



# Manly Council

**State of the Environment Report  
2003 / 2004**

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# State of Environment Report

## INTRODUCTION

### PERIOD AND LEGAL CONTEXT OF REPORT:

This is the eleventh consecutive State of the Environment Report (SoE) prepared by Manly Council for the Manly Local Government Area (LGA), covering the period of 1<sup>st</sup> July 2003 to 30<sup>th</sup> June 2004. This SoE has been prepared as a comprehensive document under the terms of Section 428(c) of the *Local Government Act 1993*, and the *Local Government (General) Regulation 1993*.

### GUIDE TO THE 2003/2004 COMPREHENSIVE SoE:

The aim of this SoE is to provide accurate and recent information for Council, the Community and other government agencies on the state of Manly's environment and environmental management responses undertaken by Manly Council and stakeholders relevant to the reporting period. Comparing SoE reports from year to year enables Council to gauge improvements in the different sectors of the environment, and identify those areas that will need attention in the future by providing a sound, reliable basis for better informed environmental decision making at a local level. Management recommendations generated from the review of trends and community consultation will be incorporated into this year's 3-year review of the Manly Sustainability Strategy.

### STRUCTURE OF SoE:

This report is structured around the eight environmental sectors of land, aquatic systems, biodiversity, air, waste, noise, Aboriginal and non-Aboriginal heritage and the social environment.

These sectors form the main chapters of the document. Each chapter initially presents a 'snapshot' of indicator trends referred to as *trends at a glance*. The community consultation results relevant to each environmental sector are then briefly reported under *Community Perceptions*.

The State-Pressures-Response (SPR) format is used to describe each Chapter in accordance with the *Local Government Act 1993* and the guidelines for SoE reporting produced by the NSW Department of Local Government (2000). Supported with the assistance of indicators, it describes the current **state** of the environment within the Manly Local Government Area, identifies **pressures** on this environment, and documents **responses** - or actions - of Council, the community and other agencies operating within the LGA, to protect and enhance the Manly local environment as one of the most diverse environments in the Sydney Region.

# COMMUNITY CONSULTATION

The *Local Government Act 1993* requires councils to involve the community, including environmental groups, in the preparation of the SoE. The community is well placed to provide information on their environment, as they interact with their environment on a daily basis.

Manly's Precinct Community Forums, Sub Committees of Council, community members and community groups were invited to provide input into this report by:

- completing a survey,
- forwarding a submission to Council,
- attending a community consultation event at Lagoon Park, and/or
- attending an independently facilitated community consultation event.

Feedback and information collected throughout the consultation process has been included in the respective chapters under the *Community Perceptions* subheading.

## Community Perceptions Overview:

Major issues that the community identified are consistent with community observations of past years. The following table lists the major issues of concern identified under each of the eight indicator sectors:

Land	over development, recreational areas / open space, Quarantine Station/North Head, carrying capacity of the Manly LGA, sustainable development, contaminated sites, environmentally sensitive areas zoning
Aquatic Systems	water quality, pollution, Manly Lagoon, stormwater, water re-use
Biodiversity	bush regeneration, penguins, noxious weeds, dogs, feral animals, tree preservation orders, bandicoots, conservation
Air	traffic congestion, regulation, public transport, parking
Waste	recycling, beach maintenance, litter, increased bin capacity, public place waste, plastic bags
Noise	late night venues, construction sites
Heritage	vandalism & destruction of sites, development, unsympathetic alterations & addition
Social	safety/crime, graffiti, anti social behaviour, affordable housing, Manly Hospital

Many of the issues listed were consistent with Council's Vision 2005 and Beyond document, a framework for managing community needs.

Based on the results of the community consultation survey, the three most important environmental issues identified were: waste, water quality and over-development.

The community was asked to state the type of change they had observed for each of the eight environmental sectors reported on in the SoE report. Results indicated that of those people surveyed, the majority believed that 'positive' changes had been observed in the sectors of Land, Aquatic Systems, Biodiversity and the Social Environment. 'No Change' was observed for the sectors of Air Quality, Waste, Noise Pollution and Heritage.

The community believed they could become more sustainable by:

- Recycling and creating less waste
- Being energy efficient
- Conserving water
- Becoming involved with bush regeneration
- Composting
- Attending Precinct Community Forums
- Using public transport, cycling or walking
- Being vigilant

# 1 LAND

“the range of earth features including geological, geomorphological, palaeontological, soil, hydrological and atmospheric features, systems and earth processes”.

Manly has a rich and diverse character of residential, business, industrial and natural landscapes. Both Manly's natural and developed environment, along with it's array of land uses, contribute to making Manly an attractive destination for residents and visitors alike.

Over the past 100 years poor management practices, extensive land clearing, the introduction of exotic species and increased urbanisation have resulted in extensive land degradation in the Manly LGA. In response to this, Council continues to develop and implement strategies to improve the state of our land environment.

## 1.1 TRENDS AT A GLANCE

Environmental Indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement towards sustainability
Total area of Open Space	461.5ha	461.5ha	465.3ha	465.3ha	459.8ha	459.8ha	<input type="checkbox"/>
Per capita area of Open Space	121.8m <sup>2</sup>	119.6m <sup>2</sup>	119.8m <sup>2</sup>	123.8m <sup>2</sup>	118.3m <sup>2</sup>	114.4m <sup>2</sup>	<input type="checkbox"/>
Residential Density (population per area of land within residential zoning)	145.31m <sup>2</sup>	142.69m <sup>2</sup>	142.92m <sup>2</sup>	141.0m <sup>2</sup>	143.1m <sup>2</sup>	143.1ha	<input type="checkbox"/>
Development Applications Approved	593	673	567	6 48	702	634	<input type="checkbox"/>

## 1.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to ensure that development integrates the principles of ESD and TCM, and is compatible with identified landuse constraints,
- to prevent, control and manage all forms of land degradation and to restore currently degraded land,
- to minimise the risk of environmental damage by chemicals and waste products emanating from human activities,
- to maintain an accessible and healthy open space system that provides passive and active recreational opportunities to the community over a range of ecosystems, and that maintains the integrity of the environment.

## 1.3 COMMUNITY PERCEPTIONS:

Community consultation indicated an overall high level of concern regarding ‘over development’ of the Manly LGA. Major issues identified included:

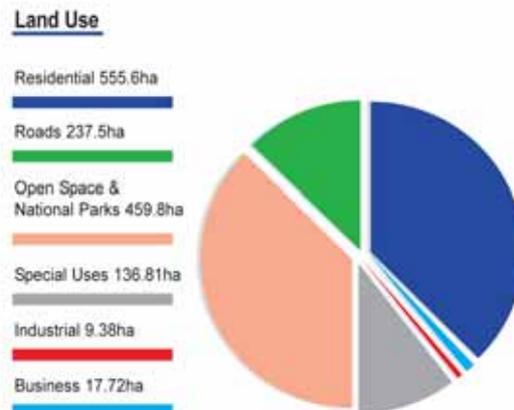
- the development of North Head/Quarantine Station,
- Totem Shopping Centre redevelopment
- urban consolidation / saturation point / carrying capacity of the Manly LGA,
- contaminated sites,
- the Spit Bridge widening, and
- environmentally sensitive areas zoning.

Positive initiatives identified from community consultation include:

- improved presentation of recreational areas and open space,
- landscaping improvement works,
- introduction of BASIX,
- sustainable development,
- Council's rainwater tank initiative, and
- development of Landscape Masterplans (Little Manly and Forty Baskets).

Recommendations for management from community consultation included:

- to undertake a study within the Manly LGA to determine its carrying capacity in terms of development,
- include more stringent environmental conditions for development, and
- enforcement of 'Buffer Zones' between the golf clubs and water courses.



## 1.4 STATE OF OUR LAND:

### Landform:

Manly is located at the southern end of the Manly - Warringah peninsula of the Northern Beaches, immediately to the north of the entrance to Sydney Harbour. The area is 16.57km<sup>2</sup> and has a boundary 39.4km long, of which 29.9km is a water margin. No part of Manly is more than 1km from a waterway.

The topography of Manly is characterised by a high ridge running east west along Balgowlah Heights with steep south facing slopes above North Harbour and more moderate slopes to the North. The area plateaus to the west of Balgowlah Heights and Seaforth with a very steep escarpment dropping to the Middle Harbour shoreline. The general relief of the area ranges from sea level to the highest point located at Bantry Reserve, a level of 121.1m AHD.

To the north, the LGA is bounded for the most part by Burnt Bridge Creek, running from the northwest end of Seaforth to Manly Lagoon. The Manly town centre is located on a narrow isthmus of sand, separating the waters of North Harbour from the Pacific Ocean. The isthmus connects the mainland to the northern headland of Sydney Harbour, creating a tied-island known as a tombolo (Manly Council, 1997).

A barrier lagoon estuary has formed at the northern end of Queenscliff Beach. This is a shallow lagoon formed at the head of a drowned bedrock embayment behind a coastal barrier or sand-spit. Prior to human impact, it had an ephemeral entrance that was breached only when lagoon levels rose with heavy rains, or when the sand-spit was eroded by heavy seas. This would have normally closed again within weeks. Except for the entrance tunnel, the lagoon is virtually non-tidal and often brackish for long periods of time. The entrance tunnel consists of 'low flow pipes', constructed to allow free flow of water between Manly Lagoon and the ocean. In the past, these

pipes blocked with sand due to deposition. However, the completion of the 'low flow pipes' extension project alleviated this problem.

Foredunes at the ocean beach have been flattened for the development of parks and housing, with a seawall constructed the length of the beach. During periods of violent storms, beach sand is normally transported offshore by wave action. With no foredune store of sand available to buffer the effect of the waves, sand continues to be eroded from the beach. Sea walls generate wash turbulence rather than dissipate wave energy. As a consequence, waves erode deeper into the beach profile. During periods of less intense wave activity, some reforming of the beach takes place.

Manly LGA is in the County of Cumberland, Parish of Manly Cove, and is bounded by Mosman Council to the south and Warringah Council to the north. The Manly Council LGA includes the suburbs of Manly, Fairlight, Balgowlah, Balgowlah Heights, Clontarf and Seaforth.

### **Geology:**

The Manly LGA forms part of the Hornsby Plateau, a structural unit of the Sydney Basin. The major geological formations in the area are middle Triassic Hawkesbury Sandstone, overlying the Newport Formation of the Narrabeen Group. This is clearly identified at North Head where the lower half of the seaward facing cliffs are composed of the Newport Formation, with Hawkesbury Sandstone forming the upper blocky cliffs. A shale sequence marks the top of the Newport Formation. The Hawkesbury Sandstone is characterised by medium to coarse-grained quartz sandstone, very minor shale and laminite lenses. The Newport formation is characterised by interbedded laminite, shale and quartz, to lithic-quartz sandstone.

