City

of Mandurah offered to host the Ramsar Initiative Co-ordinator, Amanda Willmott. Later in the year two new SWCC Project Officers were also temporarily based at Waroona until SWCC established an office in Mandurah.

Despite the poor outlook created by the loss of core external funding, a number of projects came to fruitition in 2008 and early 2009. These included the:

- Release of documentary "Birds of the Peel-Yalgorup"
- Finalisation of Rivercare work on Gordon McLarty's property
- Water Campaign™ embedded in nine of the Catchment's Local Governments
- Completion of Alcoa Pinjarra Wetland Restoration project
- Further on-ground works in the Dryandra Forest project.

The PHCC also initiated two new important projects in this difficult period:

1. Murdoch University were commissioned to prepare a science strategy for the Estuary. This was later published as the "Science Strategy for the Peel-Harvey Estuary" (Rogers *et al.*, 2010)
2. The *Peel Climate Change Adaptation Project*, which commenced in late March 2009. The project was funded by the Commonwealth Department of Climate Change and Energy Efficiency and the Peel Development Commission (PDC) with key project partners being PDC, the City of Mandurah and the Serpentine Jarrahdale Shire. The project worked with the Peel region's five local governments. Kim Byrnes, the Project Manager, and was hosted by the PDC.

In May 2009, the PHCC was announced as a finalist in the United Nations Association Environment Day Awards in Melbourne for the Ramsar Initiative Project and the Rivercare works at Gordon McLarty's Property. This was to be one of the few highlights in what was a very challenging period for the Catchment Council.

6. A Period of Change and Discovery (2009 – 2010)

A feature of the period from late 2008 to late 2009 was the significant contributions of staff and the PHCC chairperson. The work of Damien Postma, Kim Wilson and Chairperson Jan Star pulled the organisation through a very rough patch and enabled it to work through some tough issues. Damien's expertise was recognised through his secondment to SWCC and subsequent elevation through appointment as SWCC Executive Officer. Jan Star, the Catchment Council's inaugural and only Chair, provided wisdom and patient guidance, and a wealth of knowledge as did the Executive Committee.

As a consequence, the Chairperson's reflection of this period in her 2009/10 Annual Report was able to record that:

> *"After a pretty horrendous year I am grateful that I can give a much more optimistic (for both our organisation and the environment) report. We have weathered the withdrawal of all administrative funding by the Commonwealth, the associated new approach of SWCC not to fund us to deliver any projects and the subsequent loss of staff as either projects ceased or stop-start funding methods meant no job security. I cannot say too often our appreciation for Kim's efforts in keeping us functioning ...."!*

However, the second half of 2009 was almost as difficult as the first half, with the organisation having to re-adjust to the loss of staff and their home. Funding of the organisation had now essentially been reduced to the existing projects, namely:

- The Ramsar Initiative project funded through the Federal Caring for our Country program (Project: I*mplementing the Peel-Yalgorup Ramsar Management Plan: a priority coastal hotspot* - CC082614; Coastcare)
- The *Peel Climate Change Adaptation Project*, with funding from the Federal Government's Department of Climate Change
- the HRRT Rivercare Officer (HRRT Community Panel; Water Corporation Offset funds).

The *Peel-Harvey Water Quality Recovery Project* (4.07), which had supported the Rivercare Program Manager officially concluded in September 2009 when the final report was submitted. In effect, the project concluded June 30, coinciding with the resignation of Alex Hams. Fortunately, there was sufficient residual funding to support Kim Wilson as A/Executive Officer from December 2009 to June 2010.

Two positive items appear late in 2009. Firstly, the PHCC undertook a Strategic Planning Workshop with facilitator Sue Middleton to assist the organisation to identify processes/options to help the PHCC move forward. Secondly, the DoW approached the PHCC to help develop and then deliver a project to implement some of the actions of the WQIP. This second item acted as a boost to the organisation, and by March 2010, the PHCC had engaged Juan Luis Montoya, an environmental engineer from Columbia, as the *Filtering the Nutrient Storm* (FNS) Project Manager to deliver the State NRM funded, $1.2 million project. The FNS Project had been developed with the help of the A/Executive Officer and was funded through the State Government's Natural Resources Management program.

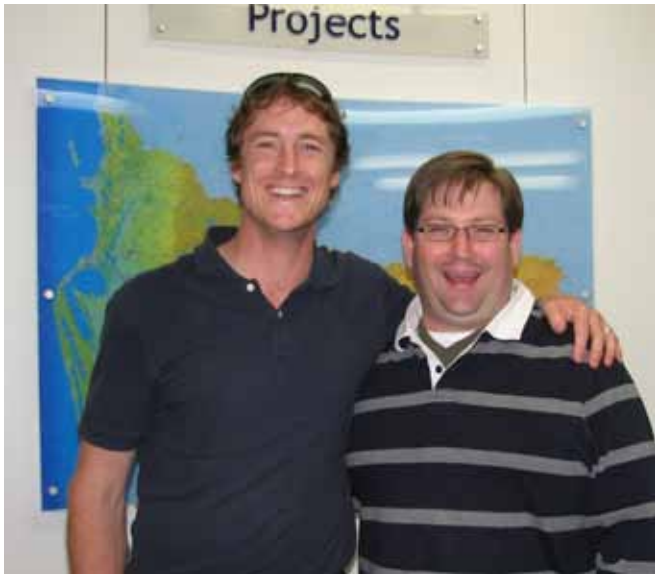
The significant news to end the first half of 2010 was that the PHCC received a grant through the Royalties for Regions, "Managing the Peel's Natural Assets" program. This grant enabled the PHCC to continue to employ an Executive Officer and produce a much needed business plan for the organisation. This grant was achieved with the significant support of the Peel Development Commission.

As the new financial year dawned in mid-2010, the PHCC was able to release the *'Science Strategy for the Peel-Harvey Estuary'*, and illustrate why the estuary is such a valuable part of the City of Mandurah, Shire of Murray and greater Peel region.

After 14 months in the role of A/Executive Officer, Kim Wilson took long-service-leave, and Jane O'Malley was appointed as Executive Officer in September 2010.

Staff of the PHCC and Landcare Centres over the First Decade.

Clockwise from top left: Thelma Crook and Darralyn Ebsary; Kim Wilson; Jan Star (Chairperson) and Cathy Lyons; Ian Wight-Pickin; Bottom: 2008 group photo: Kim Wilson, Damian Postma, Jesse Steele, Tanya Dawson, Natalie Lees, Darralyn Ebsary, Tyrone Miley, Alex Hams & Colleen Archibald.



Clockwise from top left: Alex Hams and Damian Postma; Amanda Wilmott, Jane Townsend; Cath Lyons and Sietske Hunn; Damian Postma, Kim Wilson and Darralyn Ebsary.

Part C - Major Achievements

7. Introduction

7.1. PHCC Modus Operandi

Looking back over the PHCC's first ten years, a number of characteristics emerge with regard to the organisation's approach to the business of NRM. Firstly, the organisation has remained responsive and dynamic, flexing to the various opportunities and challenges that have arisen over the decade. Secondly, the organisation has been comfortable moving from facilitation and representation roles to also develop and deliver, with partners, its own projects. Thirdly, it has built up credibility and good relations with the community, Government, and industry. Finally, the PHCC has taken a comprehensive approach to catchment management and moved across a wide range of NRM issues. It is against this backdrop, and through a core philosophy of collaboration that the PHCC has achieved so much through its first decade.

7.2. Ability to Tackle 'Wicked Problems'

Another way of describing why the PHCC has been successful at what is does is because of its ability to tackle 'wicked problems' that:

> *'go beyond the capacity of any one organisation to understand and respond to, and there is often disagreement about the causes of the problems and the best way to tackle them'.* (Australian Government, 2007)

Examples of wicked problems include climate change, obesity, land degradation and indigenous disadvantage. The concept of wicked problems has been discussed by the Australian Public Service Commission, who describe some of the organisational characteristics that help address the resolution of wicked problems (Appendix 3).

The PHCC exhibits a number of these characteristics including: holistic thinking; innovative and flexible approaches; an ability to work across and between agency boundaries; and, effective engagement of stakeholders and citizens in understanding the problems and in identifying possible solutions. PHCC is also a working example of the subsidiarity principle where decisions should be taken as close as possible to the citizens by the lowest-level authority, which has the competence to implement the outcome.

7.3. Examples of the PHCC's Achievements

To describe the PHCC's achievements, this report contains both a table of the organisation's major projects (Table 9), and a discussion of some of the more significant achievements in the section below. This discussion is presented in the context of seven roles that the PHCC often plays. Six of these roles were highlighted in the PHCC's *Strategic Framework Report* in 2005 (Sustainable Development Facilitation, 2005). A seventh role, Planning for NRM and the PHCC, has been identified by the author of this report.

The seven major roles of the PHCC over its first ten years are:

1. **Leadership**

   Contribution to strategic and policy changes, and recognition of existing policy, towards the PHCC's vision for the catchment.

2. **Building Partnerships (Key Relationships and Collaborations)**

   Bringing together people with the necessary knowledge, resources and capacity to bring about change.

3. **Co-ordination and Facilitation**

   The means by which different initiatives are managed in an integrated way and how PHCC encourages and supports partners to work together in achieving specific results.

4. **Advocacy**

   Increasing the profile of the Peel-Harvey Catchment both within the catchment and at strategic and policy level and raising awareness of specific threats and opportunities affecting the region.

5. **Technical Initiatives**

   Management of technical research, field studies, etc.

6. **Project Facilitation and Implementation**

   Specific actions that lead to practical implementation of priority projects are the means by which physical change will actually occur.

7. **NRM Planning and Project Development**

   Undertaking the work to describe the desired catchment condition and the steps that are required to get there.

7.4. Social Capital

Another less tangible, but equally important achievement of the PHCC has been the social capital that the organisation has built in its first decade. This social capital not only exists in the PHCC organisation, but across the extended community of groups, government, professionals and the links between all of these. The network of people and organisations that the PHCC works with is an essential part of the way it does business and its ability to tackle wicked problems.

8. Leadership

The PHCC has provided significant leadership to government and the land development sector in the area of water management. Better management of this precious resource is one of the critical aspects of the PHCC's business, and covers so many aspects given water's movement through the catchment, the environment, and its use by community and industry.

Two key water management projects are described below to provide a sample of the PHCC's achievements in this area.

8.1. The Water Campaign™

The PHCC introduced ICLEI's[1] the Water Campaign™ to Western Australia in 2002/03 after the PHCC chairperson had seen the program launched at an international Conference in 2002. The project started with four Local Governments in the Peel-Harvey Catchment, and by the time the project had finished in 2008, nine of the fourteen LGs in the catchment had successfully worked though the five milestones of the project. This level of participation in the campaign has not been achieved in any other catchment in Western Australia.

Through the Campaign, Local Governments measure the water that they use as a Local Government organisation in parks and Council facilities, and they also measure how much their communities are using (domestic and commercial). A plan is then developed to assist the Council and its community reduce the amount of water used.

The Campaign clocked up the following achievements (2003 – 2008) across nine Local Governments:

- 189 water management actions implemented
- 636 000 kilolitres saved during the reporting period
- Annual cost savings of $311, 844 between July 2006 – July 2008
- 365 Water Quality points awarded through the ICLEI evaluation process to water quality management actions (PHCC, 2009b).

In the words of one Board member:

> *"I think one of the key successes was that it (the Water Campaign) embedded water savings and quality issues into local government every day activities – e.g. the City of Mandurah employed a full time permanent 'groundwater officer' as a result of this project.....that's 3 full time permanent positions that have been embedded into the (City) organisation projects starting from PHCC projects. This project also bought together networks within the local governments to work on like projects and share experiences/project outcome. And it continues within the Local Governments even without the PHCC supporting it."*

The PHCC Water Campaign project was a finalist in the United Nation's of Australia World Environment Day Awards 2009 and was the first catchment in Australia to develop and work on a catchment module for the Campaign.

[1]ICLEI is the International Council for Local Environmental Initiatives.

8.2. Water Sensitive Urban Design

The PHCC has taken an active role in Water Sensitive Urban Design (WSUD) given the impact that urban development has on the catchment's water resources and the state of its rivers and estuary.

By 2003/04, the PHCC had developed an acute understanding of the importance of assisting Local Governments with WSUD. Both the Federal and State Governments were emphasizing the importance of WSUD, but providing relatively little practical assistance to Local Governments to adopt the new approach to drainage. PHCC staff had already been closely involved in the development of the "Peel-Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines" with PDC, which were released in 2006.

In response, the PHCC developed a project to assist coastal plain Local Governments to implement the WSUD Technical Guidelines. This involved working with five Local Governments to adopt a WSUD Local Planning Policy (LPP) as outlined in the Technical Guidelines and assists them to apply the policy to new developments. The Local Governments of Mandurah, Serpentine-Jarrahdale and Waroona had adopted the LPP by the end of 2009.

The impact of the Water Campaign and WSUD work with Local Governments has meant that they have placed greater attention to the issue of sensitive stormwater design in new developments. It assisted coastal catchment Local Governments to retrofit old drainage infrastructure. It also led to the development of a self-drive tour, with the help of developers, to enable the land development industry, local councillors and others to see examples of water sensitive design in the field.

At a state level, PHCC leadership on this issue can be seen in the Better Urban Water Management framework and the New WaterWays program.

8.3. Ramsar Initiative

After consistently advocating to Government the need to better manage the 26 000 ha Peel-Yalgorup Ramsar Site, the PHCC secured funds in 2005/06 to raise awareness of Ramsar and ultimately produce a Management Plan for the Site.

Ramsar Sites are wetlands of international importance and the Peel-Yalgorup System (Ramsar Site 482; Australian Ramsar Site 36) listing protects the Peel-Harvey Estuary, the lands and waters (10 lakes) of Yalgorup National Park, and Lakes McLarty and Mealup and surrounds, and will be include Goegrup and Black Lakes in the future. The protection of Ramsar Wetlands is essentially an Australian and State Government responsibility. Impacts on the ecological character of the Peel-Yalgorup Ramsar Site can invoke the Environment Protection and Biodiversity Conservation Act 1999 as a Matter of National Environmental Significance.

The initial investments were by the Australian Government ($70, 000), PDC ($30, 000), and DEC ($10, 000). The PHCC Board members and staff, as well as local community groups, contributed significant time before and during the project. These investments and subsequent funding through to 2008/09 (e.g. Project WH.03c *Peel Yalgorup Action Plan and Goegrup Black Lakes* on ground works) enabled the PHCC to coordinate preparation of the Management Plan (PHCC, 2009d) and the *Ecological Character Description* (Hale & Butcher, 2007). Funds have also been used to conduct on-ground management works (rehabilitation, weed control, fencing for habitat protection) and support DEC with management of a number of wetlands in the Ramsar site.

On a stifling summer's day in February 2004, a project planning day was held at the City Of Mandurah. A strong directive of the day from Jan Star to Kim Wilson was to conceive a strategy (and funding application) to develop a Management Plan for the Peel-Yalgorup System. This started with a focus on awareness raising and understanding of the technical aspects whilst bringing key stakeholders together and then 'matured' into the development of the

Ecological Character Description of the Peel-Yalgorup Ramsar Site[2] (Hale & Butcher, 2007). In July 2009 the Peel-Yalgorup Ramsar Site Management Plan was completed. This timeframe and the series of projects as listed below illustrate the technical and resourcing challenge that was overcome through persistence and partnerships.

Significant achievements of the Ramsar Program have been:

- The *Ramsar listed Peel-Yalgorup System - Developing a Management Plan* (Project - W5-11/ SWCC IP 1 - C. Perry)
- Listing of the Lake Clifton thrombolites under the EPBC Act 1999 (nominated by the PHCC – A. Willmott, J. Star - with assistance from DEC – J. Pryde)
- The P*eel-Yalgorup System: Management and Monitoring of a Ramsar Listed System*; (1/01/2009 - 30/06/2009 - CfOC, 2008-09 Transition Year Project, 4.06 Amanda Willmott)
- Production of a shorebirds documentary DVD (A. Willmott)
- *Rehabilitation Projects at Lake Mealup & Eastern Estuary* (Project CC082614)
- *Waterbird Counts and Monitoring* (Project CC082614)
- *Implementing the Peel-Yalgorup Ramsar Management Plan: a Priority Coastal Hotspot* (CC082614; Coastcare-Amanda Willmott/Liz Bonner)
- *Installation of Ramsar signage and interpretation materials around estuary* (C. Perry; The Ramsar listed Peel-Yalgorup System - Developing a Management Plan Project - W5-11/ SWCC IP 1)
- *Access control and gates – eastern estuary* (Project CC082614)
- *Fringing vegetation mapping and monitoring* (Project CC082614).

Funding partners on the Ramsar Initiative have been the Australian Government, City of Mandurah, Peel Development Commission and Department of Environment and Conservation. The collaborative approach and breadth of contributions are perhaps best illustrated by the fact that 27 stakeholder groups/agencies were represented on the Ramsar Technical Advisory Group (TAG).

A description of the PHCC Ramsar Initiative cannot go without mentioning the insight and vision of Jan Star. Despite its listing in 1990, the complex physical and governance characteristics of the System meant that the preparation of a Management Plan was complex and no Management Plan existed.

The PHCC's work on the Peel-Yalgorup Ramsar Site has been one of the stand-out achievements of its first decade. It is an example of the PHCC's leadership qualities, ability to bring different organisations together, and attract investment to the region. It is also an example of how the PHCC was able to deliver projects which are firmly based in science and complex technical issues, undertake on-ground works and on-going monitoring.

The Ramsar Initiative funding continued until June 2011, with work to coordinate implementation of the Management Plan and Monitoring Guide (Hale, 2008) completed. Two of the ongoing issues are the funding of coordination of Ramsar Site Management, and consolidation of the relationships between DEC and PHCC to ensure the Ramsar Site receives the protection and management worthy of its international importance.

[2]One of the first ECDs in Australia developed in accordance with the draft National Framework and Guidance for Describing the Ecological Character of Australia's Ramsar Wetlands.

The Thrombolites, or living rocks of Lake Clifton; one of the features of the Peel-Yalgorup Ramsar Site.

9. Key Relationships and Collaborations

Collaborative work is essential to NRM and many aspects of modern business. However, for the PHCC it has come into its own as the organisation aims to modify behaviours, practices and standards. There have been very few, if any, projects, which the PHCC has undertaken in isolation and so the following examples are just that ... examples.

9.1. Australian Government and SWCC

The PHCC has maintained a strong, broad relationship with SWCC for all of its first decade. This has included the PHCC assisting the SWCC to develop its Regional Strategy, and SWCC enlisting the PHCC's services to deliver projects, which addressed regional priorities between 2005 and 2008. Over this same time, SWCC has provided administrative support to the PHCC in the form of corporate templates (e.g. contracts and other systems). In this period they also purchased outputs from the Executive Officer, which provided core funding for the position.

However, it is a relationship that was somewhat formed under circumstances created by Government, namely the regionalisation of NRM and the channelling of funding through NRM Regions. The same political pressures have meant that the SWCC cannot directly fund the PHCC, and from time to time, has made it difficult for the PHCC to deliver services to the SWCC. .

