



# Annual Report

1999 - 2000

Implementation of  
The Lake Macquarie  
Integrated Estuary &  
Catchment Management  
Framework



The Office of the Lake Macquarie  
& Catchment Co-ordinator

Box 1906

Hunter Region Mail Centre NSW 2310

Tel **(02) 4921 0230**

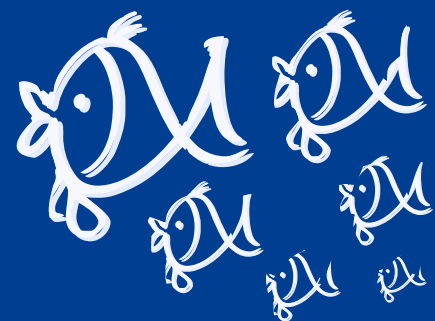
Fax **(02) 4958 7257**

**[www.livinglakemacquarie.org](http://www.livinglakemacquarie.org)**

Committees

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The Honourable Richard Amery, MP  
Minister for Agriculture and  
Minister for Land and Water Conservation  
Level 17, 'Parkview'  
157 Liverpool Street  
Sydney NSW 2000

Dear Mr. Amery,

I am proud to present to you the Lake Macquarie Project Management Committee Annual Report 1999/2000. As we draw a close to the first year of the project, we have an opportunity to reflect on the progress we have made, the challenges we have faced and those that remain ahead.

The Lake Macquarie Project Management Committee has worked at finding the appropriate balance between public works, scientific studies and communication with the population within the Catchment area.

New philosophies for urban and industrial development have been encouraged. Innovative strategies, like the introduction of coconut fibre log erosion control devices at Warners Bay, and reestablishment of native vegetation on foreshore reserves, have shown that the way forward lies in an appreciation and assimilation of the local environment into planning, replacing the outdated "conquer nature" paradigm which has contributed to our current environmental situation.

The Project is working with Lake Councils to enhance their awareness of current environmental understanding and practices.

It is a testament to the growing appreciation of the needs of Lake Macquarie that the local Councils have worked with community groups with the common goal of improving the environmental condition of this natural resource. The growth of the Landcare movement in the Catchment, some 80% in the last eight months alone, shows the level of community support our initiatives now enjoy.

Sadly, support and genuine awareness are two different concepts. Our Living Lake Macquarie Community Survey suggests almost 40% of residents still do not appreciate the effect their domestic habits have on the Lake ecosystem. This is a figure which is still too high. One of the great challenges we have faced is in reaching this sector of the community.

To this end, our communication strategies have led to the development of the Living Lake Macquarie web site, a regular newsletter and a series of Community Service Announcements for local television and radio networks. In the traditions of community in the Lake Macquarie area, the support of print and broadcast media has been generous.

As the project has developed over the first year of operation, the committee has refined its management and reporting processes with implementation of efficiencies in performance reporting and budget review procedures. This has allowed identification of issues and projects which require attention.

The committee has recognised the need for some flexibility within the budget and program as projects have developed and evidence from environmental monitoring and community concerns have arisen. A review of the project directions is scheduled for the first meeting in the new year.

The committee has been aware of the need, however, to remain within the global budget and to remain focused on the objectives identified in the Integrated Estuary and Catchment Management Framework, the document which was the outcome of the Premier's Taskforce for Lake Macquarie and which led to the establishment of the Project and the committee.

The members have continued to show commitment to the process with a high level of attendance at meetings by government and community representatives. Attention to the inter-meeting commitments, outputs and deadlines by the members has made the committee function well. The committee has been particularly fortunate in the appointment of Jeff Jansson as the Project Manager, who has administered the functions of the committee expertly and efficiently.

I believe the structure of the committee, which brings together Regional Directors of the relevant Government agencies to work in a "Whole of Government" approach, is a model for State and Local Government and community involvement in natural resource management.

As the Lake Macquarie Project Management Committee continues in its commitment to the cause of reviving Lake Macquarie, I trust we will record many more milestones and conquer the challenges presented to us.