Aeolian sand deposits occur on the top of North Head, and are transgressive in nature. These deposits, or dunes, should be considered an important heritage item. An igneous basaltic dyke of Jurassic Age running in an east south-easterly direction occurs on the south-western side of North Head (inner North Head).

The low lying areas of the Manly Lagoon floodplain are characterised by silty quartz sand, silt and clay, with common shell layers through deposition of marine and estuarine sediments in the lower catchment and erosion processes in the upper catchment. The ocean beach is characterised by medium quartz sand with varying amounts of shell fragments, with the dune system (now heavily urbanised) of fine quartz sand.

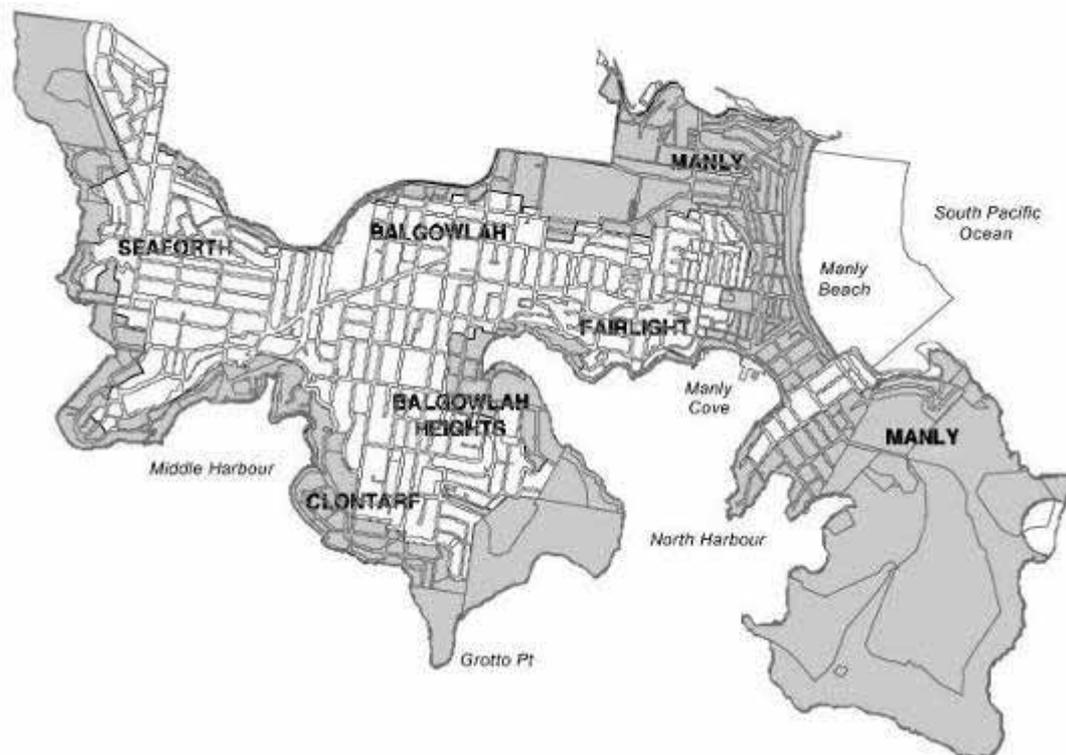
### **Soil Landscapes:**

The soil landscapes of the Manly LGA can be considered diverse in comparison to other LGAs in the Sydney metropolitan area, with nine different landscapes identified. Included within these classifications, the *North Head* soil landscape can be considered unique to the deposit on North Head, with limited distribution elsewhere.

### **Environmentally Sensitive Areas:**

Manly's LEP identifies Environmentally Sensitive Area (ESA) of the LGA. This area has been compiled using information from a variety of Council studies and State Environmental Planning Instruments. The ESA identifies the area within which development cannot qualify as Complying.

It is important to note that the ESA has been identified purely for the purpose of Complying development and has no effect on any other provisions of Council's DCPs, the LEP or any State Environmental Planning Policies (SEPP). In particular it is important to note that housing under the Senior Living SEPP could still be developed within the Manly ESA



**Map: Environmentally Sensitive Area. Manly LGA**

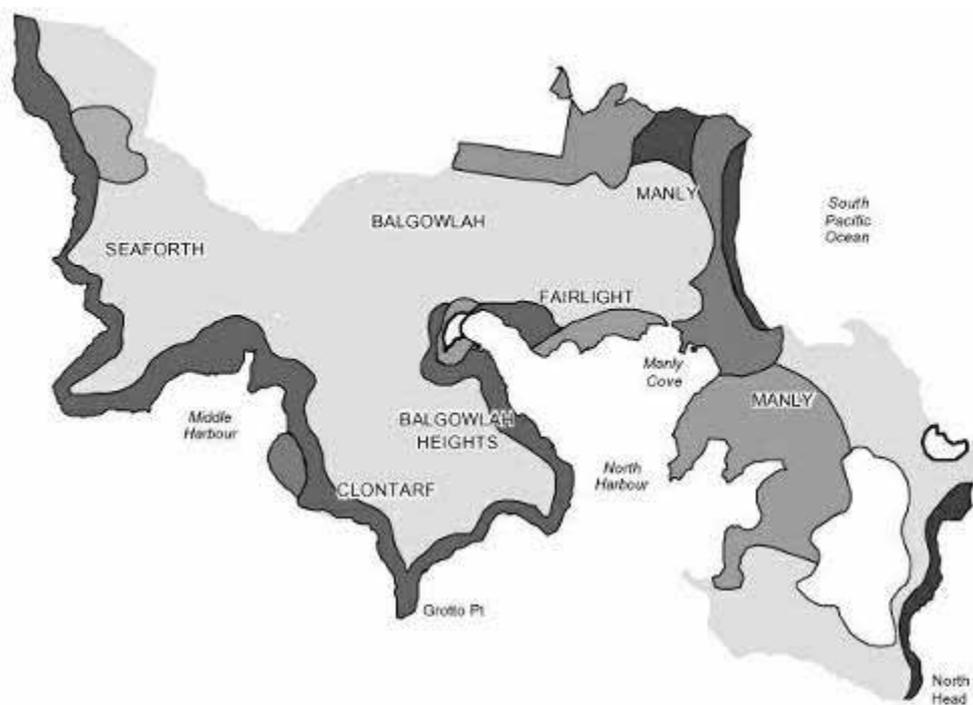
#### **Urban Capability:**

Urban capability, as described by Chapman and Murphy (1989), is the ability of a parcel of land to support a particular intensity of urban development without serious erosion and sedimentation occurring during construction, and without possible instability and drainage problems in the long term. However, this does not mean that proper pollution prevention measures should not be maintained.

Many areas in Manly that are classified as 'not capable of urban development' by this system have already been extensively urbanised. Soil and landscape limitations have caused ongoing problems such as flooding, cracking of roads and buildings, sedimentation of streams and blocked drains.

**Urban Development Capability Related to Soil Characteristics (Chapman and Murphay, 1989)**

Urban Development Capability	Soil Type
High capability for urban development	Somersby
Low to Medium Capability for Urban Development	Lambert Gynea North Head Woy Woy Warriewood
Not Capable for Urban Development	Watagan Narabeen Hawkesbury



**LEGEND:**

- la
- na
- nh
- ww
- xx
- wn
- gy
- wa
- ha
- so

**ABBREVIATIONS:**

- na (marine) Narrabeen
- nh (aeolian) North Head
- ww (marine) Woy Woy
- xx (disturbed) Disturbed terrain
- wn (colluvial) Watagan
- gy (erosional) Gynea
- la (erosional) Lambert
- wa (swamp) Warriewood
- ha (colluvial) Hawkesbury
- so (residual) Somersby

**Open Space:**

Open space areas are important for leisure and recreation as well as for the conservation of natural ecosystems and communities. Manly has 459.861.5ha of parks, reserves and open space, representing 26% of the total area -1657ha. There is an estimated 114m<sup>2</sup> open space per person (population change is estimated). Manly was established as a holiday destination and still offers residents and visitors many opportunities for recreation, including areas of public open space, natural features and numerous Council facilities available for their responsible enjoyment.

Key features are:

- over 20 beaches (includes ocean and harbour beaches)
- harbour, ocean and lagoon,
- 47 bushland reserves ,
- National Parks at North Head, Dobroyd and Bantry Bay ,
- many parks and ovals,
- olympic size outdoor swimming pool,
- Manly Scenic Walkway,
- volunteer bush regeneration in Council bushland reserves and in Sydney Harbour National Park,
- a cycleway network,
- a skateboarding facility,
- tennis courts, and
- many privately owned facilities for public use.

**1.5 PRESSURES ON OUR LAND****Urban Development:**

There are 17,549 ratable properties in the Manly Local Government Area. Of these, 16,516 are residential and 1,033 are business.

The amount of land available for development within the Manly area is virtually static, except for the proposed development of St Patrick's College Estate and the Roads and Traffic Authority land in Seaforth. The majority of development applications presented to Council are for redevelopment. A key role for Manly Council is to ensure responsible and appropriate decisions are made to control the use of land in line with the Manly LEP and DCPs and in a manner consistent with land capability and community aspirations.

The table below indicates the number of development and building applications approved by Council for the past four reporting periods. In the 03/04 reporting period there was a decrease in the number of development application, building construction certificates and certificated. Note that the below table is indicative only - a single development application may refer to several dwellings, and that with the amended EP&A Act, Construction Certificates are included and Building Applications excluded.

**Number of DA's, Subdivisions, Construction Certificates**

	1999/00	2000/01	2001/02	2002/03	2003/04
<b>Subdivisions</b>	n/a	43	38	43	36
<b>DA's</b>	573	567	648	702	634
<b>Construction Cert.</b>	n/a	n/a	334	275	235

**Draft Sydney Regional Environmental Plan – Sydney Harbour Catchment:**

The draft SREP seeks to provide a comprehensive planning framework for Sydney harbour and its tributaries. It establishes planning principles for the hydrological catchment of the Harbour, which embraces 19 Council areas.

Supplementing the SREP is the Sydney Harbour Foreshores and Waterways Area Development Control Plan (DCP), which provides guidelines for all land based, water based and land/water interface development.

One of the major issues with the draft SREP is the inconsistent boundary of the Foreshore Scenic Protection Area (FSPA) under the Manly LEP with the waterway and catchment areas as depicted by the SREP. This has the effect of removing the very stringent controls previously applied to the FSPA. A review of Council's LEP and DCP is currently underway to address this issue.