PHCC is represented on the overarching SWCC Association and continues to be represented by SWCC. SWCC also uses PHCC's relationships with the community to deliver on-ground projects within the catchment. It is probable that in the future the Peel-Harvey Catchment may be designated as an independent NRM region and the good working relationship with SWCC will need to be symbolically enshrined into that outcome.

9.2. The Department of Water

The Department of Agriculture and Food was integral in building the community's NRM capacity in the 1990s; many of our key volunteers and partners first became involved at this time. However, it is the relationship with the Department of Water (DoW) that has enabled the PHCC to grow over its first decade and work constructively with other State Agencies and provided a home for the PHCC between 2005 and 2009. This partnership has never been formally established, but it is forged through the common objectives of the DoW and PHCC, namely to manage and improve the condition of the estuary and catchment's rivers, wetlands and habitats. Perhaps the strongest lesson here is the importance of close, effective working relationships between key players.

Between 2005 and 2009, the DoW and PHCC worked closely together to build a common home, the Peel Waterways Centre, which provided a physical place for collaboration, public workshops, and building of corporate knowledge.

Over the decade, numerous on-ground and technical projects have flowed from the relationship, including River Action Plans (RAPs), works to manage the lower Serpentine and Murray Rivers, the Marine Habitat Enhancement Project, water quality monitoring, membership of PHCC and numerous steering committees, not to mention Bob Pond's skills in assisting to select quality NRM Officers.

As a sign of the maturity of the relationship in 2009/2010, the DoW contracted the PHCC to deliver a $1.2 million project to implement some of the actions recommended under the Peel-Harvey WQIP. This project, *Filtering the Nutrient Storm* (FNS) was developed with the help of the PHCC. The initial FNS project was successfully delivered in 2010-2011 with a follow-up contract, with funding from the Caring for Our Country program undertaken in 2011.

9.3. Peel Development Commission (PDC)

The relationship between the PDC and the PHCC is considered to be another of the special collaborations that helped the organisation achieve much over its first decade.

As it was stated by one former PHCC employee:

> *"They (the PDC) took us on as the third leg of their tripod to achieve their triple bottom line. They didn't have to do that, they could easily have relied solely upon the State agencies..... However, they were brave in selecting the PHCC as an NGO body to be their environmental partner and I think that helped both parties. It certainly gave the PHCC a status to assist in our dealings with other parties particularly State agencies and Local Governments. And it was through that partnership that we assisted with achieving a documented view of where the whole Peel community wants to be in the future...."*

The basis for the importance of the PHCC's role in the catchment is captured in the Peel Development Commission Strategic Plan, Building a strong future for the Peel, 2009 to 2014 which states:

> *"The Peel is defined by our internationally-recognised waterways and wetlands. The Region is recognised under international treaties as the most important site for waterbirds in south-western Australia. The importance of our waterways to our economy is established."*

Through the PDC-PHCC relationship, shared or collaborative projects included the Water Sensitive Urban Design Technical Manual and Local Planning Policy, the environmental aspects of Peel 2020, the Peel Waterways Institute feasibility study, the Peel-Harvey Governance framework proposal and the *Peel Climate Change Adaptation Project.*

The relationship with the PDC has provided the PHCC with an opportunity to politically advocate for the catchment, independently from any State Government agency. That included, for example, the PHCC Chairperson and Executive Officer being part of the PDC organised delegation to Canberra before the 2007 election, where major concessions were achieved.

9.4. Other State Government Agencies

Through its first ten years, the PHCC developed strong working relationships with each of the other agencies with NRM responsibilities – Department of Environment (DEC) and Conservation and Department of Agriculture and Food (DAFWA). The noticeable exception was the failure to harness a strong relationship with the Department of Planning (DPI). This is now changing, and new working relationships are being forged with the state's lead planning department.

Since 2000, State Government partnerships have moved from the strong informal partnership with the DAFWA (pre-2000), to the critical partnership that has existed over the first decade, and continues to exist, with the DoW (and its predecessors).

The partnership with the DEC continues to build primarily through the delivery of Ramsar projects, commencing in 2005 and continuing to the present day. However, this relationship needs to continue to grow before it could be labelled a full partnership; a lack of resources (time and money) for both parties is primarily the limiting factor.

Partnerships with State Government agencies often depend on the individual officers involved who have contributed their time, expertise and commitment to the PHCC's objectives. Key contributions have been from Bob Pond and Leon Brouwer (DoW), Rob Summers (DAFWA), Neil Guise (DAFWA), Murray Love (DEC), Craig Olejnik (DEC), Colleen Yates (PDC) and Maree deLacey (PDC).

9.5. Local Governments

Another of the signature partnerships for the PHCC over the first decade has been to provide critical mass to the vital, but often isolated, issues of Local Government. This has been built through projects such as the Water Campaign™, and the Water Sensitive Urban Design initiatives. It has also been indirectly supported through the PHCC's special relationship with local landcare centres and the 'sponsorship' of employees and projects by the Local Governments. They showed a strong enacting role for the community; especially in the period of the 1990's to 2005 when all major on-ground projects were run through the community with the support of Landcare Centre-based officers. The LG's role has continued and matured within NRM with the appointment of various NRM and Environmental Officers. Their support for community NRM through the provision of facilities, employment services and project participation and funding continues and is a vital contribution.

For the PHCC, forming partnerships with Local Government is made challenging by the fact that most of the Local Governments are also significantly under-resourced. However, opportunities have arisen where the Local Government needs assistance to deal with an environmental issue which is of clear interest to its local community. Water and environmental restoration are two such issues.

In its first decade, the PHCC has formed strong working relationships with most local governments in the catchment through offering tangible support and technical advice. This has come in the form of projects such as the Water Campaign™, Water Sensitive Urban Design, Rivercare or funding opportunities such as Groundworks. It has also involved forming strong working relationships with both elected members and Council staff with PHCC providing a non-partisan advocacy and a voice to common issues on behalf of cross-council problems.

9.6. Catchment Landcare Organisations

Many of the achievements of the first decade can be attributed to the strong working relationship between the PHCC and the landcare centres that existed within the catchment. This relationship was formed partly out of the historical context and partly because of the benefits of working through district-level centres. As a sign of a true partnership, both parties have benefitted from the relationship at different times.

The benefits of working with landcare centres include direct contact with local landholders and community leaders, access to a rapid network of knowledge and expertise and ability to deliver on-ground projects efficiently. This was of great benefit throughout the PHCC's first decade and is a clear implementation of the subsidiarity principle.

On the flip side, local landcare has benefitted from the PHCC as the main conduit for funding between 2003 and 2008, thus reducing the load on the volunteer community-management groups to professionally apply for, and acquit, funding.

The main landcare centres in the catchment over the first decade were:

- Serpentine-Jarrahdale Community Landcare Centre (located in Mundijong; still in operation)
- Crossing the Boundaries Landcare Centre – (Waroona; still in operation, though *Crossing the Boundaries Project* concluded in 2005)
- Hotham Catchment Landcare Centre (Wandering and then Boddington; now in recess)
- Williams-Narrogin Landcare Centre (Williams, closed).

Each of these landcare centres worked with a number of community groups, including one or more Land Conservation District Committees.

At the beginning of the first decade, local landcare communities were strongly supported by Governmental funding programs and policy such as the Decade of Landcare and the Natural Heritage Trust (NHT).

The staff in local landcare centres played an important role in the early years of the PHCC (2001 – 2003) providing the expertise and knowledge to enable the PHCC to contribute to the development of the SWCC Regional NRM Strategy. By the end of 2002, these same staff were as much involved in regional level processes (SWCC and PHCC) as they were in supporting catchment management at the local level.

With the revamping of NHT into NHT II in 2002 came the move towards regional bodies and the regional delivery model, shifting the distribution of funding away from direct funding of local landcare centres. This meant that local landcare officers could no longer be directly funded to achieve local priorities and needed to more directly meet the objectives of SWCC and PHCC.

NHT II provided funding to local landcare centres was significantly reduced and this made it difficult for the centres to provide any job security to expert and valued staff. SWCC endeavoured to ensure the continuity of Community Landcare Co-ordinators/NRMOs through entering partnerships with Local Governments to share the funding of positions or at least portions of FTEs.

The change to the funding also made forward planning extremely difficult. However, the PHCC was the major conduit through which the local landcare centres continued to receive funding such as by sub-contracting projects to local landcare centres, such as the *Priority Remnant Vegetation Project* or the *Dryandra Woodlands Project*.

With the advent of Caring for Our Country in July 2008, no further funding was directly distributed to the PHCC or local landcare centres. This was a significant blow to the momentum and body of expertise that had developed at the local and sub-regional levels. It was also a complete and unwarranted abandonment of the regional delivery model which had been built up over the preceding six to eight years.

9.7. Local Level Groups

Through its projects, the PHCC has been able to assist a number of local groups, including a number based round the Estuary, Ramsar Site and Lower catchment. Examples include the Friends of Rivers Peel, Friends of Ramsar Action Group for the *Yalgorup Lakes Environment (FRAGYLE)* and the *Lake Mealup Preservation Society* (LMPS).

9.8. ICLEI

ICLEI, the *'International Council for Environmental Initiatives',* works directly with Local Governments worldwide on strategic environmental programs. One of these programs is the Water Campaign™, which aims to conserve water and improve the condition of receiving water bodies. Discussions between ICLEI and PHCC in 2002 led to the first trial of the Water Campaign in Western Australia commencing in early 2003. Nine of the Local Governments in the catchment participated in the Water Campaign™ between 2003 and 2008. The Water Campaign™ and went onto become a state program through WA Local Government Association and the Water Corporation (See also Water Campaign™ Section 8.1).

9.9. Greening Australia

The PHCC's relationship with Greening Australia WA (GAWA) has enabled the delivery of the Peel River Recovery Project and the Pinjarra Wetland Restoration Project. These projects were managed by GAWA's River Recovery Coordinator Peel, Thelma Crook. Thelma brought a wealth of local knowledge, the community's respect and

established relationships to the role. Her expertise also supported a number of other PHCC projects and ensured high standards of revegetation and bushland management were achieved.

Greening Australia WA has also provided training and support to Landcare Centres and others to use the Conservation Action Planning tool developed by the Nature Conservancy.

9.10. Alcoa

Alcoa mines bauxite in the Jarrah forest portion of the catchment and refines its product at Kwinana, Pinjarra and Wagerup. It has had a long association with catchment management in the Peel-Harvey and provided much needed funding for on-ground works to restore the environment between 1989 and 2001 through its *Rivers, Wetlands and Habitats* program. This program had a strong community focus, with local landcare centre staff helping landholders and community groups develop projects for potential funding under the program. Funding guidelines for the program had been developed through trial and error by the LCDCs during the 1990s. Each LCDC then presented their 'bid' at the assessment evening where a community panel reviewed the projects and allocated funds.

The *Rivers, Wetlands and Habitats* system was quick and efficient. Applications opened each year in July, when the rains means people start thinking about planting, they closed in August and the assessment dinner was held in September. The groups knew on the spot if they were successful. The timing was ideal for placing seedling orders and planning for site preparation and fencing in the following year. This model was used for the establishment of community funding allocations when the Harvey River Restoration Trust was established[3].

Alcoa invested $200,000 annually in the *Rivers, Wetlands and Habitats* program, all of which was spent on-ground. Volunteers and NHT funded support officers provided their advisory and administrative services free-of-charge. Each of the five LCDCs (Serpentine-Jarrahdale, Dandalup-Murray, Coolup, Harvey River – originally Meredith-Uduc – and Wellesley) received an indicative allocation of $25,000 per bid. The Peel Landcare Group was also involved. The balance of funding went to individual community groups and special request projects such as the catchment-wide fox and rabbit baiting. It was this program through which the *Peel-Harvey Landcare Landscapes Steps to Success Building on Past Revegetation Experiences* booklet, maps and tour guide was developed.

Alcoa has also worked with PHCC staff, Greening Australia and the Shire of Murray to restore a wetland and creek near its new offices in Pinjarra.

The PHCC has been an advocate for the broadscale use of Alcoa's by-product, Alkaloam on the catchment's sandy coastal plain soils. This product has been proven to be effective at increasing pasture growth rates whilst significantly reducing nutrient loss, especially soluble phosphorus, from paddocks and increasing soil pH. Unfortunately, public concerns over safety have been fuelled by questionable reporting in the media and the product is not, at present, commercially available. An independent review of the effectiveness and safety of Alcaloam was undertaken by the Centre for Sustainable Resource Processing in 2008 (Alcoa, 2010 – website). The product has been deemed safe by all studies. Alcoa has been indemnified by the State government and it is approved for commercial use by the Environmental Protection Authority (although there is no clear approvals process). Its use, in accordance with a Code of Practice developed by the Department of Agriculture and Food, is supported by the Peel-Harvey Catchment Council.

[3]See Water and Rivers Commission report WRP14.

10. Co-ordination and Facilitation

10.1. Peel-Harvey Water Quality Recovery Program

This ambitious program (developed in 2005/06 and delivered between 2006 – 2008) with funding by SWCC was not just the Catchment Council's response to the emerging WQIP recommendations, it was an indication that the PHCC had entered a new, more sophisticated phase of operation. The program was designed as a multi-faceted program and had significant technical, collaborative, construction and educational components.

The program, affectionately known as WQ01, was designed to deliver on several management measures identified through the Coastal Catchments Initiative (CCI) program which would later become recommendations of the Peel-Harvey WQIP. The $1.06 million program had four major components:

1. A Decision Support System (DSS) and Monitoring (WQ01a) to model water quality impacts of land use change and management options across the catchment. This included working with the Department of Water modelling experts to improve use of the model (LASCAM/SQUARE) in the Peel-Harvey

2. Development of Water Quality Improvement Plan for Nitrogen (WQ01b). This component was not progressed due to time delays with development of a new water quality-land use model, development of WQIPs in other catchments and limited financial resources. An assessment of nitrogen pollution levels has subsequently been addressed by the DoW (Kelsey *et al,* 2011). It was the only example of a funds being returned by the PHCC to SWCC over the First Decade

3. Rural Drainage, including:

    a) Research and report by Drainage Research Officer, Jesse Steele, *"Management of diffuse water quality pollution in the Peel-Harvey Coastal Drainage System. A strategic approach to implementation of Best Management Practices"* (Peel-Harvey Catchment Council, 2008a)

    b) Establishment and assessment of use of perennial pastures to decrease nutrient loss from paddocks.

    Urban Drainage WQ01d. This included:

    c) Water Sensitive Design Tours of WSD installations across the coastal catchment, including the creation of a Water Sensitive Design Self Drive Tour brochure; this attracted professional planners and engineers from industry and Government

    d) Working with Local Governments to ensure adoption of the WSD Local Planning Policy and implementation of WSD drainage

    e) On-ground works to retrofit stormwater drains using WSD approaches at:

        i. Pinjarra wetland in the Shire of Murray

        ii. Installation of retrofits including gross pollutant traps (e.g. Cantwell Park)

        iii. Thatcher Street retrofit project, Shire of Waroona.

These stormwater retrofits were significant, collaborative efforts in their own right with funding provided by SWCC, Australian Government, Shire of Murray, Shire of Waroona, Alcoa, Pindan and Greening Australia.

An independent expert audit of the program in 2009 by consultants URS to SWCC concluded:

> *"Four components were initially funded to deliver on several management measures contained within the WQIP-P. One, the development of a Nitrogen version of the WQIP did not proceed. The evaluation found that the other three components have successfully delivered on their objectives. At the outset the Program Managers recognised that improving water quality in the rivers and estuary of the Peel-Harvey system would require a long-term approach and commitment of some 30 years or more. The projects that have been completed with the funding provided by SWCC represent one small component of the overall effort required.*
>
> (URS, 2009).

Overall, the program involved the PHCC working with a wide variety of external and internal professionals and volunteers and provided important foundations for the PHCC and catchment.

10.2. Peel-Harvey Governance Framework

The lack of a formally constituted and recognised body with responsibility for the catchment has been a significant barrier to implementing key policy reforms. Similarly, there is no recognised body for estuary management though DoW takes on a primary role through their *Waterways Conservation Act* responsibilities.

In 2006, the opportunity arose to discuss proposals for such a body with the then State Labor Government. This was in large part a logical progression of the development of the Peel-Harvey WQIP and the need to create a framework to implement its recommendations. Fortunately, the then State Government was prepared to consider the establishment of such a body.

Initial discussions were held by the PHCC Chairperson Jan Star and Executive Officer, Damien Postma with the Chairs of the EPA and WAPC, and early proposals were developed by staff of the DoW. Board minutes show that Jan Star and Damien Postma met on as number of occasions with key people in the EPA, WAPC and ultimately with Ministers to progress the proposal. Collaborative efforts with the PDC were an important part of this work.

Following a Ministerial briefing where issues were raised by the Minister for Planning, the PHCC worked to refine the preferred model with professional land use planning advice from Brian Curtis. A final draft governance model was presented to agency heads and Cabinet in mid-2007. The draft model was never made public and by September 2008 a new Liberal-National State Government was elected. No further progress has been made on the governance framework.

Today, the need for a formal governance body, whether statutory or advisory, with formal links to Government and adequately resourced, is as great as ever. A summary of the main features of the governance model proposed in 2007, including formation of a Peel-Harvey Water Quality Improvement Council is included in Appendix 2.

The formation of a governance framework for the catchment has again been recommended as part of the Science Strategy for the Estuary (Rodgers *et al*, 2010).

11. Catchment Advocacy

Advocacy is an important part of the role of any non-government organisation. In the Peel-Harvey, this has included increasing the profile of the Peel-Harvey Catchment, both within the catchment and at strategic and policy level. It has also involved raising awareness of the specific threats and opportunities in the region.

The PHCC's catchment advocacy role is illustrated through three main areas of activity.

Firstly the PHCC, since 2001, has consistently advocated the recognition of the Peel-Harvey Catchment as a region in its own right. This advocacy has been most noticeable in dealings with the State and Federal Governments in regard to the NRM regional delivery model. However, the merits of the 'Peel-Harvey Region' campaign are deeper than that and would enable Govenrment to focus attention and resources at a scale appropriate to the catchment's needs.

Secondly, the PHCC has consistently and professionally put forward submissions and comments to Government and industry in relation to development proposals and the protection of the Catchment. This includes proposals for land development, mining, government projects, native vegetation clearing and restructures and reviews of NRM. Some of the most noticeable referrals, comments and submissions have been in relation to Point Grey, Keralup (Amarillo), Preston Beach, Nambeelup, and New Perth-Bunbury Highway (originally known as the Peel Deviation; now officially named the Forrest Highway).

Given the high level of resources this role requires, the PHCC moved in 2008/09 to develop a set of standard positions on land development. This report was completed in June 2010 and remains in draft form.

Thirdly, and on a more proactive basis, the PHCC has represented the catchment's natural values positively through the projects it delivers, particularly Ramsar, biodiversity and water. A highlight achievement was the successful nomination of the Lake Clifton Thrombolites as a Threatened Ecological Community (TEC) by the PHCC's Amanda Willmott and Kim Wilson with support from Jan Star. This means the Thrombolites[4] are now listed as a *critically endangered* threatened ecological community and are a Matter of National Environmental Significance. Any action potentially affecting these assets may be referred for national consideration under the EPBC Act and also enables more funding opportunities.