Yours Sincerely,

Peter Nelson

Chairman

Lake Macquarie Project Management Committee

# About the Project Management Committee

**T**he Lake Macquarie and Catchment area is an important eco-system of natural beauty, with an estimated 190,000 people living in the catchment today and enjoying the lifestyle and economic benefits the Lake provides to the region.

In the wake of growing concerns over the environmental health of Lake Macquarie, the NSW State Government established the Premier's Lake Macquarie Task Force, to investigate the state of the Lake and identify key issues. The Premier's Lake Macquarie Task Force Report was published in 1999. The Lake Macquarie Project Management Committee was established to oversee initiatives put in place to implement the recommendations made in the Task Force

It appointed Mr. Jeff Jansson in a full-time capacity as the Lake Macquarie and Catchment Management Coordinator, to manage the allocation of funding and resources committed to the project. The Catchment Coordinator is an independent position and coordinates across various stakeholders. Lake Macquarie City Council provides administrative support and the office resides in the Council facilities at Speers Point.

The recommendations of the Premier's Task Force Report framed the development of a three-year action plan to address issues affecting the health of Lake Macquarie. The initiatives put in place involved a mixture of physical works, scientific studies on a range of issues and communication strategies.

## Community planting of Lake foreshore



Photo courtesy of Ric Woods

Report. The project is a joint initiative of the NSW Government, Lake Macquarie City Council and Wyong Shire Council.

The local community are instrumental in the success of the project.

The Project Management Committee consists of community representatives, Regional Directors of the relevant State Government departments, one Councillor from both Lake Macquarie and Wyong Council as well as three ex-officio members.



# Executive Summary

**A**t the end of the first year of operation for the Lake Macquarie Project Management Committee and the Office of the Lake Macquarie & Catchment Coordinator, the project is now in full swing with a range of physical works, monitoring program and communications strategies. Some activities are

behind original schedule due to the later than expected appointment of the Coordinator and the need to arrange designs, gain planning approvals and establish work programs.

In its first year, the Office of the Lake Macquarie & Catchment Coordinator allocated funding to physical works projects to the value of \$477,964. The disbursement of this funding reflected the ideals of the Project Management Committee, which is dedicated to promoting soft engineering solutions over the 'conquer nature'

philosophies which dominated thinking throughout last century.

Many preparatory studies are either complete or nearing completion, and the findings of these programs will be used

as important reference guides to direct funding for further works in the coming years.

The community education & reporting function of the program has been targeted to address key areas of awareness as identified by the Living Lake Macquarie Community Survey Report in May.

The release of the series of information brochures and discussion posters throughout local schools, community groups and the wider community through Council will be completed by the end of 2000.

The community involvement in the project has been very encouraging, with the Olympic Landcare Challenge typical of the results that can be achieved when local Council and the community work together for the common good of the environment. The net result of the first year in implementing the recommendations made by the Premier's Task Force Report has seen a number of problem sites being successfully rehabilitated, but more importantly the completion of studies and preparatory work which will result in major long term improvements to the Lake environment in the coming years.

It is important to remember that the problems associated with the Lake and Catchment have developed over the 200 years since European settlement. These issues will not be fixed overnight, nor is it reasonable to expect the environment to be restored to its former pristine state. The ultimate aim is to restore some balance to the dynamics of the ecosystem which will ensure the Lake's long term health. The Project Management Committee met four times throughout the first year.



**Macroalgae collection for monitoring program**

The Office of the Lake Macquarie & Catchment Coordinator has concentrated funding on programs where a natural systems approach to environmental management has been the predominant philosophy where possible. Soft engineering approaches, based on the new Water Sensitive Urban Design techniques also provide the opportunity to balance urban development with the needs of the Lake. These strategies retain or assimilate existing water tributaries and natural ecosystems into new urban developments.