**North Head:**

The North Head area includes sites such as St Patrick's College Estate, National Park, North Head Sewage Treatment Plant, Quarantine Station, Sydney Harbour Federation Trust, Institute of Police Management and the North Fort Artillery Museum. Council continues to pursue the protection of the natural, Indigenous and post-European cultural heritage values on North Head. As a member of the North Head Sanctuary Foundation, and the Community Consultative Committee, Council continues to provide input and technical advice to the **Sydney Harbour Federation Trust** in regard to the future use and management of the area.

Council continues to push for integrated management of all public land on North Head. This is an achievable goal as all the land is Crown land in the ownership of the State.

**Quarantine Station:**

The Department of Environment & Conservation (formally NPWS) has proposed to enter into a lease agreement with Mawland Hotel Management to use the Quarantine Station premises for a hotel and tourist facility. A series of economic analysis were commissioned by DEC to revise the lease proposal. The reports concluded that the proposal represents value for money and that Mawland Hotel Management Pty Ltd has the financial capacity to undertake the project. Despite the sensitivity of the project, DEC was reluctant to release the report for public perusal as it contains commercially sensitive information.

Council remains in opposition to the privatisation of the Quarantine Station. Concerns have been raised with the Premier and the Minister for the Environment regarding the lease proposal and requests made to make a copy of the lease conditions available to the public. A favourable response from both Departments is yet to be received.

Council and many community members considered that the proposed privatisation of the Quarantine Station at North Head could potentially result in irreversible damage to the environmental and cultural heritage of the historic buildings and surrounds, and associated aboriginal heritage.

**St Patrick's College Estate Development:**

A Local Environmental Plan was gazetted in November 2002 for **St Patrick's College Estate**. The plan provides for the conservation of the natural and cultural heritage of the Estate. Development applications have now been submitted for Precincts 1 and 13, adjacent to Bower Street, and Precincts 3 and part of Precinct 12, adjacent to Darley Road, as well as Precincts 5, 10 and 11, and the Archbishop's residence. The LEP permits a total of 157 dwellings on the Estate, in addition to the existing tourism management school and St Paul's Catholic Boys College.

### RTA DUAP Surplus Government Land at Seaforth:

Since 1998, Surplus Government Land at Seaforth, which was part of the former Warringah Transport Corridor comprising a total of 116 lots, has been the subject of ongoing consultation to resolve a range of planning and environmental issues. Subdivision approval has been granted for some parts of the land and construction of new dwellings is currently underway. The presence of the Duffy's Forest Ecological Community and new laws regarding the Protection of Bushfire Prone Land has delayed subdivision of one area of land. The presence of bushland in some areas has prompted Council to rezone some parts of the land as open space or impose covenants on the titles, to protect the remnant bushland and ensure that access and erosion control are adequately addressed. New traffic lights have been agreed by the RTA to improve safety and playgrounds are being established to increase local recreational opportunities for children.

### Land Degradation - Soil Erosion:

Land clearing in Manly has been undertaken for urban, commercial, and some industrial development, with the majority of this clearing occurring in the past 50 years with the development of the suburbs of Clontarf, Balgowlah Heights and Seaforth. Some minor clearing has been undertaken at Castle Circuit.

Today the loss of soil in Manly is primarily from exposed areas, such as building sites and disturbed bushland. When it rains on a building site, damage occurs both on and off-site, with stormwater run-off flowing into creeks and rivers, polluting them with sediment. This sediment fills up mud flats and creeks, leading to destruction of benthic community habitats. Bushland can often be degraded in Manly through vegetation disturbance (both natural and human induced), which leads to exposure to wind and water erosion of soil.

### Contaminated Sites:

Contaminated Land is defined in the *Environmental Planning and Assessment Amendment (Contaminated Land) Act 1996*, as land in, on or under which any substance is present at a concentration above that naturally present and that poses, or is likely to pose, an immediate or long term risk to human health or the environment.

Contaminated sites that are not properly managed or identified may result in an increased risk to health and safety of people on or adjacent to the site. These sites may also result in detrimental effects to the environment if pollutants are disturbed as they may impact on building structures through chemical attack, and create unanticipated costs to the developer and a potential liability to Council.

Several sites within Manly are identified as being potentially contaminated due to possible chemical or hazardous deposits resulting from previous or current use.

These sites include:

- **North Head Sewage Treatment Plant**
- **Disused Gasworks Site at Manly Point.** Whilst the initial remediation works lead to the site being classified as remediated, further works have been scheduled for Winter 2005 to address community concerns that the past works were not adequately containing contaminants from the site. This will require ongoing management (including monitoring) post-works.
- **Addiscombe Road Site, Manly Vale.** Fibro asbestos and other contaminants are across the site. The Department of Housing arranged, as a precautionary measure, to fence off most of the contaminated area, provided appropriate signage, and informed local residents and school users.

Council is continuing to liaise closely with the DoH over the future remediation of the site, to ensure that appropriate measures have and are being implemented during the remediation review process.

- **Car repair/service stations.** Lead and hydrocarbon contamination of soil and groundwater are the primary concerns where petroleum compounds have been stored, especially from leaking underground storage tanks. Groundwater contamination is especially a concern in Manly due to the high water tables and sandy aquifer.
- **Landfill sites.** Garbage dumping areas and introduced soil used for landfill has the potential to leach chemicals, heavy metals and other contaminants into the ground water, creeks and Manly Lagoon. Leachates and the composition of chemical compounds are the main cause for concern as they have the potential to adversely affect both water quality and biodiversity.
- **Road systems** are a source of soil contamination. Land adjoining major roadways can become contaminated with lead, zinc, carbon and rubber dust.

The Department of Environment & Conservation (DEC) regulates contaminated land and can require that steps be taken to assess, manage and remediate contaminated land via the issuing of a notice. DEC may direct the occupier of the land to remove the cause of contamination, reduce the contamination of the premises, eliminate or reduce any danger arising from the contamination of the premises and restore the premises to a safe standard. It can also direct an occupier to vacate the site and stop carrying out any activity on the premises.

The Department of Environment & Conservation's Contaminated Sites Register indicates there is one contaminated site in Manly - the former Little Manly Point Gasworks.

#### **Chemical & Pesticide Use:**

The long-term use of pesticides, herbicides and other chemicals has had many direct and indirect effects on the environment, yet the extent of damage that can occur is complex and not always well understood. The residues from these chemicals enter the soil and aquatic ecosystems and have harmful effects on the biota living in these habitats.

The use of fertiliser to increase soil nutrients can enhance weed growth and adversely affect native plants. The majority of native vegetation has evolved and adapted to nutrient poor soils and is less competitive in nutrient rich conditions. Weeds, which are better adapted to these higher nutrient levels, thrive in these conditions and invade areas of native flora. Increased nutrients in water courses can also result in algal blooms, depriving the water and aquatic life of oxygen.

Most of the Manly community uses chemicals in some way, from garden chemicals to bathroom cleaning products. If not used and stored responsibly, they can pose a serious threat to our health and the environment.

In February 2001, a large fish kill resulted from an insecticide being allowed to flow into Manly Lagoon from Warringah Golf Club. The toxic substance killed over 10,000 fish and severely degraded the water quality of the Lagoon. The Department of Environment & Conservation (DEC) prosecuted both the green keeper responsible for allowing the toxic substance to enter the waterway and Warringah Golf Club for failing to prevent a chemical spill from its grounds.

### **1.6 RESPONSES TO THESE PRESSURES**

Council has undertaken to consolidate all LEP amendments (mapping & written) into a single planning instrument. This includes finalising all outstanding **Manly LEP** amendments, adding updated heritage conservation provisions, developing new provisions for the management of natural systems and preparing new updated LEP maps which will be in electronic form. This represents a major upgrade of Council's existing planning system.

The current **Residential Development Control Plan** was adopted by Council in 2000. A revision of the DCP is underway to improve the clarity of the controls including floor space ratios and to refine the controls where needed.

Council is currently reviewing the Manly **Business DCP** (2000) and the **Manly Town Centre Urban Design Guidelines** (2000) to strengthen the existing development controls.

Council's **Childcare Centre DCP** was developed as part of a broader SHOROC initiative aimed at increasing the supply of high quality childcare facilities within the region. The DCP is accompanied by an information fact sheet providing guidelines on how to set up a childcare centre within the Manly LGA.

Remediation of **land adjacent to Burnt Bridge Creek Deviation** Kitchener St, Balgowlah was completed in the reporting period. Council has removed inappropriate clay fill that was placed on site by the remediator as an initial attempt to restore it. The clay has been replaced with crushed sandstone, the creekline has been rock armoured and the site revegetated.

The **North Steyne and South Steyne Re-alignment Project** is the next stage of implementation of a scheme, which commenced in the early 1960's and is now almost completed in terms of land dedication. A review of dedicated land and other impediments have taken place and sketch design proposals prepared. These will be reported to Council in advance of consultations with property owners and the wider community.

An inventory of Council owned land was undertaken during the reporting period and a comprehensive **Land Register** compiled. Discussions with the NSW Department of Lands, aiming to clarify Crown land ownership in the Manly LGA, have been scheduled for the near future.

The **Short-Term and Tourist Accommodation Working Party** has met on two occasions during the reporting period. The Working Party comprises the Mayor, Councillors, representatives of premises where short-term letting has been a problem, as well as operators of short-term accommodation businesses. The consideration to date has been directed towards the Strata Titles Act, Council's Instruments and the practical difficulties arising from the apparent conflict between short-term rentals and permanent residents. The committee shall report back to Council in 2005.

Bush regeneration works have been progressed along the **Manly Scenic Walkway**. Council staff have continued ongoing works and expanded work in Fisher Bay. A contract was established that commenced work in four new sites along the walkway. The works aim to address erosion problems, stabilise areas and better define this renowned walking track.

The **Civic Design Awards**, organised by Manly Council have been running since 1980. The objective of the awards is to improve the quality of the environment by increasing community awareness of quality architectural design in the Manly area. The 2003 Civic Design Awards proved very successful with 10 nominations being received. The winner of the 2003 Manly Design Awards was: Owners Mark & Anne Westfield of 35 Kangaroo Street, Manly (Paul Berkemeier Architects, Cremorne. Bonavista Constructions, Maroubra). Nominations for the 2004 Civic Design Awards will be sought during October 2004 and the awards will be presented in November 2004.