There have also been numerous other efforts to influence land use and natural resource planning at a high level. Jan Star and PHCC advocated strenuously and effectively for advanced assessment of the coastal plain to the east of the estuary. This eventually evolved into the "State of Play" report commissioned by the Department of Environment. Another example is the PHCC's submission on the State Government's Direction 2031 and Beyond Strategy – planning for the long-term development of the Perth and Peel regions (WAPC, 2010).

[4]Thrombolite (microbialite) Community of a Coastal Brackish Lake (Lake Clifton)

12. Technical Initiatives

Good science, technical analysis and adaptive management are foundations of quality NRM and have played an important part in many PHCC initiatives. Examples of projects which had large technical components include the Biodiversity Decision Support System, Hotham Salinity Project, development of a Science Strategy for the Peel-Harvey Estuary and Project WQ01's Rural Drainage component.

The following provides an overview of a selection of PHCC projects which have had large technical components.

12.1. Biodiversity Decision Support System (DSS) Project

Launched on the world-wide-web in July 2004 and officially in November 2005, this web-based information resource provides a review of vegetation changes in the catchment for any period of time between 1990 and the present year. The genesis of the project was a meeting between Andrew Del Marco, Cathy Lyons and Kim Wilson. Andrew and Cathy are strong advocates for the contribution privately-owned bushland and wetland make to the region's biodiversity values and ecosystem services. These natural areas were not captured within existing data bases which are populated with data from Crown Land, mainly DEC reserves.

The Biodiversity DSS Project has provided an important legacy for the catchment. The Project was led by Dr Peter Hick, and managed by Kim Wilson and Ian Wight-Pickin and involved three main outputs:

1. A web-based mapping and spatial information toolbox which can be used to monitor changes in perennial vegetation
2. An associated biodiversity report
3. Training for PHCC staff as well as the catchment's volunteers and professionals.

The elegance of this project is that it used existing proven technology in the State Government's Land Monitor (satellite imagery) system, and applied it to track changes in perennial vegetation in the catchment. Understanding changes in the extent and condition of vegetation is one of the key targets sought by the EPA and helps establish changes in vegetation cover over time.

The same approach was subsequently used by the South West Catchments Council and the Swan Catchments Council. It is a great example of applying a proven technology to a different problem to achieve the desired outcome at a very low cost. The DSS Biodiversity Toolbox web address is http://landmonitor.dli.wa.gov.au/peel-harvey.asp. Username: phdss_guest; password: Semuha211638.

12.2. Science Strategy for the Peel-Harvey Estuary

This project, 'Development of *A Science Strategy for the Peel-Harvey Estuary'* was funded by PHCC, DoW and Development and Better Interest fund (DBIF) grant. The project has resulted in the release of a strategy[5] which sets out the science program needed to underpin proper management of the Estuary over the next 10 years and beyond. The report was borne out of discussions that the PHCC had with universities in 2008/2009, which ultimately developed into collaboration with the Centre for Fish and Fisheries research at Murdoch University.

The report a *'Science Strategy for the Peel-Harvey Estuary'* demonstrates the importance that the PHCC places on using science to base natural resource management (Rodgers *et al,* 2010).

[5]Rogers P., Hall, N. and Valesini F., 2011, Science Strategy for the Peel-Harvey Estuary, Prepared for the Peel-Harvey Catchment Council July 2010, Centre for Fish and Fisheries Research, Murdoch University, Murdoch Western Australia

12.3. Rural Drainage

The role played by the extensive network of drains on the coastal catchment has caught much of the attention of the PHCC over its first decade. The drains deliver water and nutrient pollution to the Estuary, and may be able to be managed to reduce the amount of nutrients entering the Estuary.

The PHCC brought the need for rural drainage reform to the attention of a number of government instrumentalities over the first decade, including the Office of Water Regulation, Water Corporation, Auditor General, and State NRM Council. The Catchment was also made a case study as part of the State Government's Drainage Reform Group in 2004 and actively participated in the Department of Water's Coastal Drainage program (2006 – 2009).

The complexity of the rural drainage issue, the real or perceived financial implications, and the reluctance of successive governments to act on this issue have been major factors preventing significant reform in this area.

Despite this, the PHCC initiated two important technical drainage initiatives in its first decade, culminating in the following reports:

- Management of diffuse water quality pollution in the Peel-Harvey Coastal Drainage System. A strategic approach to implementation of Best Management Practices" (Peel-Harvey Catchment Council 2008a)
- Drainage Reform Plan: Peel Harvey Coastal Catchment: Volumes 1 and 2 (Del Marco, 2007).

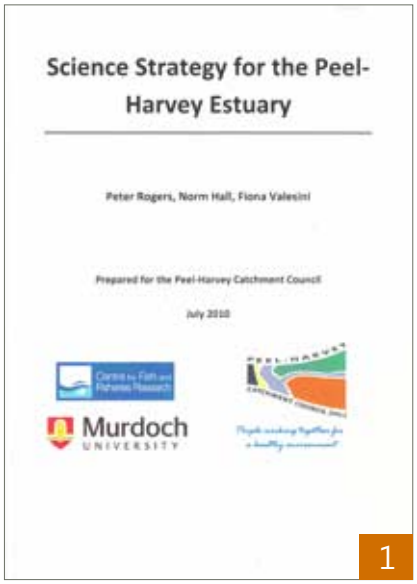
The former report, prepared by Drainage Research Officer Jesse Steele, with the support of Dr Rob Summers of the Department of Agriculture and Food provides a thorough basis for the continuation of drainage buffer management on farms and minor order drains. These best management practices include fencing for stock control, revegetation with indigenous species, and use of perennial pastures.

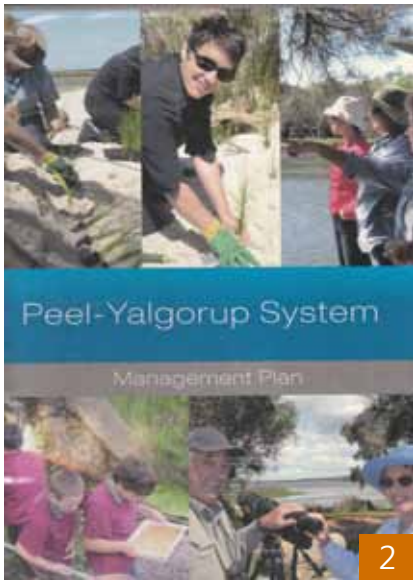
The Drainage Reform Plan collated best management practices for the range of drain types, including middle order and large gazetted drains currently managed by the Water Corporation (Del Marco, 2007).

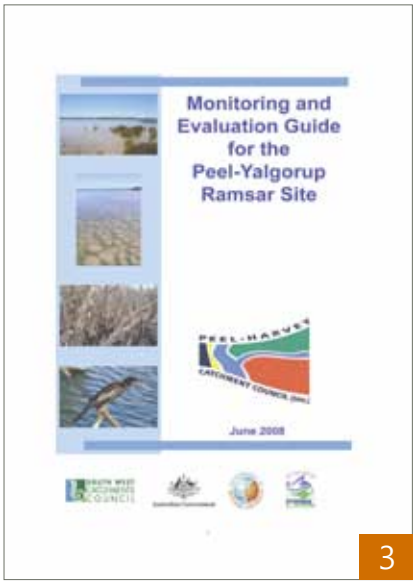
Further technical studies are likely to be part of future campaigns to make rural coastal drainage more catchment friendly. However, most rural drains in the Catchment are licenced to the Water Corporation and neither Government nor the Corporation have been particularly eager to change the conditions of licence to manage the drainage water resource more wisely. It will take significant public pressure, or a crisis, to re-open the debate on rural drainage reform.

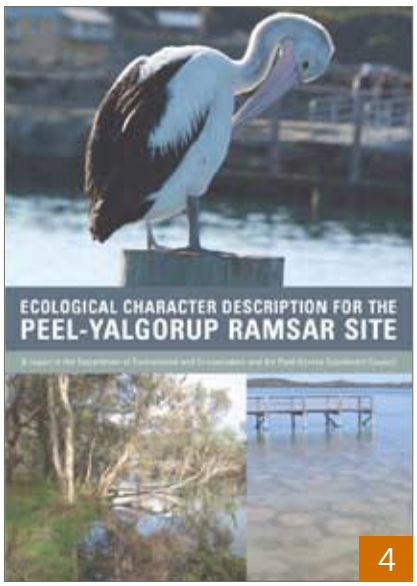
Table 1: Major PHCC Publications 2000 - 2010

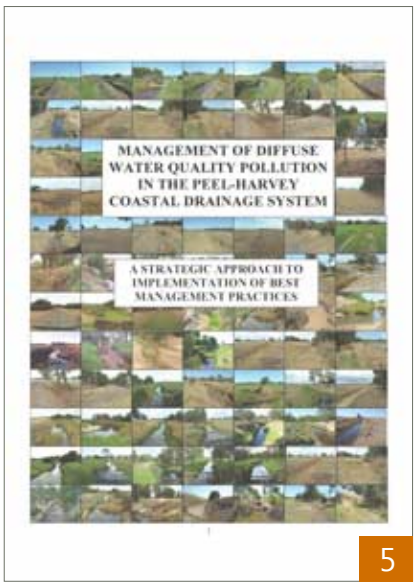
	Publication Title	Prepared by/for the PHCC	Publication Date
1	Science Strategy for the Peel-Harvey Estuary	P Rogers; N Hall; F J Valesini	2010
2	Peel-Yalgorup Management Plan	PHCC	2009
3	Monitoring and Evaluation Guide for the Peel-Yalgorup Ramsar Site	J. Hale	2008
4	Ecological Character Description for the Peel-Yalgorup Ramsar Site	J. Hale & R. Butcher	2008
5	Management of Diffuse Water Quality Pollution in the Peel-Harvey Coastal Drainage System	J. Steele (& R. Summers)	2008
6	Drainage Reform Plan: Peel-Harvey Coastal Catchment, Vol 1: Policy and Governance Discussion Paper	Ironbark Environmental	2007
7	Peel Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines	Peel Development Comm	2006
8	Peel-Harvey catchment natural resource management plan	Land Assessment Pty Ltd	2005
9	2002-2007 action plan for natural resource management	PHCC	2002
10	Peel-Harvey Landcare Landscapes	PHCC	2000
11	The future of natural resource management in the Peel-Harvey Catchment: a paper for discussion and resolution by the Peel-Harvey community	Peel-Harvey Officer's Group	2000

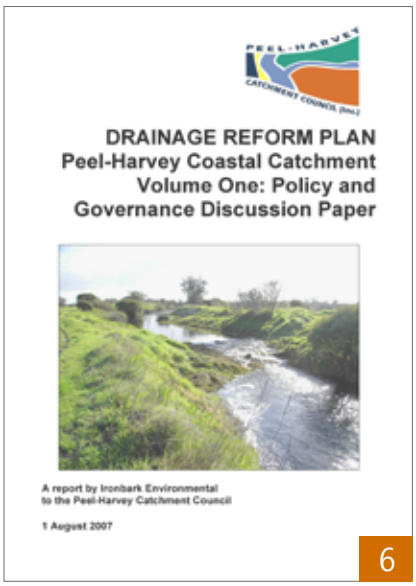


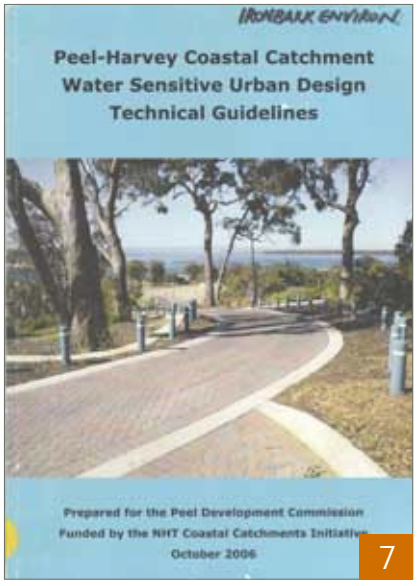


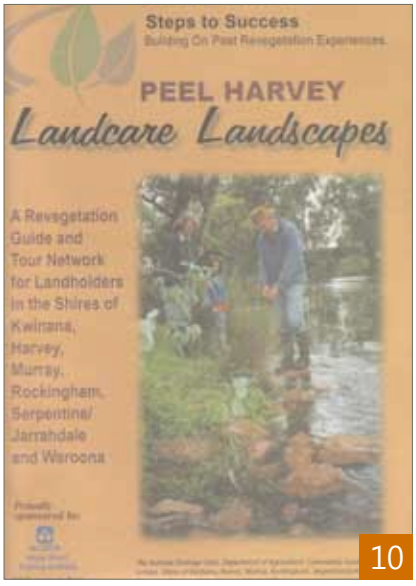












Cover Pages of Major PHCC Publications (2000-2010).

13. Project Facilitation and Implementation

13.1. Rivercare Program and Other Projects to Restore Watercourse Health

Managing the catchment's rivers, creeks and drains for water quality improvement and ecological function have been two important PHCC objectives over the decade. Figure 4 shows the severity of the problem, with most of the catchment's watercourses on the coastal plain and upper Murray River catchment being classified in a degraded condition (Bosveld, 1997). Various programs and projects have been delivered by the PHCC to achieve these two objectives, and these are best illustrated by the Rivercare Program (2003 to 2009) and the work of the Harvey River Restoration Taskforce (HRRT) (2003 to present).

The Rivercare Program formally operated in the catchment between 2003/04 to 2008/09 and in terms of budget was the PHCC's largest project over the first decade ($2.11 million). Some of the achievements of the Rivercare Program and related projects were:

- 2003-2008: Works at 48 waterway sites including riffle constructions, stock crossings or other erosion control works
- 2004/05: 30 ha of riparian restoration and revegetation
- 2005/06:
  - 49.5 ha of riparian area fenced and protected
  - 100 ha of riparian vegetation rehabilitation, 2.5 km of stream bank stabilised
  - 28 ha of riparian revegetation
  - 28 voluntary agreements signed with landowners to protect 314 ha of vegetation or revegetation.
- 2007/08:
  - Gordon McLarty River Restoration project, including fencing for 4.2 km of river protection (Murray River and Marrinup Brook), eight riffles, one rock chute, one riffle stock crossing, and one flat rack bridge
  - Marrinup Brook headcut remediation
  - Bank stabilization work on the Lower Murray
  - Pinjarra Wetland Project – proposed name 'Morni Kep (Black Water) Park'
  - Lower Harvey River riffle installation (HRRT project supported by PHCC)
  - Bancell Link planting and Nell's Block project (HRRT projects supported by PHCC).

The work at Gordon McLarty's property was nominated, and was subsequently a finalist in the United Nations of Australia Association World Environment Day 2009 Award.

Whilst the HRRT is not a PHCC-led project, the collaboration between the HRRT and PHCC has attracted significant additional funding for the Coastal Catchment. HRRT funds were used to attract matching NHTII and NAP funds to establish the PHCC's Rivercare Program. This enabled the employment in 2003 of the Rivercare Officers, Alex Hams (Murray River catchment) and Jesse Steel (Harvey River) and then in time the City of Mandurah's Foreshore Restoration Officer[6], Shane Kearney.

[6]This position subsequently became a position fully funded by the City of Mandurah.

During this period there was significant capacity built through the on ground activities implemented. Alex's role evolved overtime and he became the Rivercare Program Manager. As Jesse moved into the Drainage Research role in 2005 he shared the HRRT role with Craig Perry[7] . When Jesse moved fulltime into his new role, and Craig returned to the City of Mandurah John Eyres was recruited into the HRRT position. John was replaced by Lara Suitor and in March 2008 Jane Townsend joined the team as the HRRT Rivercare Officer.

Minister for the Environment, Hon. Judy Edwards (2001 - 2006) with Rivercare Officers Alex Hams and Jesse Steele.

[7]Craig was also working on the first Ramsar project at this time

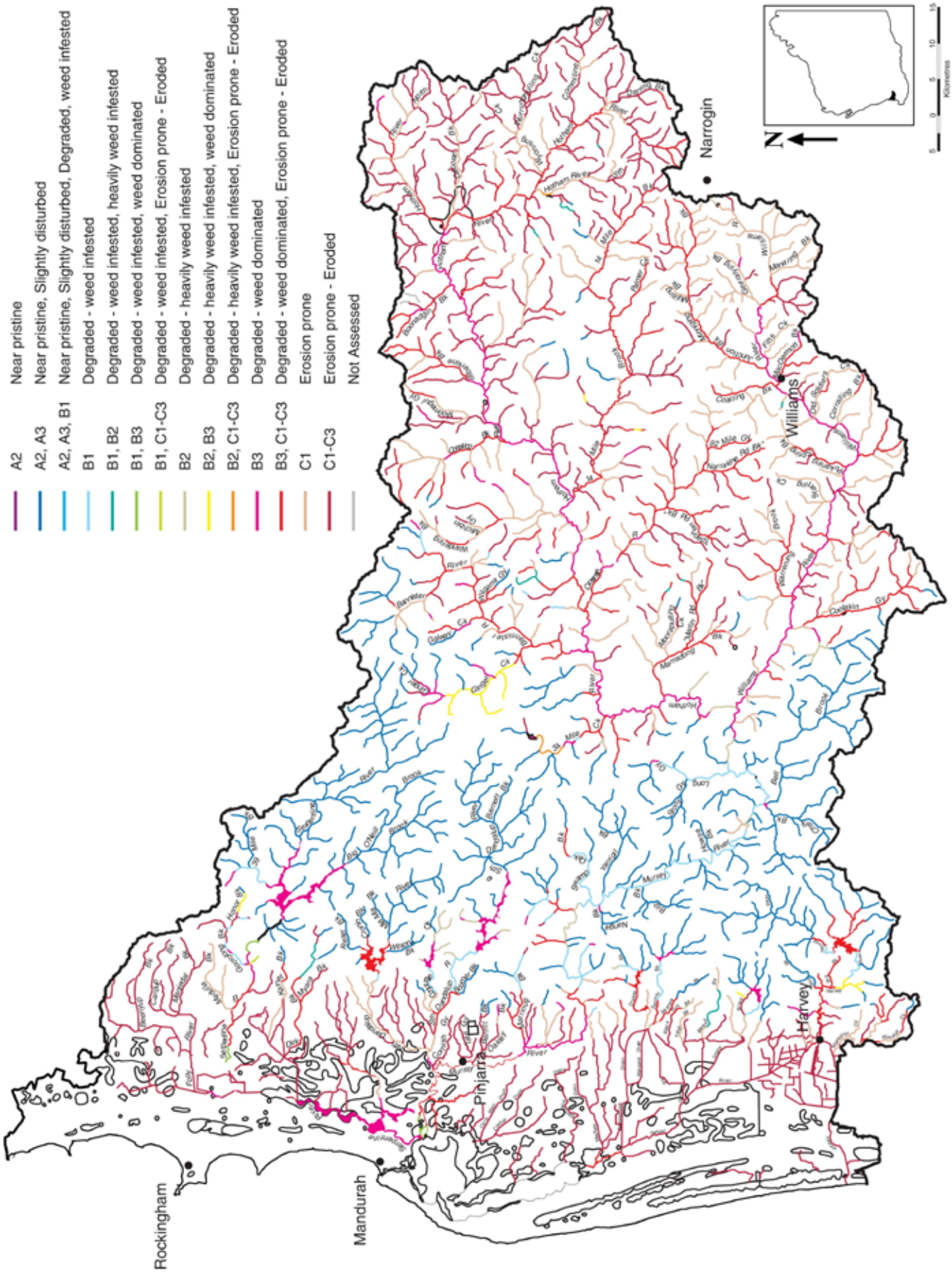


Figure 4: Condition of Catchment Watercourses as Assessed in 1997

14. Planning for NRM and the PHCC

Planning for catchment management and the future of the organisation have been features of the PHCC's first decade. Whilst catchment-focused planning was largely directed by the SWCC regional delivery process and peaked around 2003-2005, organisational planning exercises have been driven by PHCC and have occurred regularly throughout the decade. Major strategic organisational planning exercises occurred in 2005 and 2009 (Sustainable Development Facilitation, 2005; Sue Middleton, 2009, respectively). A third PHCC Strategic Planning workshop was also held in April 2008 at Fairbridge Pinjarra.