The Project Management Committee chose to support like-minded projects to promote an appreciation of these soft engineering solutions as opposed to hard engineering solutions as the most effective way of improving water quality wherever practicable. The 1999/2000 year saw in excess of \$477,964 committed to physical works, including:

- Protection of shoreline areas against erosion and provision of vegetation filters to filter sediments and nutrients from stormwater
- Re-vegetation of eroding sites
- Designs and development applications for stormwater treatment and management devices

### **Fennell & Edmunds Bay**

Fennell and particularly Edmunds Bay is stressed and suffering eutrophication as a result of sediment and nutrient loads. To combat this problem, the Project Management Committee devised a three-stage program:

#### **Stage 1 - Investigations of remedial works**

WBM Oceanics Australia was appointed from a field of five preferred consultants to undertake Stage 1 of the remediation works

at a total cost of \$117,930. Stage one involved conducting scientific investigations including measurements of water quality, sediments, nutrient release, seagrasses, benthic fauna and hydrographic survey. The data from WBM Oceanics completed study will be used to develop a full understanding of the ecological processes and prepare a range of conceptual options for remediation.

**Stage 2** - involves the final design with community consultation and the preparation of an EIS.

**Stage 3** - Physical works, with a budget of up to \$2.5M.

### **South Creek, Warners Bay**

This project was evidence of new “soft” technologies at work in our environment. Completed at a cost of \$84,000, the project to prevent further degradation of shoreline areas at South Creek and the lake foreshore near South Creek involved the installation of coconut fibre logs in affected areas. The logs are expected to last around five years before breaking down organically, by which time native shoreline vegetation will have grown to provide natural protection to erosion and a filter for stormwater run off. The long term aim of shoreline protection is for the natural development of sloping beaches which absorb wave energy, allowing dead seagrass to be washed out of the Lake naturally while maintaining good binding vegetation in the upper beach area.

### **Stabilisation of Salts Bay**

The preservation of Salts Bay was identified in the Task Force Report as a priority action, and not just because of the Bay itself. Salts Bay also provides protection for wetland areas in Black Neds Bay, which

would be at risk if the current rate of erosion were to go unchecked.

An Environmental Impact Statement was prepared on the area from the eastern most point of Salts Bay to Mats Point, and from Mats Point to the entrance of Black Neds Bay. The study concluded that a mixture of beach nourishment and groyne construction would be the most effective long-term solution to the problem.

The Estuary Management Committee accepted this recommendation and subsequently a development application was lodged with Lake Macquarie City Council in March.

Stage One of the proposed development, with a budget of \$600,000, includes beach nourishment (with approximately 32,000m<sup>3</sup> of sand), the progressive extension of existing groyne construction and the addition of a further development.

### **Monitoring of Dredge Spoil Islands at Swansea Flats**

Umwelt Australia Pty Ltd were appointed in June, to undertake the Investigations of the Impacts of Dredge Spoil Islands, Swansea Flats.

Complete details of funding allocation to physical works are included in the financial report, beginning page 16.



# Communication & The Community

**T**he Project Management Committee recognised the need for the wider community to be aware of the plight of the Lake and enthusiastic about the initiatives to improve it, if the program is to realise its potential.

This community involvement is best mobilised by direct consultation and through

media to report on developments and inform about key issues.

## Community Liaison

Widespread publicity was achieved seeking community input into identifying eroding sites for attention in December 1999.

This coverage also generated numerous requests for Jeff Jansson to address evening/weekend meetings on the plan. No request was denied.

In February 2000, Ford Communication was engaged to carry out

Community Education and

Reporting Functions at a total cost of \$47,190. A detailed program,

titled "Living Lake Macquarie" was developed and included the following elements:

## Community Survey

The Community Survey involved a telephone survey of 600 randomly selected respondents aged 18 years and over within the Lake Macquarie and Catchment area. Responses were obtained over a four week period in March and April.

The results were released in a report in May. Some of the key findings were:

- 70% of respondents thought the Lake environment had either improved or remained the same over the last five years.
- The most important issues identified by respondents were drainage systems, tidal exchange at Swansea Channel and vegetation around the Lake foreshores.
- 37% of people claimed their domestic activities had little or no effect on the health of the Lake.