Council in conjunction with other SHOROC Councils has made a submission to **DIPNR's Section 94 Taskforce** regarding the current Section 94 provisions. In particular the submission addresses the concern of Manly Council regarding the failure of the current Section 94 provision to address the demand for facilities and infrastructure in established areas such as Manly to accommodate increased population from infill and redevelopment with no specific contributions from the developer.

Council has continued to pursue the protection of the natural, indigenous and post-European cultural heritage values on North Head. As a member of the North Head Sanctuary Foundation, and the Community Consultative Committee, Council continues to provide input and technical advice to the **Sydney Harbour Federation Trust** in regard to the future use and management of the former School of Artillery site.

Manly Council, in conjunction with the Department of Environment & Conservation received grant funding under the Department of Infrastructure, Planning and Natural Resource's 2003/2004 **Sharing Sydney Harbour Access Program** for the 'North Head Loop' project. The works, which include the construction of a 2.6 kilometre 'loop' walking track between Shelly Beach and Little Manly Point, cost \$143,988.50. Landscape works funded in part by the grant, Council's Environmental Levy and special contribution funds, are in accordance with the adopted **Shelly Beach Landscape Masterplan**. Works to date include:

- the construction of a sandstone pathway connecting Marine Parade to Shelly Beach Headland,
- realignment of the terminus of Marine Parade,
- the installation of a low sandstone wall & sculpture,
- the installation of interpretive signage,
- the installation of new litter bin surrounds, 2 new barbeques, 4 multi-function benches, and
- additional softfall and turfing works.

Draft **Plans of Management for Seaforth Oval, Keirle Park and Tania Park** were placed on public exhibition during the reporting period. Comments were incorporated into the drafts and the resultant Plans of Management were adopted by Council in February 2004. The three Plans of Management are currently being implemented

Landscape works have been undertaken at North Steyne as part of the **Manly Ocean Beach Promenade Landscape Improvement Project**. The works included: repaving and returfing, and the installation of new water conserving showers, seating and additional energy efficient lighting.

A **Contaminated Lands Policy** has been adopted by Council, which describes how Council will manage land contamination issues, particularly concerning private lands and development applications. It incorporates the SEPP 55 provisions - Remediation of Contaminated Land, Managing Land Contamination Planning Guidelines and the Contaminated Land Management Act 1997.

**Coastline Management Plans (CMPs)** have been prepared for the **Little Manly** and **Forty Baskets** areas in response to legislative requirements for the management of community land under the *Local Government Act 1993*, in response to community issues and in accordance with current best practice for the management of coastal and estuary foreshores. Development of the CMPs is also identified in Council's Corporate Plan (5.1.1) and the Manly Sustainability Strategy 2002 (AQ35.1).

The overall objective for the preparation of the CMPs is to develop a long-term management strategy to guide the sustainable management of the Plan's study area now and in the future. The CMPs are intended to be 10-20 year strategic plans with implementation involving considerable capital expenditure, which will need to have regard to other Council priorities.

An overarching document, titled 'Draft Coastline Management Plans: Introduction and Planning Frameworks', has also been prepared to present information relevant to the broader area to ensure that it is not duplicated in other CMPs prepared by Council. Implementation will now be coordinated through Council's Harbour Foreshore Committee based on priorities and funding availability.

In 2003, **Coastline Hazard Definition Studies** were completed for Manly Ocean Beach and Cabbage Tree Bay, Forty Baskets and Little Manly. The Coastline Hazard Definition Studies define the coastline hazards associated with each study area, including an assessment of beach erosion, shoreline recession, sand drift, coastal inundation, stormwater erosion, slope and cliff instability, and climate change. Council is now working towards the implementation of recommendations outlined in the studies to address and mitigate the risk posed to property and life. For those risks located on private Lands, Council has; amended relevant 149 certificates, notified all property owners affected and encouraged them to undertake recommendations works as detailed in the CHDS.

Manly Council has submitted two applications for funding under the State Government's **Natural Disaster Mitigation Program**. Proposed works include:

- the identification of cadastral land boundaries along Marine Parade, Shelly Beach, and
- implementation of recommended remedial works for Coastal Hazards on Public Lands throughout Manly.

These applications arose from recommendations associated with Manly Council's Coastal Hazard Definition Studies.

## 2 AQUATIC SYSTEMS

Aquatic Systems refers to the ocean environments including beaches, harbour, lagoon, aquatic habitats, creeks, wetlands, groundwater, wastewater, black water, stormwater and the catchment activities which may impact upon them.

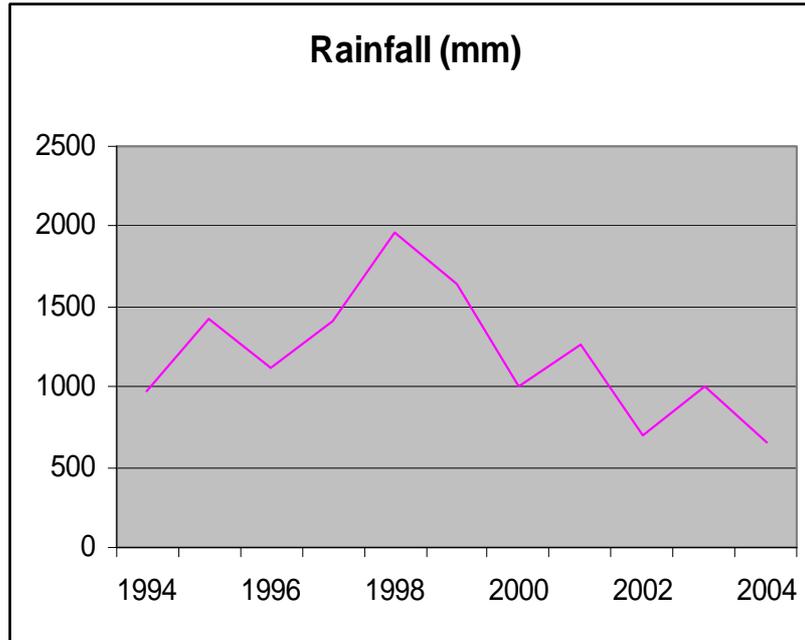
Water is one of our most precious resources. It is essential to our quality of life and economic well being. The Manly LGA is unique in its geographic position in that it is surrounded on three sides by water. This provides a unique attraction to visitors and residents alike.

In response to the pressures associated with the ultra urban characteristics of Manly, Council continues to actively implement integrated catchment management projects to address issues contributing to the degradation of Manly's water quality. Integrated Catchment Management embraces all elements within the water cycle under the philosophy of Ecologically Sustainable Development in action.

### 2.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Water consumption (kl) in Manly LGA • Total • Per capita	• 3,957,372 • 112.15	• 4,298,571 • 111.4	• 5,213,369 • 134.2	• 5,109,212 • 128.2	• 5,303,046 • 136.5	• 4,533,101 • 116.6	↑
Council's Water Consumption (kl)	129,864	159,490	173,971	146,570 (26% decrease)	158,907	114,306	↑
Average Percent Compliance Beachwatch Data (ocean beaches)	95.20%	88.50%	Enterococci 95.3% Faecal Coliform 100%	Enterococci 100% Faecal Coliform 100%	Enterococci 93.8% Faecal Coliform 99.6%	Enterococci 99.25% Faecal Coliform 97% *	↑
Average percent compliance Harbourwatch data (harbour beaches)	96.27%	81.11%	Enterococci 99.8% Faecal Coliform 92.3%	Enterococci 98.57% Faecal Coliform 98.57%	Enterococci 95% Faecal Coliform 98%	Enterococci 100% Faecal Coliform 100% *	↑
Number of pollution control devices (including trash racks and baskets)	61	121	197	257	258	258	▢
Number of stormwater outlets into water bodies with no pollution control device	56	38	23	18	18	18	▢

\*High average % compliance for Beachwatch and Harbourwatch data can be strongly correlated with rainfall.



The Trends at a Glance table illustrates a sharp decrease in both Council's and Community's water consumption regardless of the significant drought period experienced in recent times. This suggests both Council and Community alike are becoming wiser with water management and learning to live more sustainably within our own water cycle.

The increase in compliance rates for bacteria counts illustrates healthier beaches and harbour areas. However, sewage ingress is typically a function of rainfall and since rainfall has been minimal DEC still caution beach users not to swim for two days after rainfall.

## 2.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to promote and encourage the responsible use and consumption of water,
- to achieve a coordinated, strategic approach to pollution prevention and enforcement in conjunction with other organisations and government agencies,
- maintain and improve water quality,
- raise awareness of practices that pollute waterways by encouraging and educating,
- educate about catchments and their significance in a local regional and national context,
- to have our catchments, lagoon, harbour and oceans provided with clean water and supporting biologically diverse indigenous aquatic and terrestrial ecosystems through TCM and ESD principles, and
- to create a TCM aware, involved and practicing community.

## 2.3 COMMUNITY PERCEPTIONS

Community consultation indicated an overall high level of concern regarding our aquatic systems. Major issues identified included:

- water quality,
- water conservation,
- Manly Lagoon,
- environmental flows,
- stormwater, and
- water re-use.

Positive initiatives identified from community consultation include:

- improved condition of Manly Lagoon,
- stormwater treatment and reuse initiatives,
- Council's use of recycled treated water,
- waterless urinals
- Council's strict regulation of water restrictions, and
- development of Coastline Management Plans.

Recommendations for management from community consultation included:

- point-source treatment of water pollution,
- aeration of Manly Lagoon, and
- planting of riparian zone to filter pollutants and reduce runoff.

## 2.4 STATE OF OUR AQUATIC SYSTEMS

### Rainfall:

Annual rainfall over the past 5 years has declined significantly. Many believe this is directly attributed to El Niño. Subsequently water levels in Warragamba Dam have dropped below 40% and tough water restrictions are set for the long term.

### Southern Oscillation Index:

The Southern Oscillation Index (SOI) is calculated from the monthly or seasonal fluctuations in the air pressure difference between Tahiti and Darwin. Sustained negative values of the SOI often indicate El Niño episodes. These negative values are usually accompanied by sustained warming of the central and eastern tropical Pacific Ocean, a decrease in the strength of the Pacific Trade Winds, and a reduction in rainfall over eastern and northern Australia. The most recent strong El Niño was in 1997/ 98.

Positive values of the SOI are associated with stronger Pacific Trade Winds and warmer sea temperatures to the north of Australia, popularly known as a La Niña episode. Waters in the central and eastern tropical Pacific Ocean become cooler during this time. Together these give an increased probability that eastern and northern Australia will be wetter than normal. The most recent strong La Niña was in 1988/89; a moderate La Niña event occurred in 1998/99, which weakened back to neutral conditions before reforming for a shorter period in 1999/2000.