14.1. Peel-Harvey NRM Plan and the Elusive Peel-Harvey CMP

Catchment-focused planning has included the "Peel-Harvey Catchment Natural Resource Management Plan" (Land Assessment, 2005) and its pre-cursors. The 2005 NRM Plan highlighted the Peel-Harvey's NRM priorities as part of the SWCC regional NRM strategy. It covered a wide range of issues, including water quality, biodiversity, dryland salinity, soil protection, adaptation to climate change.

The Peel-Harvey NRM Plan may not have constituted the Catchment Management Plan (CMP) envisaged by the EPA and State Government in the late 1980's (Government of WA, 1989), but it supported the types of initiatives that should be in a CMP. The EPA's objectives for a Catchment Management Plan focus on water quality in the catchment's rivers and estuaries, and those matters which directly relate to water quality (See Appendix 4 for the EPA's guidance for preparation of a Peel-Harvey Catchment Management Plan, EPA, 2003).

The key 'missing' link preventing a Catchment Management Plan from becoming a reality has been the political will and statutory and bureaucratic mechanisms to implement the measures that both the EPA and PHCC want to see implemented. The best Catchment Management Plan is impotent if it does not have full, high-level Government backing (e.g. Cabinet or higher).

Part D - Statistics, Project Summaries and On-ground Achievements

15. Project Summaries

The PHCC successfully completed fifty-two budgeted projects with a total investment of $9.7 million in its first decade as listed in Table 10, Appendix 5. Most of these projects had several components or sub-projects.

Table 10 should be read in conjunction with the organisation's key achievements described in Part C of this Report. Many of these projects involved on-ground works which have been compiled into statistics provided in Section 15.

Additionally, the PHCC has been involved in many other projects for which it allocated officer or Board member time and resources. These include projects led or managed by partners, and involvement in Technical Advisory Groups and committees (e.g Peel 2020, Perth-Bunbury Highway).

16. On-ground Works

This section provides maps and statistics of recorded landcare works that have been undertaken in the coastal catchment since circa 1992. Similar statistics are not available for works in the upper catchment (Hotham, Williams and Murray River catchments).

Summary maps and statistics are provided in Figures 13 to 16 and Table 2. Statistics of on-ground works have been presented in two major groupings: pre-2000[8] and post 2000 (Table 2). All works pre-2000 were attributed to projects managed by one of the four LCDC's on the coastal Catchment: Serpentine-Jarrahdale, Dandalup-Murray, Coolup and Harvey River. Post-2000 works were either managed as LCDC projects or as part of Catchment-wide projects such as Rivercare, Groundworks or the Coastal Catchments Initiative. Tables 3 and 4 present this distinction, with Table 3 showing LCDC managed works, and Table 4 showing those works undertaken as part of Catchment-wide projects post-2000.

In summary, 3320 ha of works were carried out through LCDC managed projects between circa 1992 and 2000. 2316 ha were carried out between 2001 and 2010 under LCDC and Catchment-wide projects (685 ha and 1631 ha respectively). Whilst some of the reduced momentum was because some areas were "all treed (sic) out", with farm plans fully implemented, the difference between the two decades is indicative of the huge momentum built in the community during the 1990s, the *Decade of Landcare*.

Part of this momentum was due to the community taking action to address some of the issues causing eutrophication of the catchment. In part this was due to concerns at the time that the Government may enforce land management actions that they as farmers didn't see as being best for their land. For most of the years the *Rivers, Wetlands and Habitats* program operated it was over-subscribed, with farmers' contribution being far greater than 50%.

Regardless of the motivation there was a huge landcare legacy in the catchment at the start of the Year 2000. Changes to funding direction in this decade, including NHTII, then Caring for Our Country along with the cessation of *Rivers, Wetlands and Habitats* in 2002 all contributed to the declined on ground momentum compared to the 1990s.

It is important to note that these statistics only capture a portion of actual on-ground works, and do not include any works in the upper catchment. Table 2 summarises the extent of mapped landcare works for the periods pre-2000 and 2000-2010.

Table 2: Total Mapped Landcare Works in the Peel-Harvey Catchment (circa 1992 to 2010)

Type of works	Pre 2000 work (ha)	2000 to 2010 (ha)	Total (ha)
Treelots	228	0	228
Wetland protection	59	20	79
Vegetation belts	377	142	519
Streamlining	286	412	698
Revegetation	156	795	951
Protected area	2186	938	3124
Planting	0	6	6
Roadside enhancement	28	3	31
Total	**3320**	**2316**	**5636**

Works shown in Table 2 are either associated with LCDC managed projects, or other distinct catchment-wide projects, often managed by PHCC. Tables 3 and 4 show this breakdown respectively. The locations of works are shown in Figures 5 to 8[9], each covering the works within the various land conservation Districts within the Peel-Harvey coastal catchment.

[8] These statistics were initially captured by a Department of Agriculture and Food WA project. Early in the decade Colleen Archibald took on the recording of the on ground work, as part of her role as NRM Support Officer, based in Waroona, when the Department was no longer resourced to do so.

[9] Please note that the thickness of lines indicating the location of works is not to scale.

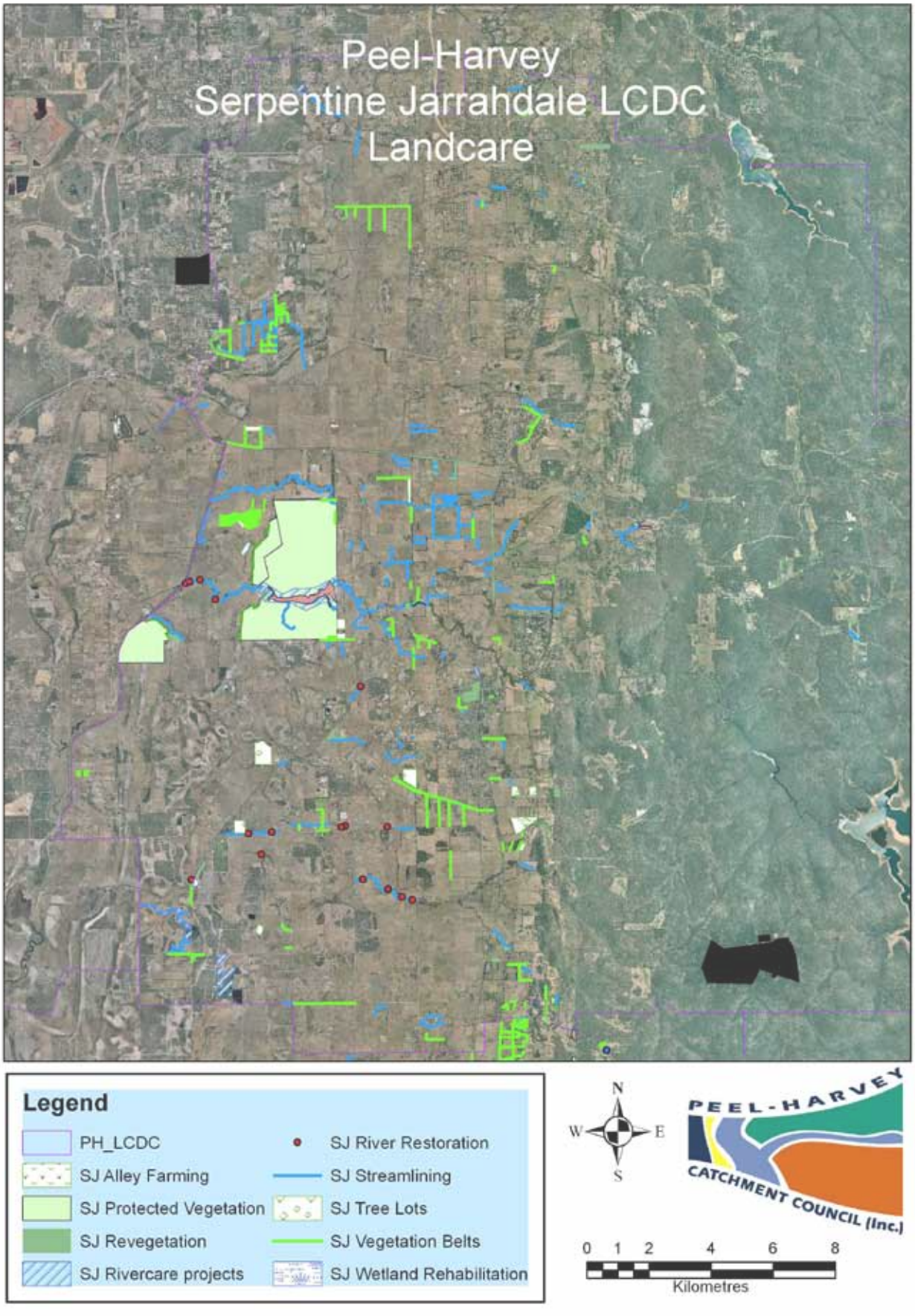


Figure 5: Landcare Works within the Serpentine-Jarrahdale LCDC Area (circa 1992 to 2010)

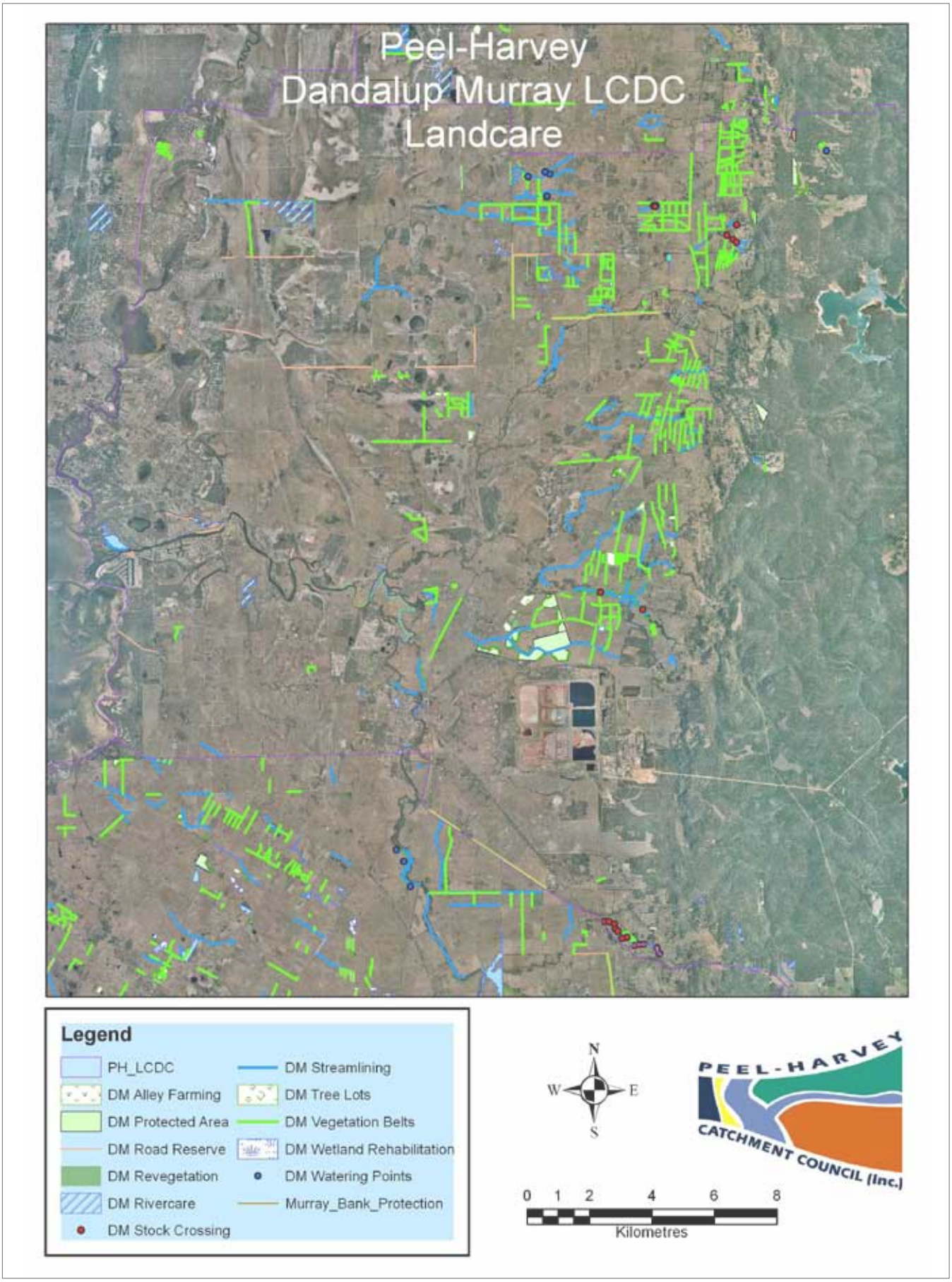


Figure 6: Landcare Works within the Dandalup-Murray LCDC Area (circa 1992 to 2010)

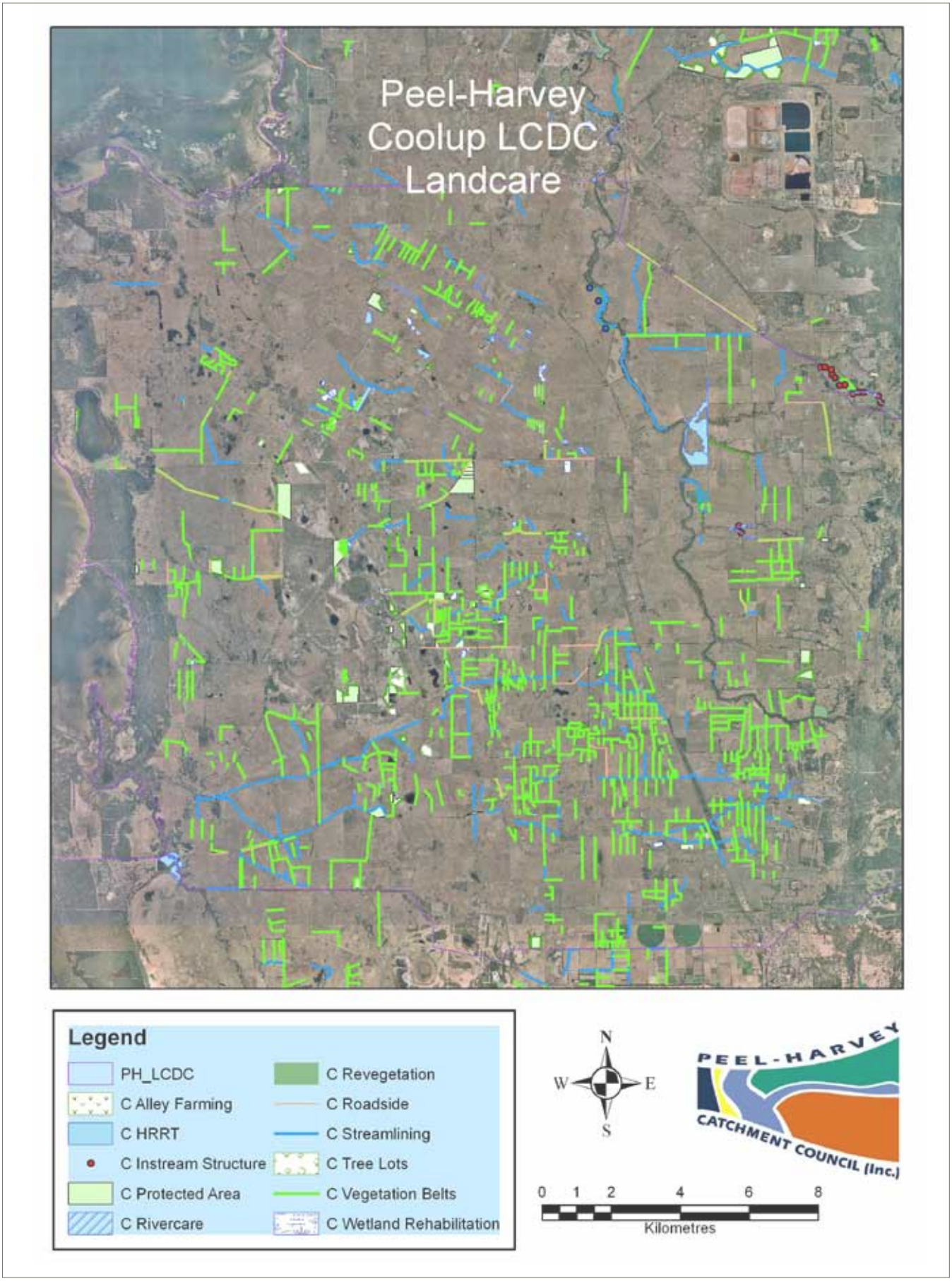


Figure 7: Landcare Works within the Coolup LCDC Area (circa 1992 to 2010)