The final point was used as the key statistic in publicity for the release of the report.

## Community Newsletter

The first issue of the "Living Lake Macquarie" newsletter was published in March, with a second in preparation for August. The March edition featured a number of stories covering the broad range of activities within the plan. The newsletter was a free, four page



**Temporary coconut fibre protection for proposed foreshore planting**

publication distributed to 76,000 residential addresses including the entire Lake Macquarie and Catchment area.

### Information Brochure/ Discussion Poster Series

A series of information brochures were prepared, with matching discussion posters being produced on the following five key issues, as identified by the Lake Macquarie & Catchment Coordinator:

- Vegetation
- Seagrasses
- Sedimentation and Nutrients
- Channel & Entrance Issues
- Estuary Management

In order to maximise media coverage for each issue, the brochures are scheduled to be distributed individually, with the first edition on shoreline & littoral vegetation to be released in July.

The information brochures and discussion posters will be made available to the public at Lake Macquarie City Council and public library facilities throughout the region. The discussion posters and brochures will also be distributed throughout community groups and local schools.

### Web Site

The development of [www.livinglakemacquarie.org](http://www.livinglakemacquarie.org) commenced in May. The intention is for the web site address to be advertised on all information brochures, discussion posters and communication materials.

The web site is due to be fully operational by the end of August 2000.

### The web site includes the following:

- Profiles of all Project Management Committee members



### Community planting of Lake foreshore

- Information on the five key issues covered by the information brochures & discussion posters.

- Media release history for the project.
- Editions of the newsletter.

Copies of the key reports including the Lake Macquarie Estuary Management Study, the Lake Macquarie Estuary Management Plan and the Lake Macquarie Task Force Report are downloadable from the site.

### Community Service Announcements

A series of Community Service Announcements (CSA) are being produced for radio & television and will screen in the latter half of 2000.

The five CSA's (featuring the issues covered in the information brochures) will be aired on local radio and television networks along with an introductory advertisement for the Living Lake Macquarie program, which was produced by local cinematographer Keir Enderby.

The CSA series is being produced within

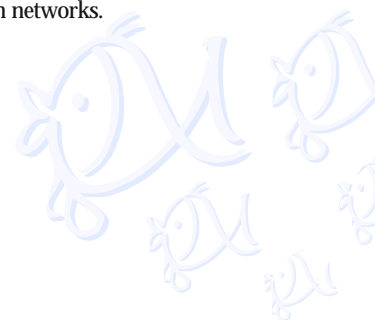
the budget allocated to Ford Communication for the Community Education and Reporting Function.

### General Publicity

A publicity program has been scheduled around the release of selected elements of the Community Education and Reporting Program.

The publicity for each of the information brochures & discussion posters will be timed to coincide with selected events, the release of appropriate studies and other appropriate news worthy activities identified on the Council calendar.

The support of the Living Lake Macquarie project from local print and broadcast media has been encouraging, particularly from radio and television networks.



The coordination of monitoring and scientific studies of key issues around the Lake and catchment was an important success of the Project Management Committee in its first year. Through this process it is developing a clearer indication of trends in the health of the lake's ecosystem which are valuable in directing longer term decision making and day to day monitoring.

#### Some highlights in this area include:

- Monitoring of Foreshore Erosion Resulting From Channel Entrance

- Registered surveyors undertook regular monitoring of erosion rates in key areas identified as experiencing severe erosion.

- A brief is under preparation for strategies to address problems of erosion at Coon Island.

#### Monitoring of Macroalgae and Seagrasses

In March, AMBS (Australian Museum Business Services) were appointed to monitor macroalgae on the basis of species and mean biomass of two transects in five representative bays, in comparison to a control bay, at a cost of \$21,815. A preliminary report tabled in winter found that the situation was satisfactory, though this did not reflect the problems, which are normally experienced during warmer months.

The monitoring of seagrasses was funded and arranged by Pacific Power and Delta Electricity.