### Catchments:

The Manly LGA is located within two administration 'catchments', the Middle Harbour Catchment and the Sydney Northern Beaches Catchment. The Sydney Northern Beaches Catchment is actually a series of smaller catchments from Barrenjoey Headland in the north to North Head in the south, all draining into the Pacific Ocean.

Both catchments extend outside the Manly LGA, with Middle Harbour extending into the LGAs of Mosman, Willoughby, Warringah and Kur-ing-gai Council. The Sydney Northern Beaches Catchment covers the LGAs of Manly, Warringah and Pittwater.

Water draining from the Sydney Northern Beaches Catchment into the Pacific Ocean arrives by either stormwater pipes directly onto the ocean beaches, or by entering Manly Lagoon.

The Manly Lagoon Catchment contains parts of all the suburbs of Manly, and the Warringah suburbs of North Manly, Allambie, Allambie Heights, Beacon Hill, Manly Vale, and Brookvale. The approximate boundaries for the catchment are, Warringah Rd to the north, Sydney Rd to the south, Wakehurst Parkway to the west and Queenscliff Beach to the east.

The catchment and the Lagoon environment are significantly modified, with much of the catchment having been cleared. It covers an area of approximately 18km<sup>2</sup>. The catchment contains 9 subcatchments and three main tributaries: Burnt Bridge, Brookvale and Manly Creeks.

### **Manly Lagoon:**

Manly Lagoon is a small coastal lake with a catchment of 18km<sup>2</sup> and a waterway of 0.1km<sup>2</sup>. The size of the lagoon and its associated wetlands has decreased substantially since European settlement of the area. Land has been reclaimed for housing, playing fields, golf courses and commercial development.

A combination of the reduction of wetlands, the relatively steep catchment, development in the catchment (60% urban, 7% industrial and commercial), sewage overflows and exfiltration from a degraded sewerage system, have led to the lagoon being highly degraded and unable to assimilate further nutrient loads. The lagoon is perceived as being one of the most degraded coastal lagoons in NSW.

Recent monitoring conducted in Manly Lagoon indicates water quality deteriorates progressively away from the entrance of the lagoon, with pollutant accumulation greatest where the creeks meet the Lagoon. Furthermore water quality typically deteriorates in the deeper sinks where nutrients and heavy metals accumulate due to the hydrologic functioning of the catchment and anoxic conditions generated by the catchments pollutant loads.

Dissolved Oxygen (DO) levels are a typical characterisation of ecosystem health. DO levels in Manly Lagoon have been at ecologically critical levels for over 20 years (University of Western Sydney 2000-2004). ANZECC guidelines state that DO levels should be between 6-12mg/L for ecosystem health and primary contact. A review of a further 29 monitoring programs conducted since 1979 supports findings that DO levels in Manly Lagoon are typically under 6mg/l. These are summarised in the Integrated Catchment Management Strategy 2004.

Significant success has been achieved over the past 4 years in reducing stormwater pollution from hotspot catchments and this has been verified through strategic automated stormwater monitoring.

Pollutants in the form of heavy metals, nutrients, sediments and oxygen demanding materials entering the lagoon have been prevented through at-source treatment train management and monitoring practices. None the less, there exists a legacy of 100 years of pollutant deposition within the lagoon. Sediments in the lagoon basin are a significant contributor of nutrients to the water column during times of low rainfall, which must be addressed prior to achieving Council and community values of 'ecosystem health' and 'primary contact' (ANZECC, 2000).

This suggests that a concerted effort between in-stream rehabilitation, in-sync with catchment management works is the most appropriate means for achieving ecosystem health and primary contact.

The lagoon entrance is managed intensively for flood reasons resulting in an opening level of 1.2 m AHD. This allows for a build up of a sufficient water level to scour out the entrance sufficiently and enable the natural removal of fine sediment from the lagoon basin.

### **Burnt Bridge Creek:**

Burnt Bridge Creek is Manly Council's only significant open creek. It rises near Wakehurst Parkway and winds through a corridor at the rear of suburban homes, and in parts forms the boundary with Warringah Council.

It provides a vital habitat corridor between Manly Lagoon and Seaforth. As with many other creeks in urban catchments within the Sydney Basin it has suffered under the pressure of urbanisation. This severely degraded watercourse has been the focus of environmental works since 1991 when a small group of volunteers endeavoured to restore native vegetation.

DIPNR's Pilot Urban Stream Assessment on the Creeks (1999) states that the ecological condition to support aquatic life was generally good in the upper catchment, poor in the middle catchment and very poor in the lower catchment. These findings were based on the diversity and cover of riparian vegetation, the naturalness of the channel morphology, the abundance of pool and riffle zones, stream bank stability, stream bed stability and land use.

A recent Stormwater Trust Grant has allowed Council to develop, implement and evaluate pollutant load reduction measures from hotspots within the catchment of Burnt Bridge Creek. Council in partnership with University of Western Sydney prevented over 44 tone of sediments, organics and litter and over 200kg of nutrients and 150kg of heavy metals from entering Burnt Bridge Creek over the last 3 years.

### **Recreational Water Quality in Manly LGA:**

The shoreline water quality in Manly is monitored under the Beachwatch and Harbourwatch Programmes by the Beachwatch Branch of DEC in cooperation with local councils and other government agencies. The programmes monitor the water for bacterial contamination and visual pollution, with water samples collected at least 5 times each month between the ocean bathing flags and the most frequently used part of the beach, and harbour swimming areas.

The indicators measured are faecal coliforms and enterococci, with the results based on guidelines published by the National Health and Medical Research Council (NH&MRC). The guideline limit is an indication of the probability of swimmers developing illnesses from the water.

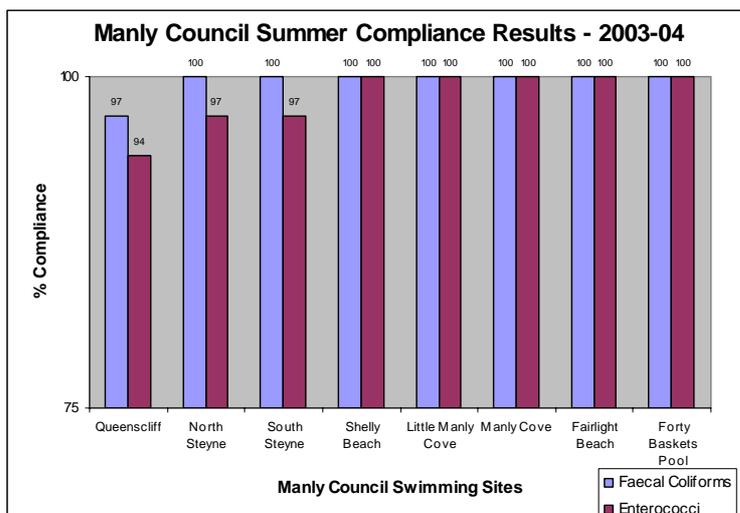
### **Harbourwatch Compliance with Guidelines:**

Harbourwatch Compliance with guidelines at Little Manly Cove, Manly Cove, Fairlight Beach and Forty Baskets Pool was excellent, with all sites meeting guidelines 100% of the time for both faecal coliforms and enterococci (DEC, 2004a).

### **Beachwatch Compliance with guidelines:**

Beachwatch compliance with guidelines at North Steyne, South Steyne and Shelly beaches was excellent, with these sites meeting the guidelines for faecal coliforms 100% of the time. Shelly Beach complied with guideline 100% of the time for enterococci, with North and South Steyne beaches complying 97% of the time. Compliances at Queenscliff Beach was lower than all other coastal beaches with faecal coliform levels complying 97% of the time and enterococci levels 94% of the time. This could be attribute to the poor water quality exiting the Lagoon (DEC, 2004a).

It is important to note however, while compliance results have been high individual faecal counts of over 10,000 are frequent after rain in the Gurney Crescent and Sangrado Baths. In the 12 month reporting period the EPA issued 112 'No Swim' warnings for Middle Harbour.



**Coastal Environments:**

Manly has a very diverse range of coastal environments, including wetlands, seagrasses, beaches, mud flats, mangroves and intertidal rock platforms. All these features have been affected by the urbanisation of Manly, with many natural features substantially altered, and in some instances entirely removed for urbanisation.

**Shorelines:**

Manly's shorelines include open coastline with rocky headlands (for geodiversity, refer to *Land*), cliffs, sandy beaches, sheltered coasts, bays and estuaries with muddy and sandy tidal flats. There is only one ocean embayment within the Manly LGA, at the west north-west facing Shelly Beach, and the main easterly facing ocean beaches of Manly, North Steyne and Queenscliff. The harbour contains 20 small harbour beaches, including Collins, Fairlight and Clontarf Beaches, and many small, tidal flats. No dune system remains along the main ocean beach, having been wholly contained within the ocean wall. The aspect of Shelly Beach, and its shelter from extreme winds, has not resulted in any natural dune formation.

**Intertidal Rock Platforms:**

A number of Intertidal Protected Areas (IPA) exist within the Manly LGA. In July 1993, the Department of Primary Industries (DPI, formerly NSW Fisheries) officially gazetted the designation of 14 intertidal areas within the Sydney Metropolitan Region as Intertidal Protected Areas, in order to protect intertidal invertebrates (including cunjevoi) within these habitats. Manly has three IPAs, protecting Shelly Beach and the whole of the Sydney Harbour foreshores excluding the foreshores of North Harbour, from Manly Point around to the western end of Forty Baskets Beach. The third zone extends from the southern boundary of Cabbage Tree Bay Aquatic Reserve to the northern border of the Sydney Harbour National Park on North Head.

These closures were gazetted for a five-year period expiring on 8th July 1998. DPI extended the term of these closures so that a review could be undertaken in conjunction with Councils, community groups and other stakeholders. This review is to help determine the most effective means of managing these areas for the protection of intertidal biodiversity in the Sydney Region. The Instruments of Appointment for Council Officers as Rangers were also renewed and extended to coincide with the planned extension of the IPA closures.

**Cabbage Tree Bay:**

Cabbage Tree Bay is recognised by the local and wider community as being of special value. It is a small northwest facing bay with north and west facing beaches encompassing water and submerged lands between Manly Point and Fairy Bower Headland. Shelly Beach, within the embayment, is the only west facing beach along Australia's east coast.

The area is enjoyed by a large number of people due to its unique attributes including the protected beach, foreshore access, rocky outcrops, parkland and bushland as well as the diversity of marine species and habitats found within the Bay. Passive uses include swimmers, picnickers, joggers, walkers, cyclists, skaters, as well as snorkellers and SCUBA divers and those accessing local restaurants and the barbeque area adjacent to the beach. As a result of its diverse attractions, the bay has been increasingly impacted upon over the years and there is a community concern the area will be "loved to death".