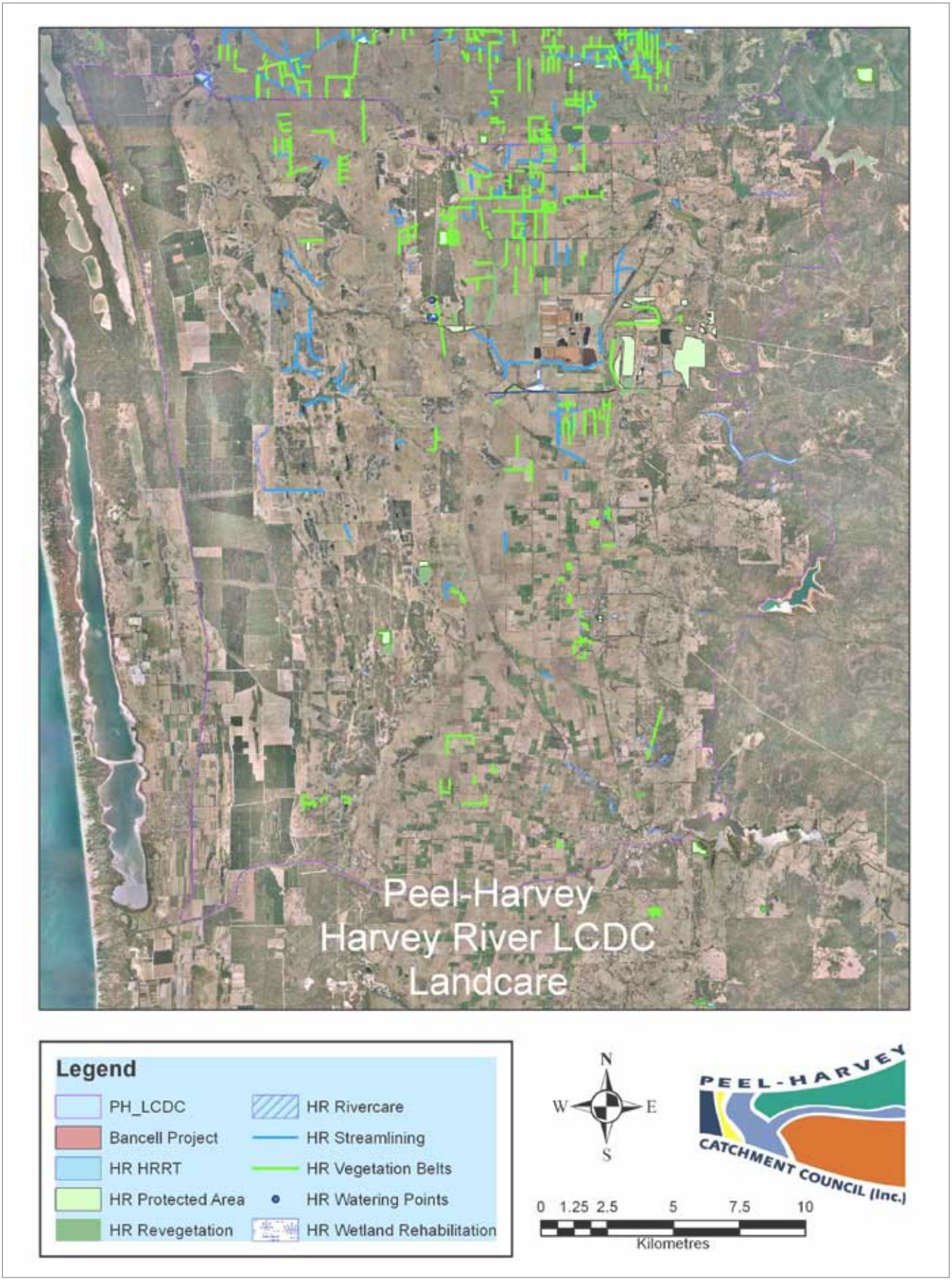


Figure 8: Landcare Works within the Harvey River LCDC Area (circa 1992 to 2010)

Table 3: Landcare Works Coordinated Through LCDCs for the Period circa 1992 to 2010

	PRE 2000 (ha)					2000 to 2010 (ha)					
	Land Conservation District Committee					Land Conservation District Committee					
	Coolup	Dandalup – Murray	Harvey River	Serpentine-Jarrahdale	Sub Total	Coolup	Dandalup – Murray	Harvey River	Serpentine-Jarrahdale	Sub Total	Grand Total
Treelots	41	45		142	**228**	0	0	0	0	**0**	**228**
Wetland protection	32	3	24	0	**59**	16	4	0	0	**20**	**79**
Vegetation belts	200	96	36	45	**377**	61	33	35	13	**142**	**519**
Streamlining	114	66	45	61	**286**	5	6	11	35	**57**	**343**
Revegetation	50	9	11	86	**156**	27	34	213	80	**354**	**510**
Protected area	305	196	350	1335	**2186**	43	10	50	0	**103**	**2289**
Planting					**0**				6	**6**	**6**
Roadside enhancement	18	10			**28**		3			**3**	**31**
Total	**760**	**425**	**466**	**1669**	**3320**	**152**	**90**	**309**	**134**	**685**	**4005**

Table 4: Landcare Works Occurring Through Catchment Wide Projects 2000 -2010.

Other projects (Project Manager)	Main type of works	Area of works (ha)
HRRT 2004/08	streamlining	158
HRRT 2009/10	streamlining	20
CCI 2004/05 (Thelma Crook)	protected area (river)	126
Groundworks 2008 (Kim Wilson)	revegetation	433
CfOC 4.04 2009 (Alex Hams)	protected area	22
PHCC Rivercare 2006/08 (Alex Hams)	streamlining	164
Murray river 05/06 (Alex Hams)	protected area	43
Filtering the Nutrient Storm 2010 (J Montoya)	streamlining	13
Ramsar 2009/10 (A Willmott/L Bonner)	revegetation	8
Hotham Rivercare 2006	protected area	427
Hotham Revegetation 2008	protected area	217
Total		**1631**

For streamlining projects, the total length of drain streamlined is estimated as 698 kilometres, of which 286 kilometres was undertaken as part of LCDC projects prior to 2000, and 355 kilometres was undertaken as part of catchment wide projects between 2000 and 2010 (Table 5). Only 57 kilometres was undertaken as part of LCDC projects between 2000 and 2010.

Table 5: Total Length of Watercourse Streamlined, circa 1992 to 2010

Landcare Group	Length of watercourse streamlined (km)
Coolup LCDC (Works circa 1992 - 2010)	119
Dandalup-Murray LCDC (Works circa 1992 - 2010)	72
Serpentine-Jarrahdale LCDC (Works circa 1992 - 2010)	96
Harvey River LCDC (Works circa 1992 - 2010)	56
Catchment-wide projects (Projects 2000-2010)	355
Total watercourses streamlined	**698**

Notes

The statistics in Tables 1 to 4 should be read in conjunction with the following notes:

1. LCDC projects were recorded by Tony Allen (Dept of Agriculture, Harvey and then Waroona Office) for the 1992 to 2000 period. Colleen Archibald (Waroona Landcare Office) took over recording the data in 2001. The data was taken from the applications accepted for funding by the LCDCs and assumed to be correct and completed
2. All measurements are in hectares unless otherwise indicated
3. Streamlining and shelterbelts were recorded as linear metres. The minimum width was 10m therefore 1000m = 1 ha. (i.e., the area of streamlining revegetation is likely to be greater than that recorded
4. Protected areas may also include some revegetation, especially for riparian protected areas
5. The data includes some self-funded projects. Many landcare projects are now undertaken without the assistance of funding and therefore are not included in these results
6. The data may omit a large portion of projects within the Hotham River catchment. These project details are recorded in hardcopy format (Darralyn Ebsary).

17. Funding and Financials

For the purposes of reviewing the financial inputs into the organisation for the decade, a compilation of annual budgets (audited income values) from 2000/01 to 2009/10 was prepared.

The results of the review are provided in Table 6 (Project funding per annum) and Table 7 (Project funding by funding source). Figures 10 - 11 provide summary graphs.

Some of the key statistics drawn from Tables 6 and 7 include:

- The organisation's total budget for the 9 financial years to 2009/10 was $ 9.076 million, an average of $1.008 million per annum
- The largest income year was 2007/08 with $ 2,227,652
- The largest funding contributor has been the Federal Government (devolved funding through the SWCC), with $ 7,817,397, or 80% of funding
- Funding from the State Government and its agencies amounted to $ 1,120,774, or 12 % of total funding during the decade. The amount of indirect support from agencies such as the PDC, DoW and DAFWA is also significant, but uncosted)
- The Rivercare Program and other watercourse management projects had a total budget of $2.117 million and represent the largest PHCC program over the decade (22% of all income)
- The sub-regional coordination and facilitation program (PHCC operational costs) totalled $ 1.194 million, or 12% of total budget. This is considered a very reasonable cost for the operation of the PHCC[10], advocacy, community and government liaison work and the development assessment work carried out by the PHCC over the decade[11].

Note: These statistics only include funds that were accounted within the PHCC budgets and cannot be used to gauge other direct or indirect support for PHCC activities.

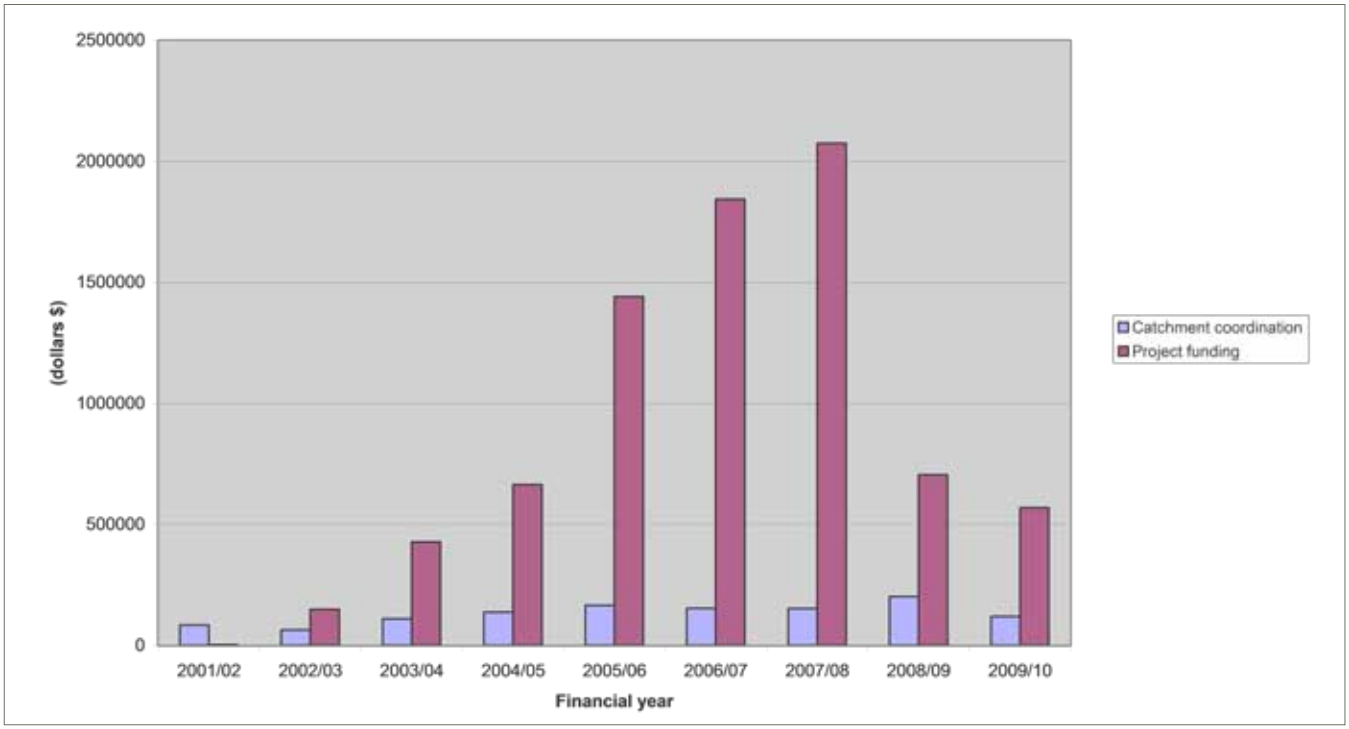


Figure 9: Peel-Harvey Catchment Council Income 2001/02 to 2009/10

[10]Including time bought by SWCC to contribute to SWCC operations.

[11]Capturing the in-kind contribution of the community is inherently difficult. However, Cathy Lyons whilst at Landcare SJ captured statistics demonstrating the invested funding attracted an in—kind contribution of 1:4; i.e. $1 funding attracts a minimum of $4 from the community in time and finances.

Table 6: PHCC Program and Project Funding (2000 – 2010)

Main purpose of funds/ program description	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-2010)	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Total				9,076,150	89,032	213,695	539,499	803,017	1,607,831	1,997,717	2,227,652	907,671	690,038
Sub-regional coordination & facilitation	1,194,007	SWCC Sub-regional support /PHCC support	GTCTF/ Bank Interest/ WRC/ SWCC	903,117	20,059	27,425	42,400	71,560	165,942	154,072	153,231	202,062	66,366
		PHCC Executive Officer	GTCTF/NHT/ WRC/ SWCC	236,738	65,000	36,668	68,500	66,570					
		PDC Peak Body Assistance	PDC (Royalties for Regions/ Small Grants)	38,152									38,152
		Performance Story Decade 1		16,000									16,000
Project Mgt	539,427	PHCC - Project Officer Employment		192,381								192,381	
		Proj Mgt Fees/ OMOH		347,046					57,400	72,800	81,800	61,046	74,000
Funding of Landcare/ NRMOs	178,224	NRMO Transfer	SWCC	178,224					173,345	4,879			
Operation of Waterways Centre	316,052	Waterways Centre	Dept of Environment & Dept of Water	316,052				145,000	0	85,547	28,255	57,250	
NRM/ Catchment Planning projects	96,635	NRM Plan	SWCC	86,635			76,612	10,023					
		PH Estuary Eastern Catchment Plan[12]	Water & Rivers Commission	10,000			10,000						
Onground Projects 2001-2004	97,650	WRE Project (Wellard Rural Export)	GTCTF/WRE	50,697	2,645	48,052							
		Fodder Shrubs Project	GTCTF	11,000		11,000							
		Landcare Landscapes	Kwinana Shire City if/ Rockingham/ Coolup LCDC/ Alcoa	15,953		15,928	25						
		Canal Habitat 'Reef Balls' project	WRC/Dept of Local Got & Regional Dev	20,000		20,000							

[12]Final Name "State of Play"

Main purpose of funds/ program description	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-2010)	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Water Campaign	867,566	LG Water management Project	PDC/PCWE/ CoMand/ SoSJ/ NHT/SWCC	288,922		43,500	62,000	120,000	45,430	17,992			
		WH01.01 B LG WMP	SWCC	285,651						93,067	119,624	72,960	
		Regional Water Campaign W1-04	SWCC	217,993					200,001	17,992			
		LGWMP 4.03 - CfOC	SWCC	75,000								75,000	
		BRAG Project (Boddington River Action Group)	GTCTF	12,450	1,328	11,122	0						
Rivercare and watercourse mgt projects	2,117,461	River restoration training	SWCC	62,513					58,832	3,681			
		Rivercare Project	NHT	517,965			227,500	290,465					
		Rivercare Action Project W4-03	SWCC/Landcare Aust/SoM	519,928					509,731	10,197			
		WH-02 PH Rivercare 06/08	Cape 2 Cape	731,475						335,211	276,745	119,519	
		Rivercare CfOC	SWCC	0									
		HRRT	Landcare Australia[13]	243,130							80,000		163,130
		Murray River Action Plan	Dept of Environment	30,000				30,000					
Water Quality Improvem't Projects	1,525,557	WQ01 PH Water Quality Recovery 06/08	SWCC/Alcoa ($100K)	1,059,856						370,783	689,073		
		Water Quality - CfOC	CfOC	0									
		State NRM Mayfield 09058 Project	State NRM	31,390									31,390
		Filtering the Nutrient Storm	Dept of Water	301,000									301,000
		Coastal Drainage project	SWCC/ Leschenault Catchment Council	133,311				19,166	66,481	47,664			

[13]HRRT funds are only managed by LAL; they were provided through an offset by Water Corporation as part of the Stirling-Harvey Redevelopment Scheme. See Harvey Basin Stream Restoration Trust: a proposal for funding stream restoration work in the Harvey Basin (Water and River Commission Report WRP 14

Main purpose of funds/ program description	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-2010)	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Dryland salinity - Hotham-Williams -Murray Project	400,000	RS01a HWM River Salinity	SWCC	400,000						210,584	189,416		
Other on-ground works and landholder education	718,351	Groundworks Program	SWCC	715,351						235,921	468,430	11,000	
		Small Landholders Learning Events	Dept of Agriculture	3,000			3,000						
Ramsar - planning and on-ground works	801,207	W5-11 Ramsar Mgt Plan	SWCC/DEC	101,994					89000	12994			
		WH03 Ramsar Mgt Plan	SWCC/DEC/ PDC RDS Funds/ DoW;	367,105						122242	141078	103785	
		4.06 CfOC Ramsar	Federal Govt - DEWHA, Local Govt	64,100								64100	
		CC082614 Ramsar	Federal Govt - DEWHA; Alcoa (Biosphere funds tfr to this project ($37796)	268,008								219555	48453
Remnant vegetation and biodiversity projects	270,319	Priority Remnant Vegetation Project	Leschenault Catchment Council	61,756					32,500	29,256			
		Regional Rural Vegetation Officer	SWCC	49,695			49,462	233					
		Biodiversity DSS Training	SWCC	35,617					35,617				
		Dryandra Woodlands Project B2-09	SWCC	51,600					39,916	11,684			
		BR03 - Dryandra Woodlands IP2	Dept of Environment	71,651						71,651			

Main purpose of funds/ program description	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-2010)	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Climate change planning and adaptation	248,546	Climate Change Project L2-G4	SWCC	16,136					16,136				
		Climate Change Adaptation	Aust Govt, Dept of Climate Change, Local Government	232,410								169,720	62,690
Coastal mgt Planning	87,500	Coastal Investment Planning	SWCC/Dept Of Environment	87,500					87,500				
Cultural landscapes project	95,000	Cultural Landscapes Project	SCRIPT/SWCC/ DEC/PDC	95,000						66,000	0	29,000	
Other special projects	103,500	Urban sustainability Initiative	PDC	23,500						23,500			
		ALCOA Biosphere Project	Alcoa World Alumina/GTCTF	60,000				50,000	10,000				
		Alcoa NRM Project	Alcoa World Alumina (ex Avon Catchment Council)	0									
		Peel Waterways Institute Project	PDC	20,000					20,000				
Science Strategy Project	50,000	Murdoch Ecosystem Monitoring Project	PHCC Project interest ($20K)/ DoW($15K) / DIB Study Funds ($15K)	50,000								50,000	

Notes

All figures based on PHCC audited statements for Income 2000/01 to 2009/10. Other funding (direct and indirect is not included).