They identified increases in the density of seagrass meadows, particularly at the northern end of the Lake. The increase in density is likely to be a factor of nutrient enrichment rather than improved management practices.

#### Monitoring of Boating Traffic Through Swansea Bridge

Waterways Authority of NSW (Waterways) commenced monitoring of boating traffic (across a range of craft size) through Swansea Channel in October 1998. Although much more analytical work

remains to be done, the results of the survey period will help determine at what level funding is continued for initiatives to maintain safe navigation for boating. Regular hydrographic surveys of the main entrance channel is also conducted by Waterways.

#### Monitoring of Bathing Areas

Monitoring of bathing areas by Lake Macquarie Council for the indicator organism, faecal coliforms, resulted in 92% of samples satisfying the ANZECC guideline.

Monitoring by Wyong Council of sites in Lake Macquarie revealed that 87% satisfied the median guideline. This sampling was more intensive and only included three sites. The sites that had higher levels for both programs showed no definitive trend.

It should be noted, that given the statistical basis and complexity of the guidelines these results are indicative only.

Hunter Water Laboratories (HWL) were engaged to undertake Bathing Water Quality Monitoring, with the first round to commence in July 2000, to be followed by a second more intensive weekly sampling program in October. This period will continue through until April 2001 to cover the entire swimming season at a cost of \$39,525 per annum. HWL also commenced monitoring of Lake Body Water Quality and The One Off Lake Tributary in June 2000.



**Water quality data collection as part of macroalgae survey of Lake Macquarie**



**Creek stabilisation works**

The Project Management Committee worked to forge relationships with like-minded organisations, to develop strategies and tackle projects which would otherwise remain untouched or incomplete.

**Some examples of these alliances are:**

- German / Australian Alliance on Contaminated Sediments

This program is funded jointly by the Australian and German Governments and will utilise German technology at a number of Australian sites. The alliance also has technology that will prevent the release of nutrients from enriched sediments using modified natural products. Lake Coordinator Jeff Jansson met with some of the Australian team [Prof David Waite (UNSW) and Dr Grahame Batley (CSIRO)] in November with the aim of achieving benefits for Lake Macquarie through this program.

**Olympic Landcare Challenge**

The Project Management Committee participated and funded preparatory works for the Olympic Landcare Challenge held in May 2000. More than 500 volunteers from Sydney took part in the event, which saw over 15,000 trees planted on the northern foreshores of the Lake.

It is estimated that the work done on the day was worth around \$45,000 in labour costs alone.

The tree planting focused on the littoral zones along the shorelines of the Lake. These areas have long been a key area of concern in the fight to revitalise Lake Macquarie.

The Olympic Landcare Challenge displayed the benefits of close working relationships

between local community groups and the Council.

**Urban Stormwater Initiative**

Together with LMCC, the Project Management Committee developed a grant application for the Commonwealth Government's Urban Stormwater Initiative in March. The project builds on existing programs and \$500,000 is being sought.

**Landcare Grants**

Funding of small grants to Lake Macquarie Landcare Groups was provided to undertake physical works in the catchment which contributed to water quality improvements. The grants were administered by Council's Landcare Resource Officer.



In addition to activities within the broad categories of the program, the Project Management Committee made good progress in a number of general areas. The Office of the Lake Macquarie & Catchment Coordinator was established within Lake Macquarie City Council headquarters at Speers Point, with Jeff Jansson assisted in his role as the Lake Macquarie & Catchment Coordinator by Loren Morgan. Some of the highlights were:

### **Auditing of Septic Tanks on Industrial Premises'**

The initial survey of septic tanks in the Toronto West Industrial Estate in February revealed that 24 of the 31 systems had defects requiring rectification. These defects have been followed up by officers from Lake Macquarie City Council. The Hunter Water Corporation is investigating and costing a strategy for providing sewerage services to the estate.

### **Protection Strategies for Wetland and Riparian Vegetation**

Egis Consulting were engaged in June 2000, to develop strategies to protect wetland areas, as well as riparian and littoral vegetation zones.