Strong community concern for the protection of Cabbage Tree Bay resulted in a request to Council in 1990, to protect the bay from exploitation. This was followed by the declaration of Manly Ocean Beach on the National Estate in 1991 and its designation as an Intertidal Protection Area in 1993. During 1995 Manly Council formed the Cabbage Tree Bay Consultative Group to advise Council on matters relating to the Bay's conservation. In 2000, the Cabbage Tree Bay Management Plan was formally adopted by Council leading to DEC's designation of the area as a 'No-take' Aquatic Reserve (March, 2002). Prior to the designation of the Aquatic Reserve, the area was considered to be under pressure from a number of user groups, however at this time a lack of scientific information was available on the marine environment within Cabbage Tree Bay.

The biota in the Bay features a high number of transient tropical species known to occur during warmer months, thought to be brought south from Queensland waters with the East Australian Current. Results from recent surveys of marine biodiversity within Cabbage Tree Bay are highly encouraging and suggest the bay has a diversity of habitat, contains relatively high numbers of fish that would otherwise be subjected to harvesting and has a good larval supply of fishes. An Ocean Care Day Survey conducted in 1999 indicated that the second greatest number of weedy sea dragon sightings in the state were at Shelly Beach, with Kurnell recording a larger colony (NSW Regional Ripples, 7, 2, Winter 2000 - Marine and Coastal Community Network). Due to the lack of information available on the effectiveness of Aquatic Reserves in protecting aquatic ecosystems, habitats and species, Council has elected to undertake aquatic assessments of the Bay.

**North Harbour Aquatic Reserve:**

North Harbour Aquatic Reserve is an 80ha reserve managed by the Department of Primary Industries (DPI). The Reserve was declared in 1982, and features tropical fish expatriates throughout autumn and winter and significant stands of kelp. It is recognised under the IUCN (World Conservation Union) Guidelines for Protected Area Management as category IV - *Habitat/Species Management Area: Protected Area Managed Mainly for Conservation Through Management Intervention - area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species (Cresswell and Thomas, 1997).*

Taking, disturbing, injuring, destroying or interfering of fish or marine vegetation is prohibited. Exemptions exist for commercial fishers who may take rock lobster, and fish by means of a hauling net, but only from the part of the Reserve north of Cannae Point and east of a line drawn from Cannae Point to Manly Point.

DPI has recently engaged the University of Sydney to review all aquatic reserves in NSW.

**Seagrasses:**

Seagrasses play an important role in marine ecosystems. They provide important habitat for juvenile fishes, stabilise sediments and recycle nutrients within the aquatic system. The successful management of seagrasses requires knowledge of their distribution, condition and issues likely to affect their growth. During 2003, Manly Council commissioned external consultants to review existing literature on seagrass distribution and describe significant findings regarding its distribution and condition. The report confirmed that seagrasses in Manly are confined to the protected Harbour areas and the sheltered area of Cabbage Tree Bay.

The main seagrass species in the Manly and Middle Harbour areas are identified as ribbon weed (*Zostera sp*), and paddle weed (*Halophila sp*). During 2002, DPI produced maps for the distribution of seagrasses within Sydney Harbour. This mapping identified the presence of a third species, strap weed (*Posidonia sp*), which is found within Spring Cove (Ecology Lab, 2003) and throughout the LGA. The distributions of these species may fluctuate according to natural or human influences, and unlike strapweed (*Posidonia sp*), these species can recolonise an area and can be transplanted.

Activities such as anchoring of boats and other craft, commercial netting practices and upper catchment activities have led to sedimentation and pollution, and the subsequent degradation of these habitats (Manly Council, 1996). Boat moorings can also cause significant damage to seagrasses. In the Manly LGA, there are 675 moorings, an increase from 403 in 98/99.

Under Sections 204 to 205 of the *Fisheries Management Act 1994*, a permit must be obtained to cut, remove, damage or destroy marine vegetation. No licences have been issued by DPI to allow the removal of live seagrass plants in the Manly LGA. In 2003, Manly Council was issued with a permit to remove seagrass wrack (dead seagrass) from the local beaches. As one of the conditions of the permit, Council is required to inform DPI of the estimated volumes of wrack removed from the beach, returned to the sea and left on the beach.

Commercial netting in the waters of North Harbour impacts on seagrass beds where haul netting activities take place. The harbour netting occurs in the Middle Harbour waters, and is of concern around the Clontarf/Castle Rock area, and around Little Manly Cove. In response to the potential impact that commercial net hauling may have on seagrass beds, DPI prohibited this activity over all *Posidonia* beds.

Data Gap: Extent of seagrass loss within the Manly LGA.

**Riparian Zone:**

The riparian zone, which includes the beds of rivers, as well as the banks and adjacent lands, forms a critical interface between land and water environments. Manly's main riparian zones lie on the area surrounding Manly Lagoon and along Burnt Bridge Creek. Much of this environment is highly disturbed and, in some instances, completely removed. In 2002, Council undertook extensive embankment regrading and replanting works to restore the riparian zone to the creek lines and lagoon edge. Works in this regard are continuing.

Data Gap: Extent of riparian vegetation loss within the Manly LGA.

**Water Consumption:**

The majority of Manly is connected to the Sydney Water Corporation's water supply infrastructure which provides a potable (fit for drinking) water service from Warragamba Dam to 3.77 million people (*Statistics provided by Sydney Water*).

In light of reduced rainfall, dwindling dam supplies and water restrictions, Manly Council has sought to reduce Council's water consumption and seek alternative water source in a sustainable context. As such, Council is utilising treated stormwater, groundwater and sewage for irrigation and cleansing operations. Furthermore, Council has reduced its water consumption by installing waterless urinals, water saving taps and showerheads and implementing a number of other initiatives.

From the 114,306kL of water that Council consumed in the reporting period, over 85% was used for non-drinking purposes. The water cycle management program will see Council reduce water consumption from dam supplies by up to 80% saving resources which can be allocated to other priorities and promoting environmental flows in the catchment.

Australian households' greatest use of water is for watering gardens and lawns. This level fluctuates with season, rainfall and temperature, and reflects the abundance of exotic gardens and lawns, as opposed to native gardens needing little watering. After use, much domestic waste water is piped into the sewerage system to the Sewage Treatment Plant, or acts as runoff, draining into stormwater drains, creeks, wetlands, oceans or groundwater. There exists significant benefit for the Manly community to install rainwater tanks and be smarter with water consumption. Water consumption for the Manly LGA over the reporting period was 4,533,101 kL which was considerably lower than the 2001/02 consumption figure of 5,303,046 kL. It is anticipated that significant reductions will continue to occur into the future.

## **2.5 PRESSURES ON OUR AQUATIC SYSTEM**

### **North Head Sewage Treatment Plant:**

The Northern Suburbs Ocean Outfall Sewer, or NSOOS, carries waste water from an estimated 1,200,000 people to the North Head Sewage Treatment Plant (STP), a 15.9ha site at North Head (Sydney Water, 1997). The NSOOS has expanded since it was first built in 1916. The original design did not envisage either the population it now serves or the present extent of the system. The North Head STP is licensed to discharge up to 1400 ML/day to the Tasman Sea (Sydney Water, 1997). The material treated at North Head STP is only minimally treated to the primary level. The bulk of the solid material is removed by screening and primary sedimentation, and the rest is discharged through ocean outfalls 3.7km offshore (Sydney Water, 1997) in the hope that the marine environment will "finish" off the treatment. As an emergency, when the system fails, untreated or partially treated sewage is discharged directly into the adjacent ocean waters through the original cliff face outfall.

Chemical tracer studies by the CSIRO indicate that sewage signals can be detected in sediments around the outfalls (EPA, 1997). Possible longer-term effects, such as the accumulation of effluent material around the outfalls and their effects on the animals living in the surrounding sediments will be evaluated through further monitoring.

All treatment plants are licensed by DEC, with North Head STP holding two licences to discharge to water, which places limits on the volume and pollutants in discharges and may require implementation of pollution reduction programmes. Sydney Water is required to report annually on the performance of their treatment plants, yet is not independently audited.

From the North Head STP, there are 2628 truck movements per year, removing sludge, screenings and grit captured through the primary treatment process. This sludge is transported from North Head STP to Riverstone STP and more recently to Bathurst and Lithgow for processing and distribution to the agricultural industry. This activity impacts upon the social and natural environments through noise, odour and air pollution.

While visual clarity of the waters directly off the Manly ocean beachfront has improved significantly in comparison to previous years, there is no treatment in place for the excess grease, viruses, bacteria and other contaminants within the discharged sewage.

It is for these reasons Manly Council is committed to seeking the decommissioning of the North Head STP so that there can be beneficial reuse of effluent. Council gave strong support for the Services Sydney Proposal to treat effluent for reuse as did the peak environmental groups. This has been recently progressed with the declaration of Sydney Water assets to the private sector. As such, there exists potential to reduce flows entering North Head with a long-term goal of decommissioning the site.

Further to this, Sydney Water have begun construction on a high level effluent treatment plant at North Head which will see 2,000,000L / day of effluent treated down to 2 micron membrane of which 1,500,000 will be used on site for treatment operations. Sydney Water in partnership with Manly Council has begun planning for Council to utilise the remaining 500,000L/day for irrigation of specified areas. This will allow Council and Sydney Water to turn a waste and pollution issue into a resource and ensure the integrity of our parks and ovals

Data Gaps: Virus and bacteria contamination of ocean water, the amount and type of discharges by each trade waste license holder, and quantity of waste illegally dumped into the sewage system.

#### **Northside Storage Tunnel:**

In preparation for the 2000 Olympics, the State Government's favoured option to improve water quality of the Harbour was the NST, a storage tunnel that captures wet weather sewage overflows from the four largest overflow points to the harbour - Lane Cove, Quakers Hat Bay, Tunks Park and Scotts Creek. The tunnel stores these overflows and transports them for later treatment at North Head STP. Construction of the tunnel commenced in January 1998 and was completed by 2000.

At Shelly Beach, a static weir collects overflow from the Manly Ocean Outfall Sewer (MOOS) and channels into a bore hole feeding into the Northside Storage Tunnel. When the Northside Storage Tunnel is full (due to heavy storms), the overflow is discharged into the ocean. Since building the Northside Storage Tunnel, the Marine Parade outfall, near Shelly Beach, is no longer needed and has consequently been sealed off.