Total Program Budgets (2000-2010)

Program or Project	Total Budget ($)
Sub-regional coordination & facilitation	$1,194,007
Project Management	$539,427
Funding of Landcare/NRMOs	$178,224
Operation of Waterways Centre	$316,052
NRM/Catchment Planning projects	$96,635
Other on-ground Projects 2001-2004	$97,650
Water Campaign	$867,566
Ramsar - planning and on ground works	$801,207
Remnant vegetation and biodiversity projects	$270,319
Climate change planning and adaptation	$248,546
Rivercare and watercourse management projects	$2,117,461
Coastal management Planning	$87,500
Cultural landscapes project	$95,000
Groundworks Program and landholder education	$718,351
Water Quality Improvement Projects	$1,525,557
Dryland salinity - Hotham-Williams _ Murray Project	$400,000
Other special projects	$103,500
Science Strategy Project	$50,000
TOTAL	**$9,707,002**

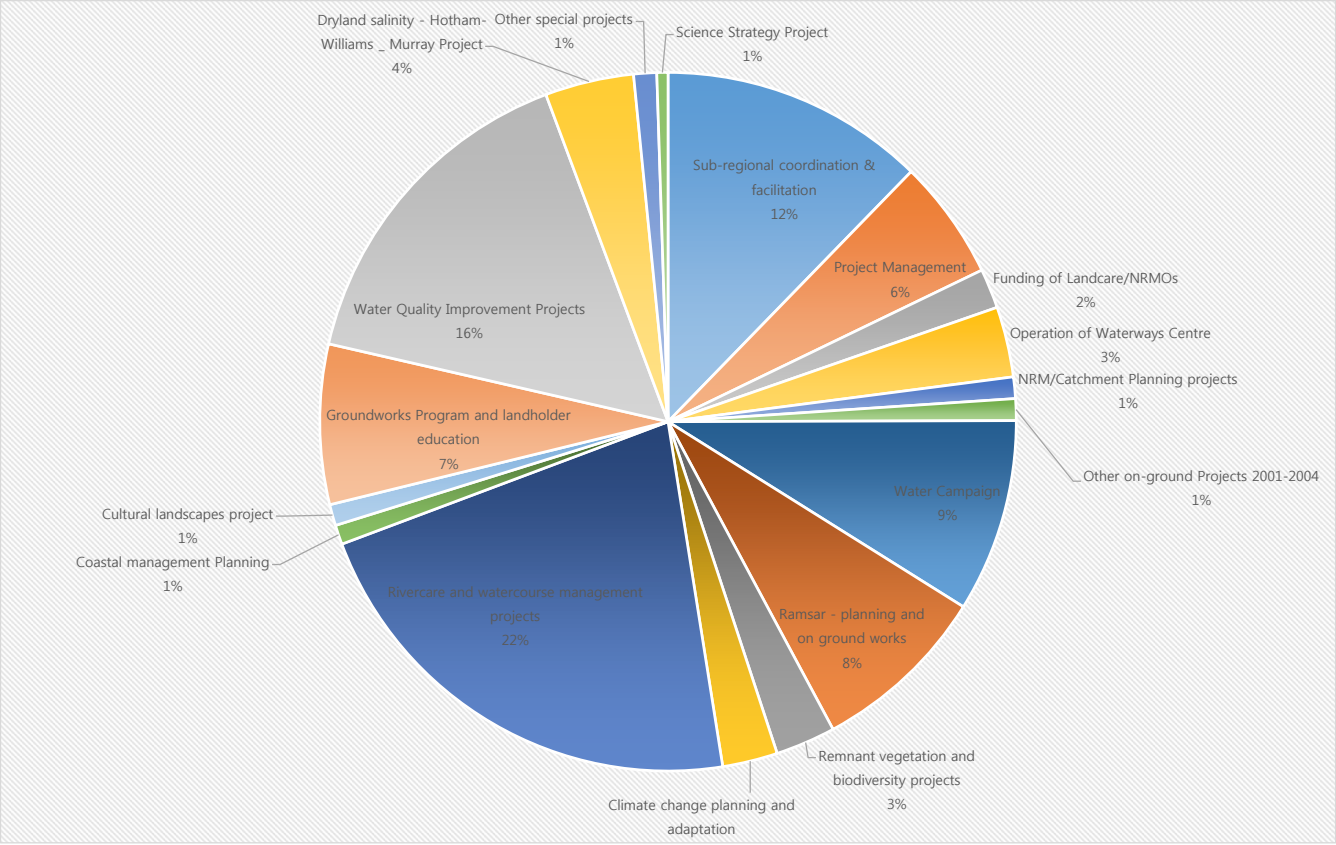


Figure 10: PHCC Program and Project Costs (2001-2010)

Table 7: PHCC Program and Project Funding by Source and Contribution

					Funding contributions and source ($)					
Main purpose of funds/program descrpn	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-10)	Federal Govt	State Govt	Local Govt	Alcoa	Landcare Australia	GTCTF
Total	9,707,002	Total		9,077,002	7,817,397	1,120,774	99,000	193,797	293,130	183,082
Sub-regional coordination & facilitation	1,194,007	SWCC Sub-regional support / PHCC support	GTCTF/ Bank Interest/ WRC/SWCC	903,117	824,609	44,573				33,935
		PHCC Executive Officer	GTCTF/NHT/WRC/ SWCC	236,738	156,738	15,000				65,000
		PDC Peak Body Assistance	PDC (Royalties for Regions/ Small Grants)	38,152		38,152				
		Performance Story Decade 1		16,000	16,000					
Project Mgt	539,427	PHCC - Project Officer Employment		192,381	192,381					
		Proj Mgt Fees/OMOH		347,046	347,046					
Funding of Landcare/ NRMOs	178,224	NRMO Transfer	SWCC	178,224	178,224					
Operation of Waterways Centre	316,052	Waterways Centre	Dept of Environment & Dept of Water	316,052		316,052				
NRM/Catchment Planning projects	96,635	NRM Plan	SWCC	86,635	86,635					
		PH Estuary Eastern Catchment Plan	Water & Rivers Commission	10,000		10,000				
Onground Projects 2001-2004	97,650	WRE Project (Wellard Rural Export)	GTCTF/WRE	50,697						50,697
		Fodder Shrubs Project	GTCTF	11,000						11,000
		Landcare Landscapes	Kwinana Shire City if/ Rockingham/Coolup LCDC/Alcoa	15,953	2,953		7,000	6,000		
		Canal Habitat 'Reef Balls' project	WRC/Dept of Local Got & Regional Dev	20,000		20,000				
Water Campaign	867,566	LG Water management Project	PDC/PCWE/CoMand/ SoSJ/ NHT/SWCC	288,922	237,422		51,500			
		WH01.01 B LG WMP	SWCC	285,651	285,651					
		Regional Water Campaign W1-04	SWCC	217,993	217,993					
		LGWMP 4.03 - CfOC	SWCC	75,000	75,000					
		BRAG Project (Boddington River Action Group)	GTCTF	12,450						12,450

					Funding contributions and source ($)					
Main purpose of funds/program descrpn	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-10)	Federal Govt	State Govt	Local Govt	Alcoa	Landcare Australia	GTCTF
Rivercare and watercourse mgt projects	2,117,461	River restoration training	SWCC	62,513	62,513					
		Rivercare Project	NHT	517,965	517,965					
		Rivercare Action Project W4-03	SWCC/Landcare Aust/SoM	519,928	440,322	19,606	10,000		50,000	
		WH-02 PH Rivercare 06/08	Cape 2 Cape	731,475	731,475					
		Rivercare CfOC	SWCC	0	0					
		HRRT	Landcare Australia	243,130						
		Murray River Action Plan	Dept of Environment	30,000		30,000				
Water Quality Improvem't Projects	1,525,557	WQ01 PH Water Quality Recovery 06/08	SWCC/Alcoa ($100K)	1,059,856	959,856			100,000		
		Water Quality - CfOC	CfOC	0	0					
		State NRM Mayfield 09058 Project	State NRM	31,390		31,390				
		Filtering the Nutrient Storm	Dept of Water	301,000		301,000				
		Coastal Drainage project	SWCC/ Leschenault Catchment Council	133,311	133,311					
Dryland salinity - Hotham-Williams -Murray Project	400,000	RS01a HWM River Salinity	SWCC	400,000	400,000					
Other on-ground works and landholder education	718,351	Groundworks Program	SWCC	715,351	715,351					
		Small Landholders Learning Events	Dept of Agriculture	3,000		3,000				
Ramsar - planning and on-ground works	801,207	W5-11 Ramsar Mgt Plan	SWCC/DEC	101,994	96,994	5,000				
		WH03 Ramsar Mgt Plan	SWCC/DEC/PDC RDS Funds/DoW;	367,105	322,033	45,250				
		4.06 CfOC Ramsar	Federal Govt - DEWHA, Local Govt	64,100	63,000	600	500			
		CC082614 Ramsar	Federal Govt - DEWHA; Alcoa (Biosphere funds tfr to this project ($37796)	268,008	230,211			37,797		
Remnant vegetation and biodiversity projects	270,319	Priority Remnant Vegetation Project	Leschenault Catchment Council	61,756	61,756					
		Regional Rural Vegetation Officer	SWCC	49,695	49,695					
		Biodiversity DSS Training	SWCC	35,617	35,617					
		Dryandra Woodlands Project B2-09	SWCC	51,600	51,600					
		BR03 - Dryandra Woodlands IP2	Dept of Environment	71,651		71,651				

					Funding contributions and source ($)					
Main purpose of funds/program descrpn	Program total ($)	Project	Main funding sources (Direct $ funding only)	Totals (2001-10)	Federal Govt	State Govt	Local Govt	Alcoa	Landcare Australia	GTCTF
Climate change planning and adaptation	248,546	Climate Change Project L2-G4	SWCC	16,136	16,136					
		Climate Change Adaptation	Aust Govt, Dept of Climate Change, Local Government	232,410	202,410		30,000			
Coastal mgt Planning	87,500	Coastal Investment Planning	SWCC/Dept Of Environment	87,500	77,500	10,000				
Cultural landscapes project	95,000	Cultural Landscapes Project	SCRIPT/SWCC/DEC/ PDC	95,000	9,000	86,000				
Other special projects	103,500	Urban sustainability Initiative	PDC	23,500		23,500				
		ALCOA Biosphere Project	Alcoa World Alumina/ GTCTF	60,000				50,000		10,000
		Alcoa NRM Project	Alcoa World Alumina (ex Avon Catchment Council)	0						
		Peel Waterways Institute Project	PDC	20,000		20,000				
Science Strategy Project	50,000	Murdoch Ecosystem Monitoring Project	PHCC Project interest ($20K)/DoW($15K) / DIB Study Funds ($15K)	50,000	20,000	30,000				

Notes:

1. All figures based on PHCC audited statements for Income 2000/01 to 2009/10. Other funding (direct or indirect not included)
2. All funding received through NHT II and SWCC has been assigned to the Federal Government. Some of this funding may have originated from State Government support for the NHT II program and National Action Plan for Salinity
3. Funding source details:
   a) Federal Government: Most funding received from the Federal Government has been through the Natural Heritage Trust II and National Action Plan for Salinity and delivered through the South West Catchments Council under SWCC's Regional NRM Investment Plans 2005/06 and 2006-2008. Post 2008, Federal Government sources have been direct funding through the Department of Environment, Water, Heritage and the Arts, Department of Climate Change and the Caring for Our Country program
   b) State Government sources include the Water and Rivers Commission, Department of Water, Peel Development Commission, Department of Agriculture and Food, Department of Environment and the State Government's NRM program
   c) Local Government – direct funding received from Local Governments
   d) Alcoa – direct funding received from Alcoa World Alumina
   e) Landcare Australia – funding received for the implementation of the Harvey River Restoration Taskforce projects; HRRT funds are only managed by LAL; they were provided through an offset by Water Corporation as part of the Stirling-Harvey Redevelopment Scheme. See Harvey Basin Stream Restoration Trust: a proposal for funding stream restoration work in the Harvey Basin (Water and River Commission Report WRP 14) GTCTF – Greening the Catchment Taskforce Inc.

Table 8: Funding Source Contributions (2000-2010)

Funding source (2000-2010)	Total ($)
Federal Government	7,817,397
State Government	1,120,774
Local Government	99,000
ALCOA	193,797
Landcare Australia	293,130
Greening the Catchment Taskforce	183,082
Total	$9,707,180

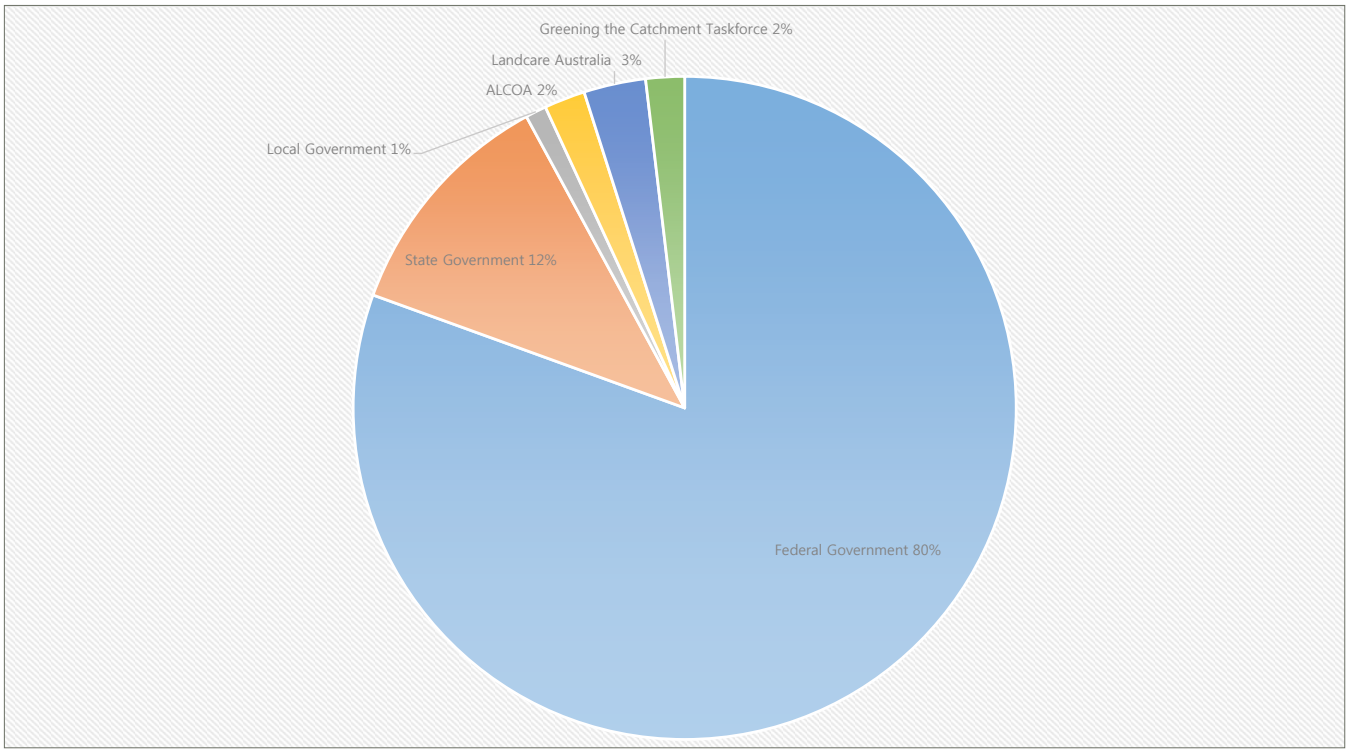


Figure 11: Funding Source Contributions 2000-2010 ($)

PART E - The Future

18. Building the Future

In many respects, the PHCC's first decade has seen the organisation progress through the various stages of group development defined by Tuckman (1965) as Forming, Storming, Norming and Performing.

The first decade saw the creation of the PHCC's sense of purpose and the building up of its capacity and credibility. This enabled the organisation to achieve much in its own right and also influence the decisions and activities of others. Importantly, the decade also included a period where the organisation weathered its first major storm, caused by the withdrawal of core external funding in 2008/09.

However, much of the first decade has required the organisation to respond to the agendas of others. In its second decade, the Peel-Harvey Catchment Council may choose to march more to the beat of its own drum, and less to that of others.

18.1. Governance and a Catchment Management Plan

The experiences of the PHCC over its first decade illustrate the lack of commitment successive State Governments have had to making significant, long-term changes in the catchment. There is no catchment management governance structure in place and no commitment to preparation and adoption of a Catchment Management Plan. These are two fundamental pieces of the jigsaw that would significantly change the landscape in which the PHCC operates.

Future Challenge 1: It appears that one of the major roles of the PHCC over the next five years is to build community support for, and advocate to Government, the need for both the governance structure and the CMP. Arguments for this are the poor health of the lower rivers (Rodgers *et al,* 2010), the need to halve nutrient pollution entering the estuary (EPA, 2008), the huge development projections for the lower catchment (WA Planning Commission, 2010), and the significant economic, social and environmental value of the Estuary. It is only a matter of time (5 – 10 years) before the wider community could be convinced of the need to put ongoing funding to protect the Estuary, lower rivers, Ramsar Site and catchment.

The campaign for both the CMP and governance arrangement requires allocation of appropriate resources. Options for partnering and external funding should be pursued. The campaign should be designed to attract bi-partisan support.

In light of this, the PHCC should plan its future now with a view to the day when a catchment governance structure is in place. For example, under the governance model proposed in 2007, the PHCC would have remained as the lead group responsible for development and administration of a CMP, including the preparation of regular reports to the community and Government and the coordination of works. The PHCC may have to modify the way it works with the community if it were to play a more focused catchment management role. This would be largely due to the catchment management more broadly representing all stakeholder groups, and not just those specifically focused on NRM.

18.2. Influencing Land Development

Growth of urban and light industrial areas will be the single biggest factor affecting water quality and biodiversity should it be poorly located, designed or managed. It is also likely to have considerable impacts on other natural resources. In consideration of the time when a catchment governance structure is in place, the PHCC should

consider how it continues to interact with the land development sector in the future. It has already made some progress in this regard.

Over its first decade, the PHCC has aimed to influence land development in a number of ways:

1. Input to specific development proposals
    a. Directly with developers (often instigated by developers)
    b. With Government through submissions and comments on specific proposals
    c. Technical working groups.
2. Strategic Government initiatives and policies with direct application to the Peel-Harvey
    a. Land use strategies and structure plans (e.g. WAPC)
    b. Thematic policies (e.g. Drainage reform, native vegetation protection).
3. Strategic PHCC initiatives, including
    a. Working with Local Government - e.g. Water Sensitive Urban Design Technical Guidelines and Local Planning Policy
    b. Working with land development sector – e.g. Water Sensitive Design Self-drive tour
    c. Draft guidance related to land development in the Peel-Harvey (PHCC, unpublished).

Whilst it is difficult to gauge how effective these activities have been, a large amount of resources have gone into the first category for each specific development proposal (1a above). Working with specific developers of a site can also place the PHCC in a compromised position (e.g. where the PHCC is not satisfied with the developer's interpretation of PHCC advice, or is even mis-represented by the developer).

Given that PHCC interest in land development often relates to either its location (and development footprint), and thereafter its design and standards, there is a rationale for providing input into scheme amendments and sub-regional or district structure plans. However, this again can be time-consuming and may not result in substantial changes in the final plans.

Future Challenge 2: There may be some merit in the PHCC focusing its aim on land development in two or three major directions over the next five years:

1. The first is to influence the State Government's strategic land use planning in the catchment, especially to that proposed through the Directions 2031 initiative (sub-regional and district level structure planning). This may require the PHCC to work directly with State Government agencies and Local Governments. A strategic level agreement (with funding attached) with the WAPC and Shire of Murray may be worthy of consideration. The PHCC could use components of the PHCC draft guidelines for land development on which to base this work (PHCC, unpublished)
2. Advancing the draft Guidelines for Land Development with Local Government and/or the land development sector. This would require the PHCC to be clear about its position relative to the needs and preferences of Local Government and the land development sector

3. Working with Local Government on a strategic NRM project related to land development. It will be critical to work with the Shire of Murray on this project, as well as the City of Mandurah and Shire of Serpentine-Jarrahdale – as these three Local Governments will experience the greatest growth and could lead to the highest nutrient export increases. The project may flow on from the Water Sensitive Design LPP project, or cover a different NRM opportunity.

Even when appealing clear breaches of legislation or Government policy, the PHCC should reconsider how it will resource its responses to specific development proposals over the coming years.

18.3. Project Delivery

A stand-out characteristic of the PHCC is that it is able to design and deliver **mid-scale** projects which implement higher level objectives across local boundaries. Examples of this are the projects under the Ramsar Initiative or the Water Quality program. This is a niche which should remain post-establishment of a catchment governance structure.