It is estimated that 35% of all wetland areas, and up to 75% of shoreline vegetation has been cleared or lost since European settlement. The strategies devised by Egis will be aimed at redressing the balance between human activity and the health of the ecosystem.

### **Integrated Catchment & Estuary Management Model**

The Lake Macquarie and Catchment Coordinator commissioned the NSW EPA to provide an integrated model for the



### **Education program on stormwater pollution for light industries**

catchment and estuary of Lake Macquarie. The aim of the model is to produce a tool which enables us to predict the biological evolution of the estuary from the prevailing climate conditions and human activities within the catchment. This means ultimately being able to provide information about nutrient loads from the catchment which will assist in making management decisions to protect the health of the Lake and ensure sustainable development.

### **Support From Government Departments**

One of the major tasks for the Office of the Lake Macquarie and Catchment Coordinator in the first part of the year was the following-up of commitments to the Premier's Task Force to undertake actions for the Lake and Catchment. It is pleasing to report that there was generally good support for the project.

### **Thank You**

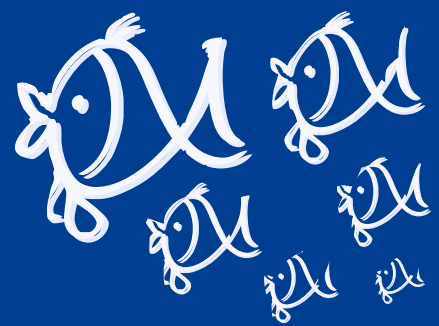
The Project Management Committee has been fortunate to have the assistance of a number of government departments and

groups during the first year of the program. Special thanks go to:

- Waterways made a boat available on loan to the Lake Coordinator in December. The project funded fuel and annual maintenance but the provision of the vessel was a helpful boost to the Committee's resources.
- Local broadcast & print media have been strong advocates for the 'Living Lake Macquarie' project. Not only have they given healthy coverage to the issues in general news, but they have been generally supportive of the programs objectives.
- Lake Macquarie City Council provides records management and financial management free of charge.
- Wyong Shire Council have been of invaluable assistance in identifying sites requiring attention, both in monitoring and physical works. Their local knowledge has helped condense this considerable challenge into a more manageable task.
- The Department of Land and Water Conservation have provided ongoing technical support and assistance with the preparation of consultants briefs.

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## Independent audit report to the Lake Management Committee

**PricewaterhouseCoopers**  
8 Auckland Street  
Newcastle NSW 2300  
PO Box 798  
NEWCASTLE NSW 2300  
Telephone (02) 4925 1100  
Facsimile (02) 4925 1199  
DX 77 Newcastle

### Scope

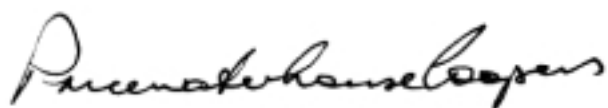
We have audited the attached "Operating Statement of Financial Position" for the Lake Management Committee for the year ended 30 June 2000. Council is responsible for the preparation and presentation of the Operating Statement and Statement of Financial Position and the information contained therein. We have conducted an independent audit of the Operating Statement and Statement of Financial Position in order to express an opinion to the Lake Management Committee on its preparation and presentation.

We disclaim any assumption of responsibility for any reliance on this audit report or on the financial report to which it relates to any person other than the Lake Management Committee for any purpose other than that for which they were prepared.


Our audit has been conducted in accordance with Australian Auditing Standards. Our procedures included examination, on a test basis, of evidence supporting the amounts disclosed in this statement. The procedures have been undertaken to form an opinion as to whether, in all material respects, the attached Operating Statement and Statement of Financial Position is in accordance with the books, accounts and other relevant records of Council.

### Audit Opinion

In our opinion, the attached Lake Management Committee Operating Statement and Statement of Financial Position is in accordance with the books, accounts and other relevant records of Council.