Council's policy has always been in favour of decentralisation of sewage management and the reuse of whatever components are possible. Both Council and the community continue to have many objections regarding the adverse impacts of the Tunnel on the environment including water, air and noise pollution, vibration, structural damage to properties and the need for equitable and efficient ways of reporting complaints.

Other Councils have concerns regarding ventilation aspects of the tunnel including concerns that the previously proposed vent at Tunks Park, North Sydney has been removed, and the increase in size of tunnel constructed between Tunks Park and Scott's Creek in Willoughby would increase the volume of air being released.

Operation of the NST has added between 2 and 5 percent to the annual average flow through the North Head STP, which is considered within the existing hydraulic capacity of the plant. Currently the STP license has a through put of 1400ML/day (mega litres per day) in wet weather events.

**Pollution Licenses and Trade Waste Permits:**

The North Head Sewage Treatment Plant has been granted two pollution licenses under DCC legislation to discharge direct to water (Reticulation System & Storage Tunnel). This is the only premise with such a license within the Manly LGA.

A total of 16 trade waste permits have been issued to industry in the Manly LGA allowing these premises to dispose of a restricted amount of liquid waste into the sewerage system.

**Sewer Overflows:**

In the Manly LGA, there are 24 sewer overflow points and 11 pumping stations built into the sewerage system to avoid backup into homes, should the pipe capacity be exceeded. Two of these overflow points are now disused - Craig Avenue, Little Manly (off SPS 200) and Ashburner Street submain on the corner of Craig Avenue and Stuart Street, Little Manly.

Pipe capacity is often exceeded during rain events due to defective pipes and illegal private connections allowing stormwater inflow. Often residents are not aware that their own property's system may be defective or illegal. Overflows discharge the untreated contents of the sewer directly into waterways. Sewer overflows are the source of 98% of faecal coliforms found in Middle Harbour and 94% of faecal coliforms in Manly Lagoon. Hence many ocean and harbour beaches are unsuitable for primary contact (swimming etc.) for approximately three days following rain.

In the Manly Lagoon catchment (Manly & Warringah LGA) there are 18 existing and 11 sealed sewage overflow points (Skelton, 1996). Sydney Water does not monitor any sewer overflows in the Manly LGA however, it does monitor 25 in the Sydney sewerage system as representative, with an average wet weather overflow volume of 18,179 ML/a (Sydney Water, 1997).

Overflow problems in Manly Lagoon identified in Sydney Harbour and Northern Beaches Geographic Area EIS note that overflows contribute over 40% of total Nitrogen (8.4 t/yr) and 50% of total Phosphorus (1.2 t/yr), 33 t/yr of suspended sediment, 94% of faecal coliforms to Manly Lagoon annually. Manly Lagoon presently has a containment level of 71 events/10 years and an overflow volume of 5228 MI/10 years.

Data gap: Discharges from Sydney Water overflows and exfiltration from cracked pipes.

**Urban Runoff and Stormwater:**

The majority of urban catchments have been developed with a high proportion of hard impervious surfaces such as concrete pavements, bitumen roads and buildings. This has decreased the land's ability to soak up rainwater, increasing the likelihood of flooding, reducing groundwater infiltration and renewal, and creating other stormwater management problems downstream such as reduced water quality. Sydney Water estimates that in a typical Sydney natural bushland catchment, approximately 10% of rainfall flows into local waterways, while in a highly urbanised catchment, the figure is around 90%. Most of the land available to soak up runoff in urban areas is the home gardens (EPA, 1995), while in Manly, important areas are remnant bushland, parks, golf courses and playing fields.

Water quality deteriorates when pollutants such as suspended sediments, organic litter, nutrients, chemicals from domestic and industrial sources, vehicle-emission waste, rubber, grease, litter, dog faeces and other miscellaneous pollutants enter the water body. In Manly, a significant source of aquatic pollution in Manly is untreated waste water runoff from building sites not practicing adequate legal sediment and waste water controls. Also, the velocity at which stormwater discharges to our waterways and beaches, often causing substantial erosion to banks and beaches, and the design of the discharge point.

Stormwater pollution is now the most common source of visible pollution affecting Manly's beaches. Around Manly Lagoon, 55 stormwater drains have been mapped (Skelton, 1996). Studies undertaken by DEC have indicated that contaminants such as chlordane, DDT and PCBs were found in areas of Middle Harbour, at concentrations likely to cause biological effects (EPA 1997).

Pollution warning signs advising of polluted stormwater were erected on 6 occasions at Manly Beach, 6 at North Steyne and 25 at Queenscliff Beach during the reporting period.

#### **End of Line Devices:**

Council has a total of 258 pollution control devices (including gross pollutant traps, trash racks and baskets), which includes 18 major end of the line devices operating in the Manly LGA.

In the past, these have been cleaned at bi-monthly intervals. The majority of the materials removed from the devices are plastics, PET bottles and organic matter. Manly Council, along with many other councils, is having difficulty in maintaining the devices. In particular, the GPTs have been subject to anaerobic decomposition, which breaks down the contained load into solution where it is bioavailable at the detriment of receiving waters. In order to make the cleaning process more efficient, Council is looking to clean the units at more regular intervals, introduce aeration and frequent de-watering after periods of stagnation.

#### **Pollution Complaints and Incident Reports:**

The new *Protection of the Environment Operations Act* was introduced on 1 July 1999. A whole new range of pollution prevention and clean-up powers were introduced, with the number of offences able to be dealt with via on-the-spot fines increased. Penalties for all environmental offences were also substantially increased.

During the reporting period Council Rangers and Environmental Health Inspectors inspected 193 incidents directly relating to pollution of water. This is an increase from 92 received in the last reporting period and 94 the year prior, however, this may indicate resident's awareness and willingness to report an incident. Additionally, 22 water pollution infringements and two Pollution Prevention Notices were issued by Council under the *Protection of the Environment Operations Act*.

In 2003/04 there were 48 reports regarding water pollution incidents in the Manly LGA made to DEC (DEC Pollution Incident Reports, 2004). One Infringement Notice was issued by DEC for the Manly Council Area 2003/04. Further, two chemical pollution incident reports were made to DEC during this period, the same number reported in the previous period.

Council has a public register available listing all the clean-up and pollution prevention notices which have been issued in the Manly Council area.

**Algal Blooms:**

Red tides of *Noctiluca scintillans* have occurred in Sydney and North Harbour and along the ocean beaches off Manly, causing significant community concern. This was the most frequently blooming species of algae in NSW during 1995–1996 (EPA, 1997). Although not toxic, the high ammonia content of its vacuole has been linked to fish kills, and is believed to cause skin irritations.

*Noctiluca scintillans* are large, heterotrophic dinoflagellates, feeding on other organisms such as other phytoplankton. They appear to manifest themselves in response to increased nutrients such as that following ocean upwelling (a natural process). They can, however, reflect increased nutrients in marine environments from man-made sources. There were approximately 7 *Noctiluca scintillans* blooms recorded in the Manly LGA during the reporting period. All were short-lived and relatively harmless, and associated with natural phenomena such as ocean upwellings & ambient temperatures.

In Manly Lagoon, *chlorophyll a* levels (an indicator of phytoplankton biomass) are often very high (greater than acceptable levels in estuaries). This indicates a response of phytoplankton to increased nutrients from stormwater, sewage, sediment release or from the ocean since the permanent opening to the ocean water with the installation of the low flow pipes. Phytoplankton feed off environmental factors such as light, temperature and nutrients which are elevated in Manly Lagoon. Excess phytoplankton production results in eutrophication and possible decay of organic matter and death of estuarine organisms. There were two algal blooms in Manly Lagoon reported by Sydney Water in the year 2003.

**Boating Activities:**

The *Maritime Services Act 1935* controls discharges of sewage from specified vessels, relating to Sydney Harbour. Discharges from vessels are also controlled under the *Clean Waters Act* where vessels do not have a license to discharge directly into water. However, enforcing compliance, records and monitoring, particularly of recreational vessels and their discharge practices, is an ongoing problem.

In addition, pollutants from boating activities such as toxins leaching from antifouling paints, oily bilge water illegally pumped overboard and poor antifouling practices impact upon water quality.

In 02/03, the NSW Maritime Authority (MA, formerly Waterways) confirmed that there were 675 moorings in the Manly LGA, an increase from 403 in 1998/99. Due to a change in methodology these figures cannot be updated for the last reporting period. Moorings are now recorded in terms of the number of private (229) and commercial (100) mooring sites and the number of private (229) and commercial (7) licences.

There are two marinas in the Manly LGA - located at Clontarf and Fairlight, and six slipway facilities - one at Clontarf Marina and 5 in North Harbour – 2 at Davis Marina and 3 at Manly Boat Shed.

The North Harbour area is far removed from its natural state. Like the rest of Sydney Harbour, it is subject to repetitive artificial wave action from ferries and other craft, which is regular enough to change the natural conditions significantly. Continued or increased boating activities have the potential to seriously impact upon seagrass habitats through propeller action, anchoring and in contributing to the distribution of invasive marine pests such as *Caulerpa taxifolia*.

Data gap: Illegal release of boating vessel liquid wastes.

**Dams, Creek & Ground Water Extraction:**

Dams and weirs alter the environmental flow of creeks and rivers, including the velocity and amount of water in the waterway. In the Manly LGA there is one weir licensed for surface water extraction located on Burnt Bridge Creek. The license permits one licensed 80mm centrifugal pump with a pumping capacity of 13 l/s that irrigates an unregulated irrigation area of 10.50ha. There are two licensed 65mm centrifugal pumps extracting water from Manly Creek, each with a pumping capacity of 9 l/s that irrigates an unregulated irrigation area of 28.50 ha.

Groundwater provides the single largest potential source of water in NSW with an estimated volume of about 5 billion megalitres, about 200 times more water than is stored in NSW dams (DEC, 2004a). Many aquifers have low rates of natural recharge compared with the volumes of groundwater stored, and must be carefully managed. Land use within a catchment affects the amount of water infiltrating to groundwater and can often lead to contamination.

Manly Council have been approved to harvest small volumes of groundwater for irrigation purposes where deemed to be sustainable. These include LM Graham Reserve, Ivanhoe Park, Manly Beachfront and Clontarf Beach. The groundwater programmes will be subject to a 4-year monitoring program. Manly Council is working with the Sydney Coastal Council Group, DIPNR, DEC and NSW Dept of Health in a collaborative information sharing context.

Data Gap: rate of groundwater extraction, rate of groundwater recharge, quality of groundwater.

**Flooding:**

Modifications to the natural water flow and reduced infiltration causes increased runoff and flow velocity, and the potential of localised flooding in the lower parts of the catchment. The increase of urban land clearing and impervious surface coverage further exacerbates this effect.