Future Challenge 3: The challenge is for the PHCC to limit itself to a narrower range of projects that also serve to position the PHCC following the establishment of a catchment governance structure. Consideration should be given to only embracing projects and funding which relate to the following (or a similar tight group of project areas):

1. The Science Strategy, particularly matters directly related to the Estuary and lower rivers, and the release of a Catchment Score Card –
    a. Possibly releasing a rudimentary example of a Catchment Score Card in the next two years to raise the community's awareness of the water quality issues
2. Ramsar Site management and protection projects – with strong public awareness elements
3. Land development related projects as outlined above
4. Water Quality in the lower rivers and estuary and efforts to advise the community of their perilous state (e.g. Filtering the Nutrient Storm)
5. Selective implementation of other WQIP recommendations - with careful assessment of the feasibility of any project.

The purpose of focusing on these issues is to channel efforts towards:

- Advocacy for a Peel-Harvey Governance body
- Building up the expertise and corporate knowledge of the PHCC staff
- Lobbying for core funding for the PHCC to be the lead Catchment Manager for the Peel-Harvey
- Advocacy of the concept of the Peel Waterways Institute.

Whilst there are many other NRM issues that are worthy of projects, they will take away critical resources from the five mega-project areas listed above. They will also muddy the central message that the PHCC should be consistently making to the community and Government. That is:

The Estuary and lower rivers are the jewels of the catchment, and without significant, strategic and long-term Government assistance, these natural assets will lose their shine.

It may be noted that the above suggested project areas omit native vegetation protection and management. The issue of native vegetation protection and the moratorium on clearing are particularly troublesome for the PHCC and broader community. A focus on native vegetation has been omitted for the following reasons:

1. There is a significant vacuum in law, State Government policy and political willpower in this area, and this is not likely to change over the next five years
2. Significant PHCC resources would need to be put into this area for relatively little return
3. The PHCC could more effectively work with Local Government and State Government through the land use planning projects above to achieve better outcomes for native vegetation protection.

The exception to this advice is where species and ecological communities are covered by the Environment Protection and Biodiversity Conservations Act. Here again the PHCC needs to carefully consider use of its resources.

18.4. Relationships with Local Level Community Action and Advocates

The first decade has seen many changes in the way that the PHCC interacts with local landcare groups and environment groups. As described in this report, local level landcare started the decade on a high note and was left with little secure funding by 2007/08. As at 2012, the future of the four local community landcare centres in the Catchment is in a precarious state with the two centres in the Upper Catchment already closed. Whilst the Waroona and Serpentine-Jarrahdale centres may remain into the future in some form, they cannot function effectively without some base level of ongoing funding.

It is to the PHCC's advantage that the two landcare centres (SJ and Waroona) remain in operation for the following reasons:

1. Community capacity and social capital: it is the local community from which the PHCC has built its membership, expertise and support base
2. Better communication: Local NRMO's provide a direct connection between the PHCC, the urban areas of Mandurah, Murray and Waroona and the rest of the coastal catchment where much of the work is to occur
3. Credibility and trust: Community Landcare Centres place NRM professionals in locations and communities where action is to occur, and trust can be built with land owners and Local Government
4. Logistics and technical delivery: NRMO's and local landcare groups are the eyes and ears close to the ground, and can help the PHCC deliver projects and collect information.

Future Challenge 4: It is now up to the PHCC to reinforce its position in regard to local landcare centres. The PHCC wishes to see these local landcare centres flourish and should plan how it can build these centres into its future projects. Given that local landcare centres are in the business of broadscale NRM advice and facilitation, the PHCC should plan for the types of projects that it can design that sit comfortably in the local landcare format.

The organisation may also benefit from a review of how it relates to local level environmental groups and interested members of the public. Apart from open forums and participation in projects, the PHCC may consider how else to involve the local community as part of its campaign to raise awareness and representation of the challenges facing the catchment.

At the local level, ongoing rejuvenation of relationships and strong formal parternships with Local Government is also a priority and could be achieved through the land development projects described in Section 18.2.

18.5. Organisational Capacity and Focus – Securing the Future

Much has been achieved over the organisation's first decade. This has been due in great part to skills and enthusiasm of staff and board members. Special recognition of the efforts of Jan Star, (Chairperson), Marilyn Gray(Treasurer), Peter Hick and Andy Gulliver (Deputy Chairpersons), and successive Executive Officers, Ian Wight-Pickin, Damien Postma, and Kim Wilson is appropriate. The commitment of these people has been outstanding and has enabled the organisation to do much with a relatively small amount of funds and a low-power base over the decade.

Future Challenge 5: In addition to the four challenges described above in this section, the biggest challenge for the organisation is to secure its own future. This business and strategic planning should revolve around a number of focus areas (in no particular order).

Focus A: ***Communication*** – keeping the public and government decision-makers aware of what the PHCC knows, is doing, and wants to do.

Focus B: ***Corporate Systems*** – this includes human resources management, information management, and clear internal and external policies, etc. The organisation could benefit from effort to gather and better manage its records, information, and external communications. Funding for this may be available from a public funding source such as Lotterywest.

Focus C: ***People and Knowledge***. This focus revolves around the organisation's people, their knowledge and skills. The experience of the 2008/09 period, when a number of staff left highlights the importance of capturing knowledge and learning before people leave, and of having succession plans in place. Capturing corporate knowledge is difficult in such a 'project-focused' work environment. One possible way to capture knowledge is via simple video interview sessions that can be posted on the organisation's website.

Focus D: ***Policy and Professionalism***. In many ways, these two aspects work together to deliver the credibility that all non-government organisations need. Good policies on NRM, land use, and land development will be important to the PHCC and build its credibility with government, community and private sectors. To paraphrase the words of Cathy Lyons, Community Landcare Coordinator of the SJ Community Landcare Centre:

> *"Catchment councils and other groups lobbying State Government need to be professional, persistent and polite if they wish Government to listen to them".*

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Appendices

Appendix 1: Key Events and Achievements 2000-2009

PHCC Achievements	Date	Relevant Events
	1970's	Confirmation that pollution of Peel-Harvey Estuary is caused by excessive amounts of Phosphorus, largely through superphosphate fertiliser applications to coastal catchment.
	1989	Minister for Environment imposes Ministerial Conditions to prepare Catchment Management Plan and places a moratorium on clearing of native vegetation and new drainage. Conditions remain to this day.
	1989	Three Land Conservation District Committee's (LCDC)formed on coastal catchment
	1994	Dawesville Channel opened
	1999	Integrated Catchment Management Steering Committee commences meeting (precursor to the PHCC)
Peel-Harvey Catchment Council (PHCC) formed	November 1999	
PHCC host Peel-Harvey Landcare Forum at Fairbridge	Dec 2000	
PHCC launches discussion paper on the 'Future of Natural resource management in the Peel-Harvey'	Early 2001	
PHCC becomes an Incorporated Body and employs an Executive Officer, Jenny Mercer, who has to resign after 3 weeks and is replaced by Greg Wyvill.	May 2001	
PHCC administers funds for the Greening the Catchment Taskforce projects, including Wellard Rural Exports project	2001 (to 2003)	
Small scale potential projects – such as Streamlining Gull Road Drain and others developed by PHCC	July 2001	
PHCC interested in regional issues, such as the proposed Nambeelup Industrial Area Development and PHCC's concern over the proliferation of small farm dams	Aug 2001	
First PHCC AGM held on 6 Sept 2001	Sept 2001	
Ian Wight-Pickin commences as Executive Officer	Jan 2002	
Draft 10 Steps Catchment Management Plan prepared	Feb 2002	
	Feb 2002	Public debate over Alkaloam fuelled by reporting in 'The West'
Draft Catchment Management Plan submitted to the EPA for comment	Mar 2002	
	Mar 2002	Greg Watts advises the PHCC that his 1998 studies basically showed that streamlining is effective in reducing phosphorus (70%) and silt (90%) in drains
	April 2002	EPA declines to comment on Draft Catchment Management Plan as it was considered premature, on the basis on future workshops to be held between EPA and PHCC. The plan is released under a different title "Draft Action Plan for Natural Resource Management"
	May 2002	Environment Australia expresses interest in funding preparation of a Water Quality Improvement Plan for the Peel-Harvey
PHCC successful in obtaining funding for ICLEI Water CampaignTM in Catchment from Peel Development Commission	June 2002	
Landcare landscapes brochure (and tour) launched	Sept 2002	

PHCC Achievements	Date	Relevant Events
	Sept 2002	Initiation of Rural Drainage Discussion Paper by WA Government
	Dec 2002	Algal bloom reported in lower Serpentine River, and subsequent fish kill. Similar events occur most years.
Peel Water Campaign™ commences	Jan 2003	
	Feb 2003	EPA releases Bulletin 1087 Reviewing compliance with Ministerial Conditions related to the management of the Peel-Harvey System. PHCC expresses concern that community action, in partnership with Government agencies in catchment, has been largely overlooked
	Early 2003	The joint Australian Government and Western Australian government funded Coastal Catchment Initiative (2003-2006) saw the re-establishment of a water monitoring network in the Peel-Harvey catchment to measure a complex and stressed catchment.
Work commences on preparation of a NRM plan for the Catchment. Leads to Plan published in March 2005.	Mar 2003	
Peel-Harvey Community Forum held (waiting for NHT 2)	23 Mar 2003	
	Mar 2003	Coastal Catchments Initiative established. Eight projects are funded by the Federal Government. Peel Development Commission becomes the proponent for the Water Sensitive Urban Design project
Support given to all CCI projects, especially the Water Sensitive Urban Design Project. Good working relationships with all groups.	Mar 2003 (and ongoing)	
Request to chairperson of the WA NRM Council that the Peel-Harvey be recognised as a separate NRM region. No reply received.	May 2003	
	May 2003	Four Peel-Harvey Local Governments are awarded Milestone One in the Water CampaignTM at the Australian Water Association Oz Water Conference.
Funding received under NHT2 for Rivercare Project, Water CampaignTM extension project, Foundation Funding and Coordinator and Facilitator funding. Funding for NRM Officers in catchment coordinated through PHCC.	July 2003	
Annual Meeting Chairperson's report announces that the PHCC over the past 12 months had sponsored a range of projects including the Water CampaignTM and Fish ladder at the Boddington Town Weir	Aug 2003	
PHCC appeals EPA decision not to assess a subdivision where impact on vegetation had been previously considered a 'deferred matter' when the EPA considered the Peel Region Scheme.	August 2003	
Rivercare Officers commence delivery of projects (Alex Hams and Jesse Steele)	Sept 2003	
PHCC lodges objections to clearing in the catchment (e.g. Paterson Rd Nambeelup – impact on Nambeelup Brook and Serpentine River).	Sept 2003	
Biodiversity Project Officer appointed as a contractor (Peter Hick)	Nov 2003	
Peel-Harvey used as a case study by the Drainage Reform Group (State Government Initiative)	Feb 2004	
	Feb 2004	Lake Clifton Landcare Group initiates the concept of a Biosphere within the Peel-Harvey catchment. Biosphere concept later taken up by PHCC, feasibility assessment funded by Alcoa
Annual Community forum – Fairbridge	Feb 2004	

PHCC Achievements	Date	Relevant Events
	Mar 2004	Fish kills, particularly in the Serpentine, keeping State agencies busy
Peel-Harvey Biodiversity report finalised and website launched	July 2004 Mar 2005	
Annual Meeting – Chairperson's report. Achievement over past year: • Peel-Harvey Catchment Plan drafted • Major Rivercare work underway and further funding obtained to continue the Rivercare program. • Biodiversity Project completed • PHCC involved in meetings to progress the Waterways Institute concept	Aug 2004	
Official opening of the Boddington Fish Ladder, part funded by PHCC	Sept 2004	
	Nov 2004	Water Sensitive Design LPP and report endorsed by EPA (Richard Morup's work)
	Dec 2004	First meeting held of the Peel 2020 Partnership.
	15 Feb 2005	Front page of 'The West Australian' has article on Peel-Harvey
Peel-Harvey NRM Plan released for public comment	Mar 2005	
Peel-Harvey Biodiversity Decision Support System released	Mar 2005	
April 1 – PHCC hold Community Forum in Pinjarra	April 2005	
Staff Move To Peel Waterways Centre, With Funding From Dow (Then Department Of Environment)	Jun 2005	
PHCC managed projects starting or continuing in 2005/06: • Rivercare project, River Restoration Training project • Peel-Yalgorup Management Plan Project • Local Government Water Resource management project • Biodiversity DSS Training • Climate Change project (P Hick) • Dryandra Woodland Protection Project • Swan Coastal Plain Targeted Biodiversity Project	Jun 2005	
In Chairperson's Annual Report: • PH NRM plan presented to the community • Commenced Ramsar Management Plan project • Continued Rivercare • Continued Water CampaignTM • Training on biodiversity DSS, Small Property Planning Courses, River Restoration Course • Biodiversity linkages on the Swan Coastal Plain • Dryandra woodlands project • Goegrup and Black Lakes Indigenous project • PHCC staff moved into Waterways Centre • PHCC refers two proposals to the EPBC Act as potential controlled actions • Submissions made to the EPA based on Ramsar status of the Estuary	Aug 2005	
PHCC Strategic Framework Report for PHCC 2006 – 2010 by Dorothy Lucks. Clarifies the role, strategic direction and principles for operation of the PHCC for the next five years.	Aug 2005	

PHCC Achievements	Date	Relevant Events
	Nov 2005	Peel-Harvey WQIP tabled in State Parliament through PDC's Minister as a regional priority
	Nov 2005	Official opening of the Peel Waterways Centre
First-pass endorsement of pursuing 'Man in the Biosphere' project for the Peel-Harvey	Feb 2006	
	Mar 2006	Senior Government group works on governance model for the Peel-Harvey for implementation of the WQIP
Annual Community Forum – Pinjarra	Mar 24 2006	
Planning for Greening Australia/Alcoa river recovery projects in catchment	Mar 2006	
PHCC comments on various proposals impacting on natural resources. Consideration given to the PHCC's role in influencing developers. PHCC begins proactively engaging developers	June 2006	
NRM officer funding for 2006/08 had been announced and that there would be 6.5 FTE's located in the Peel-Harvey Catchment, an increase of 2.8 FTE over the current situation.	June 2006	
Damien Postma commences as PHCC Executive Officer	July 2006	
PHCC website launched	July 2006	
	Sept 2006	Greening the Catchment Taskforce officially wound up
	Oct 2006	DoW Coastal Drainage Initiative commences
PHCC – DEC partnership awarded funds to produce Ramsar Site Management Plan and Ecological Character Description. PHCC seeks MoU with DEC and Conservation Commission in relation to project.	Nov 2006	
	May 2007	Peel-Harvey WSUD Technical Guidelines launched
PHCC gets funding for Peel-Yalgorup Ecological Character Description and Urban Sustainability initiatives from PDC	Feb 2007	
Investment Plan 2 projects commence: • Dryandra Project • Hotham Williams Murray Rover Salinity Recovery Project	Mar 2007	
Need for a large scale drainage initiative recognised. PHCC floats concept of diversion of the Peel Main Drain to create large biofiltering wetlands as part of the New Perth-Bunbury Highway plans	Apr 2007	
	June 2007	Proposed Peel-Harvey Water Quality Improvement Council governance framework supported by all agencies. Key Ministers briefed – land use planning issues require further attention.
PHCC commissions Planner Brian Curtis to address planning issues as part of finalisation of Peel-Harvey Governance framework prior to Cabinet consideration	July 2007	
Alcoa Pinjarra Wetland project underway; PHCC teams up with SWCC, Greening Australia, Shire of Murray and Alcoa to build demonstration site	July 2007	
Peel-Harvey Drainage Reform Plan finalised	July 2007	
	July 2007	Public comment sought on Masterplan for the development of the State Government's Amarillo site.
MoU signed with DEC to deliver Ramsar Management Plan	July 2007	
	Sept 2007	Draft Peel-Harvey WQIP Launched by Minister Templeman
PHCC Annual Community Forum at Coodanup	Dec 2007	

PHCC Achievements	Date	Relevant Events
PHCC becomes national pilot for the catchment module of the Water CampaignTM	Mar 2008	
PHCC nominate the Lake Clifton Thrombolite community as a TEC under the EPBC Act	Mar 2008	
PHCC Water Sensitive Design Land Developers Forum – The Cut Golf Course, Port Bouvard	Mar 2008	
PHCC NRM Strategic Planning Workshop, Fairbridge Pinjarra	April 2008	
Discussion with Tertiary institutions on collaborative research programs to cover the Peel-Harvey Estuarine System	Jun 2008	
Hotham Williams Murray River Salinity Recovery Project completed	Sept 2008	
	Sept 2008	Labor State government losses election and no further progress made on Peel-Harvey catchment governance body.
Peel Region Climate Change Policy Development Project concept discussions	Sept 2008	
	Nov 2008	Final Peel-Harvey WQIP released by EPA
Draft Ramsar Management Plan & Peel-Harvey Ecological Character Description completed	2008 AGM	
DVD Documentary produced "Birds of the Peel-Yalgorup"	May 2009	
Draft Development Position Statement prepared by PHCC	April 2009	
	Mar 2009	50% drop in Federal funding for NRM in the SW region announced
New Peel Climate Change Adaptation project commences	April 2009	
	April 2009	Australian Government announces that it does not want to contract with sub-regions such as PHCC. PHCC bid for $1.3 m funding in doubt
PHCC continues moves to become its own region	May 2009	
PHCC finalist in two UNEP award categories for Ramsar and Water CampaignTM (Australian World Environment Day)	May 2009	
Executive Office, Damien Postma, seconded to SWCC	May 2009	
	June 2009	Funding for NRMO's from SWCC ceases.
	June 2009	All SWCC funding from SWCC/Caring for Our Country ceases.
Ecosystem Health DSS Project commences – Murdoch University engaged	June 2009	
Kim Wilson commences as Acting Executive Officer	June 2009	
PHCC relocates out of the Peel Waterways Centre. Kim moves to Waroona Landcare Centre and Amanda Willmott is hosted by City of Mandurah.	Aug 2009	
WSUD Drive Tour launched with developers and Leschenault Catchment Council	Oct 2009	
PHCC Board Strategic Planning workshop 'Moving Forward'	Nov 2009	
PHCC contracted by the DoW to deliver the WQIP Implementation Project "Filtering the Nutrient Storm"	Dec 2009	
PHCC relocates office to Pinjarra Road, Mandurah, co-located with SWCC.	February 2010	
Science Strategy for the Peel-Harvey Estuary completed.	July 2010	
Jane O'Malley appointed PHCC Executive Officer	September 2010	
PHCC receives grant to maintain the Executive Officer position and produce a Business Plan through Royalties for Regions and Peel Development Commission.	October 2010	

Appendix 2: Major Features of the Proposed Peel-Harvey Catchment Governance Model

The proposed Peel-Harvey Catchment Governance model included the formation of a Peel-Harvey Water Quality Improvement Council. The PHCC was to be one of four regionally-based groups to advise and be directed by the Peel-Harvey Water Quality Improvement Council (Figure 12). The PDC was to provide executive support and budget administration to the Council.

1. The primary roles of the Peel-Harvey Water Quality Improvement Council would be to:

    a. Administer and coordinate the implementation of the WQIP;

    b. Develop a Catchment Management Plan;

    c. Facilitate and coordinate ongoing environmental management between Government, industry and the community to achieve a set of environmental goals covering the waters of the Peel Harvey and its catchments;

    d. Investigate, monitor, review and report on environmental objectives, criteria and targets where appropriate in accordance with the WQIP, CMP and the State Environmental Policy;

    e. Coordinate research and investigations as a basis for development and implementation of environmental and management objectives; and

    f. Report annually to the Western Australian Parliament and the community on the state of the Peel Harvey Inlet.