PricewaterhouseCoopers  
Chartered Accountants



WM Russell  
Partner

Newcastle  
24 November 2000

## Office of the Lake Macquarie & Catchment Co-ordinator

### Operating Statement

#### Revenue:

Contributions - DLWC Supplementary	1,400,000.00
Contributions - DLWC Administration	91,868.85
Contributions - LMCC	202,787.17
Contributions - Wyong Shire Council	10,686.21
Contributions - Hunter Water	14,000.00
Contributions - In Kind	519,914.00
Interest on Investments	6,250.39
	2,245,506.62

#### Expenditure:

Completed Works - Note (1)	456,636.75
Works In-Kind - Note (2)	519,914.00
	976,550.75

<b>Surplus Funds Held 30/06/2000</b>	<b>\$1,268,955.87</b>
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See Note (3) for Work Commitment for Expenditure

### Statement of Financial Position

#### Current Assets:

Investments	1,268,955.87
Receivables	7,205.40
	1,276,161.27

#### Current Liabilities:

Creditors	776.05
	776.05

<b>Net Current Assets:</b>	<b>\$1,275,385.22</b>
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#### Non Current Assets:

	0.00
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#### Non Current Liabilities:

	0.00
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	0.00
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<b>Net Assets</b>	<b>\$1,275,385.22</b>
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<b>Total Equity</b>	<b>\$1,275,385.22</b>
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## 1

## Office of the Lake Macquarie & Catchment Co-ordinator Completed & Works In Progress

Project Description	Actual Expend to 30/6/2000	Source of funding Cash			
		DLWC (Supplementary)	LMCC	WSC	HWC
Distribution of Newsletter #1	2,590.00	1,295.00	1,295.00		
Printing of Newsletter #1	5,294.00	2,647.00	2,647.00		
Website Fees	169.90	84.95	84.95		
Office Sundries	191.75	96.00	95.75		
Community Education & Reporting Functions	39,325.00	19,662.50	14,943.50	4,719.00	
Fennell/Edmunds Bay Investigation Remediation Works	101,114.00	50,557.00	50,557.00		
Investigation Maintenance Dredging Cockle Creek Spit	1,545.00	772.50	772.50		
Stabilisation riparian zone Stony Creek	1,780.21	890.11	890.10		
Stabilisation of erosion at mouth of Cockle Creek	16,500.00	8,250.00	8,250.00		
Advice on erosion Pelican	240.00	109.10	130.90		
Stabilisation of Toronto Foreshore	4,818.00	2,409.00	2,409.00		
Stabilisation of Shepherds Creek	11,020.00	5,510.00	5,510.00		
Investigation Septic Tanks Toronto West Industrial Estate	9,410.00	4,705.00	4,705.00		
Audit of unlicensed small business Cockle Creek catchment	23,055.00	11,527.50	11,527.50		
Integrated Model	42,400.00	21,200.00	17,414.29	3,785.71	
Macroalgae Surveys	10,907.50		8,726.00	2,181.50	
Salaries and Oncosts	89,767.27	89,767.27			
Motor Vehicle Running Expenses	8,632.00	8,632.00			
Mobile Phone Operating Expenses	516.54	516.54			
Administrative Support	58,325.18		58,325.18		
Posters Cockle Creek Audit	536.40	268.20	268.20		
Landscape preparation works Fennell Bay	2,560.00	1,280.00	1,280.00		
Stabilisation / Vegetation of eroding foreshore Bayswater	1,659.00	829.50	829.50		
Rehabilitation of Bernie Goodwin Memorial Park, Morisset	1,420.00	710.00	710.00		
Signs for display at rehabilitation sites	1,260.00	630.00	630.00		
Design of stormwater treatment devices	21,600.00	10,800.00	10,800.00		
<b>Total</b>	<b>456,636.75</b>	<b>243,149.17</b>	<b>202,801.37</b>	<b>10,686.21</b>	<b>0.00</b>

## Office of the Lake Macquarie & Catchment Co-ordinator Works In-Kind

Project Description	Source of funding In Kind Contribution									
	Actual Expend to 30/6/2000	DLWC	* EPA	TAFE	Fisheries	Powercoal	Pacific Power Delta Electricity	Pasminco	Waterways	
Integrated Model	30,000.00		30,000.00							
Water Monitoring	25,400.00			25,400.00						
Implement Stormwater Management Plan	324,434.00		324,434.00							
Stormwater treatment - traps, road verges, bush regen	11,000.00					11,000.00				
Monitor seagrasses	12,000.00						12,000.00			
Monitor lake water quality	28,080.00						28,080.00			
Monitor Cockle Creek water quality	12,000.00							12,000.00		
Monitor channel and seagrasses	41,000.00								41,000.00	
Monitor boat movements Swansea Bridge	5,000.00									5,000.00
Vegetation and Erosion Monitoring	6,000.00	6,000.00								
Facilitate formation of Landcare groups and initiative Rivercare projects	15,000.00	15,000.00								
Monitor seagrasses	10,000.00				10,000.00					
<b>Total</b>	<b>519,914.00</b>	<b>21,000.00</b>	<b>354,434.00</b>	<b>25,400.00</b>	<b>10,000.00</b>	<b>11,000.00</b>	<b>40,080.00</b>	<b>12,000.00</b>	<b>46,000.00</b>	

\* EPA Stormwater Trust Grant

## 3

## Office of the Lake Macquarie & Catchment Co-ordinator Work Commitment for Expenditure

Project Description	Actual Expend to 30/6/2000	Source of funding Cash			
		DLWC (Supplementary)	LMCC	WSC	HWC
Printing of Education Posters / Pamphlets	4,570.45	2,285.45	2,285.00		
Community Education & Reporting Functions	7,865.00	3,932.50	2,988.70	943.80	
Fennell / Edmunds Bay Investigation Remediation Works	9,416.00	4,708.00	4,708.00		
Design of Stormwater Treatment Devices	15,000.00	7,500.00	7,500.00		
Winding Creek Stabilisation	5,000.00	2,500.00	2,500.00		
Brush/ Cockle Creek junction riparian zone restoration	13,500.00	6,750.00	6,750.00		
Riparian zone restoration zoom west of Ridley St. Edgeworth	15,980.00	7,990.00	7,990.00		
Revegetation of riparian zone Cocked Hat Creek	3,015.00	1,507.50	1,507.50		
Wyang Local Government Area works	174,000.00	100,000.00		74,000.00	
South Creek, Warners Bay stage 1	18,000.00	9,000.00	9,000.00		
South Creek, Warners Bay stage 2	66,000.00	33,000.00	33,000.00		
North Creek , Warners Bay	8,300.00	4,150.00	4,150.00		
Stabilisation works opposite Cherry Road, Warners Bay	11,000.00	5,500.00	5,500.00		
Stabilisation of Channel foreshore Aeropelican	36,480.00	18,240.00	18,240.00		
Stormwater / erosion works to various reserves Landcare	6,300.00	3,150.00	3,150.00		
Integrated Model	70,000.00	35,000.00	28,750.00	6,250.00	
Macroalgae Surveys	10,907.50		8,726.00	2,181.50	
Monitor 9 representative Creeks	5,549.00	2,860.30	2,688.70		
Monitor lake body water quality	21,256.00		5,628.00	5,628.00	10,000.00
Monitor bathing sites	39,525.00		35,525.00		4,000.00
Wetland riparian and littoral vegetation protection	44,695.00	44,695.00			
Investigation of impacts dredge spoil islands	49,925.00	27,736.11	22,188.89		
Maintenance Dredging Work	77,800.00	38,900.00	38,900.00		
Rehabilitation Works Stockton Bridge Riparian Zone, Morisset	2,832.00	1,416.00	1,416.00		
<b>Total</b>	<b>716,915.95</b>	<b>360,820.86</b>	<b>253,091.79</b>	<b>89,003.30</b>	<b>14,000.00</b>