2. It was proposed that the Council would consist of:

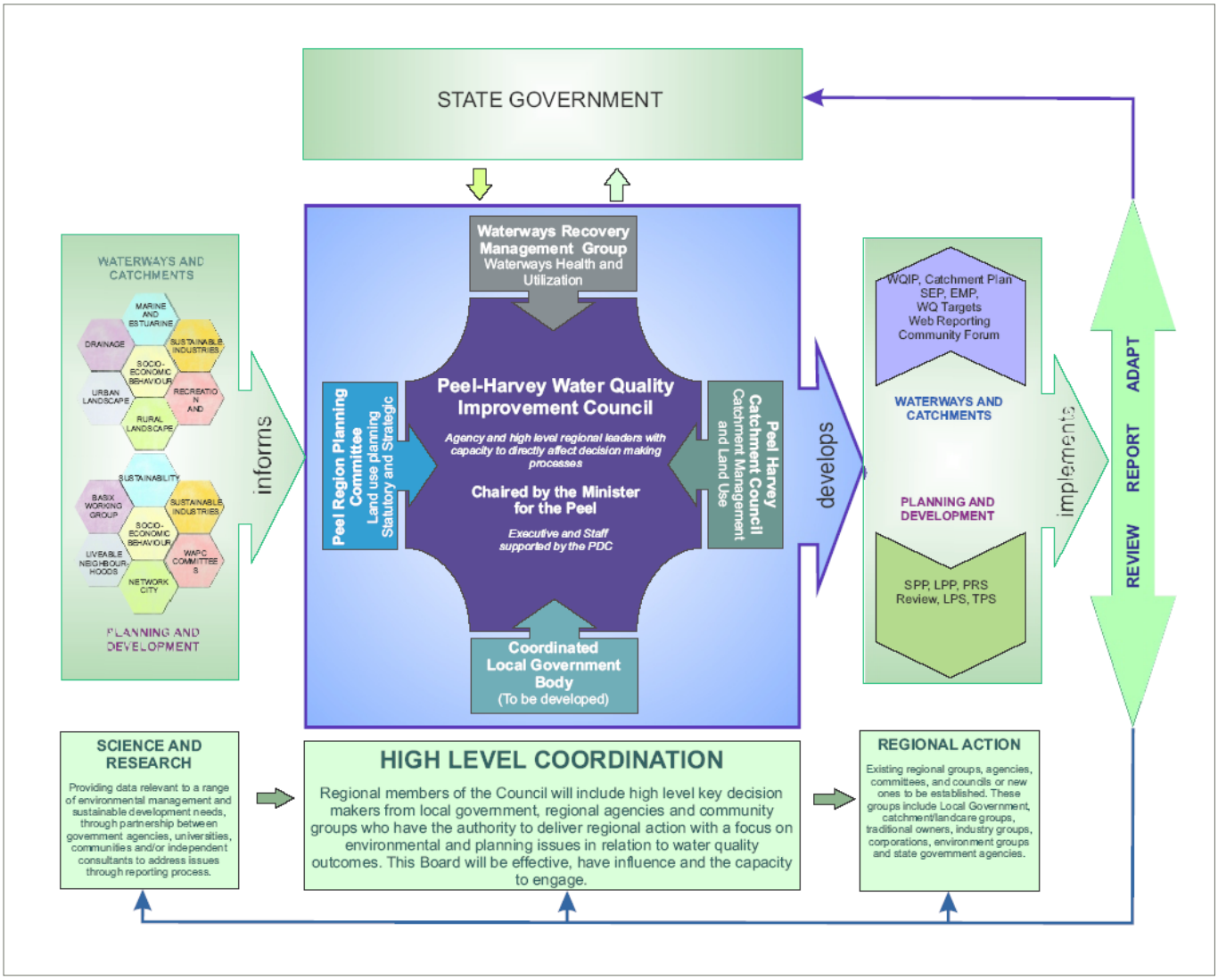
    a. A Chair appointed by the Minister for Peel. The Chair will be responsible for reporting back to the Minister for Peel on actions needed to be progressed at senior levels within government.

    b. The Minister for Peel will be responsible for liaising with relevant Ministers and for reporting on water quality progress to Parliament.

    c. This Council will consist of the relevant DG's or senior staff appointed by the relevant Ministers and the Chairs of the 4 regional groups that service the Council.

    d. This Council, in its senior advisory role between the region and State would meet 4 times a year to ensure that planning and environmental mechanisms were integrated, coordinated and streamlined and objectives were being met; and

    e. The Council would provide an advisory role to government in terms of policy development.



Proposed Governance Model for the Peel-Harvey Water Quality Improvement Council

Appendix 3: Conclusions from the Report 'Tackling Wicked Problems"

(Commonwealth of Australia, 2007)

Many of the most pressing policy challenges for the Australian Public Service (APS) involve tackling wicked problems. Wicked problems are characterised by social complexity—they cross the boundaries of APS agencies, they cross jurisdictional boundaries, stakeholders (and experts) often disagree about the exact nature and causes of the problems and, not surprisingly, they disagree about the best way to tackle them. A key part of the solution to many wicked problems involves achieving sustained behavioural change. It has become increasingly clear that a disengaged and passive public can be a key barrier, and is a factor in the policy failures around some of Australia's longstanding wicked problems. In the areas of welfare, health, crime, employment, education and the environment, significant progress requires the active involvement and cooperation of citizens.

Tackling wicked problems is an evolving art but one which seems to at least require:

- *holistic, not partial or linear thinking*. This is thinking capable of grasping the big picture, including the interrelationships between the full range of causal factors underlying the wicked problem. Traditional linear approaches to policy formulation are an inadequate way to work with wicked policy problems as linear thinking is inadequate in encompassing their complexity, interconnections and uncertainty. There is an ever present danger in handling wicked issues that they are handled too narrowly. The shortcomings of traditional approaches to policy making are also due to the social complexity of wicked problems—the fact that a true understanding of the problem generally requires the perspective of multiple organisations and stakeholders and that any package of measures identified as a possible solution usually requires the involvement, commitment and coordination of multiple organisations and stakeholders to be delivered effectively.

- *innovative and flexible approaches*. It has been argued that the public sector needs more systematic approaches to social innovation and needs to become more adaptive and flexible in dealing with wicked problems. Ways that have been suggested to achieve these ends include investing resources in innovation similar to private sector research and development (R&D), blurring the traditional distinction between policy development and programme implementation as one way of making it easier to modify policies in the light of experience about what works and what doesn't, and focusing on creating learning organisations.

- *the ability to work across agency boundaries*. Wicked problems go beyond the capacity of any one organisation to understand and respond to, and tackling them is one of the key imperatives that makes being successful at working across agency boundaries increasingly important. This includes working in a devolved way with the community and commercial sectors.

- *increasing understanding and stimulating a debate on the application of the accountability framework.* It is important that pre-set notions of the accountability framework do not constrain resolution of wicked problems. The accountability framework needs to be applied in a way that can meet the goal of maintaining acceptable levels of accountability while minimising as much as possible any barriers to innovation and collaboration. Internal governance arrangements also need to support this goal.

- *effectively engaging stakeholders and citizens in understanding the problem and in identifying possible solutions.* Because wicked problems are often imperfectly understood it is important that they are widely discussed by all relevant stakeholders in order to ensure a full understanding of their complexity and interconnections. If a resolution of a wicked issue requires changes in the way people behave, these changes cannot readily be imposed on people. Behaviours are more conducive to change if issues are widely understood, discussed and owned by the people whose behaviour is being targeted for change.

- *additional core skills*. The need to work across organisational boundaries and engage with stakeholders highlights some of the core skills required by policy and programme managers tackling wicked problems—communication, big picture thinking and influencing skills and the ability to work cooperatively. Traditionally, more weight has been placed on high-level analytical, conceptual and writing skills and traditional project management skills. While these skills are still fundamental parts of the policy toolkit, they are not sufficient. A multi-disciplinary team approach is a practical way to garner all the required skills and knowledge for tackling wicked problems.
- *a better understanding of behavioural change by policy makers.* This needs to be core policy knowledge because behavioural change is at the heart of many wicked problems and influencing human behaviour can be very complex. The traditional policy tools such as legislation, punishments and regulations, taxes and subsidies will generally form a core part of the overall strategy to achieve widespread, sustainable behavioural change. However, their effectiveness can be limited without some additional tools and understanding of how better to engage citizens in cooperative behavioural change.
- *a comprehensive focus and/or strategy*. Successfully addressing wicked policy problems usually involves a range of coordinated and interrelated responses given their multi-causal nature and that they generally require sustained effort and/or resources to make headway.
- *tolerating uncertainty and accepting the need for a long-term focus*. Successfully tackling wicked problems requires a broad acceptance and understanding, including from governments and Ministers, that there are no quick fixes and that levels of uncertainty around the solutions to wicked problems need to be tolerated. Successfully addressing such problems takes time and resources and adopting innovative approaches may result in the occasional failure or need for policy change or adjustment.

Appendix 4: EPA's Considerations for Preparation of a Catchment Management Plan for the Peel-Harvey

(EPA, 2003)

5. THE CATCHMENT MANAGEMENT PLAN

Some people have claimed that the EPA provided no guidance as to its expectations for the catchment management plan and that catchment management was focused only on rural farmers. In its 1988 assessment, the EPA provided clear guidance about the requirements of the catchment management plan and these included expectations about urban as well as rural areas.

The extract from the EPA report is reproduced here in full.

"It will be necessary to control land uses which presently lead to excessive inputs of phosphorus into the estuaries. It will likely require less area fertilised for agriculture and more area planted under trees.

"The catchment management plan.... would need to address a number of issues, some of which were raised in the ERMP. The plan should include consideration of the following:

- *the environmental water quality requirement for the estuary system will set constraints on land uses in the catchment;*
- *changes in land use should have environmental benefits as the prime objective;*
- *nutrient inputs from all rural sources should be managed so that the total nutrient load is within the assimilative capacity of the Peel-Harvey System (ie 165 tonnes in nine years out of ten);*
- *export of phosphorus from all properties in the catchment must be reduced to meet the above water quality targets;*
- *export of nitrogen from all properties must meet a water quality target for nitrogen, to be specified during the catchment planning exercise;*
- *appropriate fertilisers should be developed for the area, in particular sulphur only or low sulphur fertiliser;*
- *soil testing and provision of fertiliser advice to farmers should continue;*
- *alternative methods of applying fertiliser should be investigated with a view to later spreading;*
- *nutrient inputs from all urban sources should be managed (see also Recommendation 6);*
- *pollution from point sources should be controlled to meet the objectives;*
- *major tree planting programmes should be based on maximising the environmental benefits as the primary objective and should be carried out in accordance with the EPA's recommendations in its assessment of the WA Chip and Pulp Company proposals (EPA, 1988b)*
- *clearing practices in the catchment should be reviewed to ensure environmental protection of the estuary system in accordance with the EPA's recommendations on retention of remnant native vegetation in EPA Bulletin 319 (EPA, 1988c) and Bulletin 329 (EPA, 1988b) (see Recommendation 5); and*
- *drainage practices in the catchment should be reviewed to ensure environmental protection of the estuary system (see Recommendation 5)."* (EPA, 1988a, p.19-20).

Appendix 5: PHCC Programs and Projects Summary

(Acronyms are listed at front of report)

Program or Project	Main funding sources (Direct $ contributions only)	Main purpose of funds/ program description	Program or project costs ($)	Duration	Key achievements, on-ground, reports etc)
Total			9,076,150		
Sub-regional coordination & facilitation	GTCTF/WRC (2000-2002) 2003 – 2008 – (SWCC) 2009-10 (PDC)	Operation of the PHCC to fulfil its functions as a sub-region to SWCC, and as the peak Peel-Harvey Catchment organisation.	1,194,007	Ongoing	Support of major initiatives (e.g. SWCC, CCI, governance model, representation of catchment.
Waterways Centre Operation	Dept of Environment & Department of Water	Operation of Waterways Centre	316,052	2005-2009	N/A
Project Management Costs		Project Management	539,427	-	N/A-
NRMO Transfer	SWCC	Funding of Landcare and Coastcare NRMOs	178,224	2005-2006	NRMO positions maintained in Catchment's landcare centres up to 2006.
NRM Planning	SWCC	Preparation of the PH NRM Plan	86,635		Report: Peel-Harvey NRM Plan (Land Assessment, 2005)
	Water & Rivers Commission	PH Estuary Eastern Catchment Plan	10,000		State of Play report
On ground Projects 2001-2004	GTCTF/Wellard Rural Export	Rehabilitation of wetlands at Wellard Rural Exporters	50,697	2001-2003	Wetland rehabilitation
	GTCTF	Fodder Shrubs Project	11,000	2002-03	Investigating local Acacia saligna varieties for low-growth habits most suitable for grazing.
	Kwinana Shire City if/ Rockingham/Coolup LCDC/Alcoa	Landcare Landscapes	15,953	2002-03	Self-drive Landcare Landscapes Tour created for coastal catchment
	WRC/Dept of Local Got & Regional Dev	Canal Habitat Project	20,000	2002-03	Trial installation of Reef Balls in canals
Water Campaign	PDC/PCWE/CoMand/ SSJ/ NHT/SWCC	LG Water management Project	288,922	2003-2009	Nine Local Governments & their communities assisted to measure water usage and implement efficiency measures
	SWCC	WH01.01 B LG WMP	285,651		
	SWCC	Regional Water Campaign W1-04	217,993		
	SWCC	LGWMP 4.03 - CfOC	75,000		

Program or Project	Main funding sources (Direct $ contributions only)	Main purpose of funds/ program description	Program or project costs ($)	Duration	Key achievements, on-ground, reports etc)
Ramsar - planning and on-ground works	SWCC/DEC	Ramsar - Peel-Yalgorup Man plan W5-11	101,994	2005-10	Major reports for the Peel-Yalgorup Ramsar Site: Ecological Character Description (Hale & Butcher 2007); Management Plan (PHCC, 2009) Monitoring and Evaluation Guide (Hale 2008); Significant on-ground works conducted, including fencing and signage.
	SWCC/DEC/ PDC RDS funds/DoW; Aust Govt, Dept of Environ, Water, Heritage & Arts/Alcoa (Biosphere funds tfr to this project ($37796)	Ramsar WH03c - Peel-Yalgorup Action	311,771		
Remnant vegetation and biodiversity projects	Leschenault Catchment Council	Priority Remnant Vegetation Project	61,756	2005-07	Protecting biodiversity on private property
	SWCC	Regional Rural Vegetation Officer	49,695	2003-04	Report: Biodiversity in the Peel-Harvey Catchment. Parts 1 – 4. Part establishment of Biodiversity DSS
	SWCC	Biodiversity DSS Training	35,617		Further establishment of the Peel-Harvey Biodiversity Decision Support System (DSS) on web. training provision for the Biodiversity DSS
	SWCC	Dryandra Woodlands Project B2-09	51,600	2005-07	Fencing of 145 ha of remnant vegetation around Dryandra and a further 50ha within the greater Tunnaning district, revegetation of 5 ha of linkages
	Dept of Environment	BR03 - Dryandra Woodlands IP2	71,651		
Climate change planning and adaptation	SWCC	Climate Change Project L2-G4	16,136		Report: Understanding, Quantifying & Demonstrating the Likely Local Effects of Climate Change & Variability in the Peel-Harvey Catchment (PHCC. 2006)
	Aust Govt, Dept of Climate Change	Peel Climate Change Adaptation project	232,410	2009-2010	Biodiversity and Emergency Management Strategies for the 5 Peel region local governments

Program or Project	Main funding sources (Direct $ contributions only)	Main purpose of funds/ program description	Program or project costs ($)	Duration	Key achievements, on-ground, reports etc)
Rivercare and watercourse management projects	GTCTF	BRAG Project (Boddington River Action Group)	12,450		Contribution towards construction of the weir and Rivercare activities
	SWCC	River restoration training	62,513	2005-06	Provision of training to community members and professionals on river restoration techniques
	NHT	Rivercare Project	517,965	2003-2009	Significant on-ground impact. Rivercare program was responsible for most of the river restoration and watercourse rehabilitation carried out between 2003 & 2009 in the catchment.
	SWCC/Landcare Aust/ SoM	Rivercare Action Project W4-03	519,928		
	Cape 2 Cape	WH-02 PH Rivercare 06/08	731,475		
	SWCC	Rivercare CfOC	0		
	Landcare Australia	HRRT	243,130		Used the resources of the initial $750,000 investment by the Water Corporation as an offset to enable funding of a Rivercare officer and attract funds for the PHCC Rivercare Program.
	Dept of Environment	Murray River Action Plan	30,000	2004-05	Murray River management: 2km bank protection baffle boards installed; 20,000 sedges and rushes planted; 33,800 other seedlings planted; 3.4 km of Murray River fenced (Hams & Steele, 2006, unpublished)
Coastal Investment Planning	SWCC/Dept of Environment	Coastal management Planning	87,500	2005-06	
Cultural landscapes Project	SCRIPT/SWCC/DEC/PDC	Cultural landscapes project	95,000	2006-07	Report: An Indigenous heritage management plan for the Eastern Foreshores of the Peel-Harvey Inlets (Cuthbert, Cuthbert & Dortch, 2007)
Groundworks	SWCC	Other on-ground works and landholder education	707,351	2006-08	Funded over 35 on-ground projects across the catchment.
Small Landholders Learning Events	Dept of Agriculture		3,000		Expanded on the Heavenly Hectares concept
Water Quality Improvement Projects	SWCC/Alcoa ($100K)	WQ01 PH Water Quality Recovery 06/08	1,059,856	2006-2008	Significant program with on-ground, capacity building and awareness raising components.
	State NRM	State NRM Mayfield 09058 Project	31,390	2010-11	Landholder survey and preparation of Mayfield Drain-catchment management plan
	Dept of Water	Filtering the Nutrient Storm	301,000	2010-11	On-ground works to implement number of WQIP recommendations (e.g. creation of biofilters, stormwater retrofits and riparian management for water quality improvement)
	SWCC/ Leschenault Catchment Council	Coastal Drainage project	133,311	2004-07	Report: Peel-Harvey Drainage Report Plan (Del Marco (2007) or PHCC (2007)
Dryland salinity - Hotham-Williams _ Murray Project	SWCC	RS01a HWM River Salinity	400,000	2006-08	

Program or Project	Main funding sources (Direct $ contributions only)	Main purpose of funds/ program description	Program or project costs ($)	Duration	Key achievements, on-ground, reports etc)
Other special projects	PDC	Urban sustainability Initiative	23,500	2006-07	Series of Great gardens workshops
	Alcoa World Alumina/ GTCTF	ALCOA Biosphere Project	60,000		Feasibility investigation into the establishment of a Biosphere Reserve in the Peel-Harvey (Estuary, Ramsar or catchment)
	PDC	Peel Waterways Institute Project	20,000	2005-06	Feasibility report
Science Strategy Project	SWCC ($20K)/ DoW($15K) / DOAF($15K)	Murdoch Ecosystem Monitoring Project	50,000	2009-2010	Report: A Science Strategy for the Peel-Harvey Estuary (Rogers et al., 2010)