Flooding in the Manly Lagoon floodplain, within the local government areas of Manly and Warringah, has in the past caused considerable property damage in the area. To address this, the sand-spit obstructing the Lagoon's entrance to the ocean is opened by excavation before the lagoon height exceeds 1.2m (water level measured at Queenscliff Bridge). Currently 38 commercial, industrial and public premises and 77 residential buildings are flooded above floor level in the 1% AEP (Annual Exceedence Probability) flood. The average annual flood damage in the Manly LGA is estimated at \$270,000 with a potential damage bill of about \$5.6 million in the 1% AEP flood (DLWC, 1997).

**Beach Erosion / Shoreline Recession:**

Erosion is part of the natural response of a beach to changing wave and water level conditions. Generally, eroded sand is returned to shore and the beach is rebuilt during calmer periods of swell waves.

Large waves, elevated water levels and strong onshore winds generated by a storm can cause severe erosion to the beach berm. Storm waves undercut the beach berm and frontal dune to form a pronounced erosion escarpment. Buildings and facilities located within the 'active' beach system, or area subject to erosion, will be undermined, and if not designed for this hazard, may suffer damage.

The Manly Ocean embayment stretches from Shelly Beach to the entrance of Manly Lagoon at Queenscliff. For its entire length the shoreline is backed by a seawall and adjoining promenade which has isolated the dune system, resulting in the loss of the dune's functions and processes of continually capturing sand and replenishing the beach berm.

From time to time, parts of the wall have been subjected to attack by storm waves and have suffered damage. Consequently, over the years, approximately 20% of the original seawall length has been rebuilt or substantially repaired (PB&P, 2003). On average a storm event has occurred once every twelve years that was sufficient to erode some part of the embayment to an extent that a length of the seawall became unstable and failed. The resulting beach profile was narrow and steep.

There a was significant series of storm events during 1999 leaving Manly Beach (and many New South Wales beaches) exposed to the subsequent complex interaction of oceanographic and coastal processes. The beach has recovered since completion of the remedial actions and is presently in good condition, with the beach berm increasing considerably.

During 2003 and 2004 Manly Council commissioned consultants to undertake Coastline Hazard Definition Studies for Manly Ocean Beach & Cabbage Tree Bay, Little Manly Cove, Forty Baskets and Davis Marina to Manly Point. These studies provided an assessment of the coastline hazards potentially affecting each area (i.e. beach erosion, shoreline recession, sand drift, coastal inundation, stormwater erosion, cliff and slope stability and climate change), an assessment of the stability of existing seawalls and provided conceptual management options to address the identified coastal hazards.

### **Aquatic Weeds:**

Manly's aquatic systems suffer from water weed infestation, restricting flow and disrupting natural oxygen concentrations in the water which can starve the creek system of dissolved oxygen and lead to fish kills.

Stands of the invasive marine pest *Caulerpa taxifolia* have been identified amongst the seagrass beds of North Harbour, having the potential to seriously degrade marine ecosystems and threaten aquatic biodiversity. Eradication of this introduced marine pest is extremely difficult. Early detection and monitoring is vital in controlling the spread of *Caulerpa taxifolia* from infested estuaries to other areas. The state government has tested a variety of ways of eradicating the weed including hand picking, smothering and applying salt. For most situations salt treatment is the most efficient control method.

Data Gap: The distribution of *Caulerpa taxifolia* within North Harbour including Spring and Little Manly Coves.

### **Potential Acid Sulphate Soils:**

The creation of Potential Acid Sulphate Soils (PASS) occurred many years ago, in most cases from the infilling of wetland areas. While they remain buried, they pose no immediate environmental threat. ASS develop when water-saturated soils with a high iron sulphide content are disturbed and exposed to oxygen resulting in the production of ferrous sulphate and sulphuric acid. This may occur due to dredging, draining or excavation. The acid produced is toxic and causes severe degradation of estuaries, fish kills and contributes to corrosion of steel and concrete structures. It also mobilises heavy metals such as aluminium and iron from the sediment, making them bioavailable, and can impact upon flora and fauna.

There are 7 areas in the Manly LGA, which have high acid sulphate potential, and 3 areas with low potential (identified from Naylor, 1998). The bottom sediments within the whole harbour, including North Harbour and Middle Harbour, are considered high risk for acid sulphate soil potential. Similarly, high-risk potential exists for some areas in Manly Lagoon at or near ground surface to a depth of three metres below surface sediments.

The potential for environmental risk from a particular landuse activity causing an acidification hazard in an area by exposing PASS will depend on the depth of soil disturbance, and the depth of occurrence of PASS materials. Environmental risk is therefore dependant upon the type of landuse activity and where it is carried out.

### **Ballast Water Contamination:**

With the Manly LGA containing part of the international shipping lane of Sydney Harbour, our adjoining marine waterways are at risk to the accidental introduction of pest species to our marine environment. Many organisms from fish to micro-organisms are known to be spread in ballast water, and are transferred between regions, countries and continents. Toxic species of dinoflagellates may be eaten by shellfish and result in food poisoning and human fatalities. Data gap: Species introduced into the Manly LGA marine environment through ballast water contamination.

### **Impacts of Climate Change:**

The consensus of scientific opinion is that the Enhanced Greenhouse Effect will result in a number of changes, including a world wide sea level (eustatic) rise, and a change of temperature, rainfall, wind and wave climates. The latest Intergovernmental Panel on Climate Change (IPCC) figures adopted for the purpose of future planning purposes, relative to 2001, have been discussed with officers of DIPNR and are as follows:

- 50 year planning period = sea level rise of 0.19m
- 100 year planning period = sea level rise of 0.47m

Climate modelling suggests that trends of global warming will result in sea level rise, as well as altering wind and wave climates. It is generally expected that recession of sandy beaches along the open coast will occur under conditions of accelerated sea level rise. Climate change also has the potential to impact on other coastline hazards such as coastal inundation, and slope and cliff stability. The extent of sea level rise, associated changes in weather patterns and major storm events are still highly debated.

Data gap: Impact of climate change on Manly LGA.

## **2.6 RESPONSES TO THESE PRESSURES**

With the appointment of **Catchment Liaison Officer**, the Manly Environment Centre (MEC) continues as an active community **Streamwatch Group**. The group monitors water quality in the Manly Lagoon Catchment on a weekly basis. Formally acknowledged for their efforts, the Streamwatch group was awarded the prestigious 'Dolphin Award' which is presented to Streamwatch groups that excel in all aspects of the program including monitoring, networking with the community and stakeholders, and involvement in quality assurance.

Between July 2003 and 2004 locals, university graduates and postgraduates, international interns, backpackers and local residents filled all available volunteer positions in the Streamwatch **Water Quality Monitoring Program**. Four sites are tested along the Burnt Bridge Creek/Manly Lagoon Catchment every Tuesday. The four sites targeted for testing are:

- Clontarf Street,
- Balgowlah Golf Course Dam,
- Manly West Park, and
- Keirle Park.

At these sites, 8 different parameters are tested including; faecal coliforms, dissolved oxygen, phosphorous, nitrates, electrical conductivity, temperature, turbidity and pH.

Streamwatch participation and the catchment findings are utilised in the following ways:

- To provide water quality data for State of Environment reporting, school reporting, websites and as support for a youth forum.
- To build community knowledge and awareness for a sustainable environment.
- To empower the community to participate in and conduct environmental activities.
- By using Streamwatch water quality data to assist in the long term management of Burnt Bridge Creek and Manly Lagoon.

Other Streamwatch groups in the Manly Lagoon Catchment include:

- Stella Maris College
- Mackellar Girls High School
- Balgowlah Boys High
- Brookvale Primary School

Manly & Warringah Councils in conjunction with DIPNR and the various stakeholders are working together to rehabilitate **Manly Lagoon**. Significant funds have already been spent on the lagoon with the extension of low flow pipes to promote flushing of the lagoon and the installation of a valve at Manly Dam to assist with flood control and sediment has been removed at the lagoon entrance under Queenscliff Bridge. Manly Council is also progressing options for aeration of the deep anoxic sinks to reduce the accumulated nutrients and heavy metals.

These works are part of an ongoing strategy outlined in the **Manly Lagoon Estuary & Floodplain Management Plans** to improve ecosystem health and quality of the lagoon.

Rehabilitation works proposed for Manly Lagoon involve 5 sites:

- Site 1 Sediment removal between Passmore and Nolan Reserve extending downstream to T.S Condamine,
- Site 2 Sediment removal in Burnt Bridge Creek and at the end of Riverview Parade,
- Site 3 Removal of the sediment sill located under Pittwater Road Bridge,
- Site 4 Construction of a second opening under Pittwater Road to reinstate Hinkler Park to an island, and
- Site 5 Removal of sand from under Queenscliff Bridge - undertaken in 2003/04.

In 2004 the **Manly Lagoon & Catchment Integrated Catchment Management Strategy** was completed. It is an umbrella strategy that incorporates all relevant plans, strategies and water quality monitoring programs undertaken by the various catchment managers into a single guiding document. The objective of the strategy is to bring together all stakeholders and develop a collaborative and coordinated management approach to improve water quality in the Manly Lagoon catchment.

Having been endorsed by all the respective catchment managers, Manly and Warringah Councils are working towards implementation. A number of recommendations have been implemented including the re-orientation of the existing Manly Lagoon Joint Estuary/Floodplain Management Committee to a catchment focused committee charged with the initial responsibility of developing a Five Year Action Plan for implementation and coordinating catchment activities to better achieve the objectives of the Strategy.

Manly & Warringah Council engaged consultant services to develop **Emergency Flooding Procedures for Manly Lagoon**. The report incorporates flood forecasting, flood warning, evacuation planning & community awareness programs. The final report will assist Manly & Warringah Councils with providing advice to the State Emergency Service, who is the agency responsible for preparing Local Flood Plans.

**Revive the Reeds** has been an ongoing initiative of Council since July 2003 aimed at rehabilitating the Manly Lagoon Catchment. The project has and will continue to see a multitude of works carried out around Manly's catchments focusing primarily on; water quality, bush regeneration and revegetation, event management and education programs for the local community, schools and business/industry sector.

Over the course of the first year of the project, "Revive the Reeds" saw the planting of 2,990 native plants within the Manly Lagoon Catchment by 1,114 volunteer hours of work in the field.

The **Water Cycle management Program** integrates all elements of the water cycle to enable Council and the community to live more sustainably within our local hydrology. The elements of the program include stormwater, wastewater, town water, and groundwater and draw upon sophisticated Geographical Information Systems and automated monitoring equipment to collate and communicate this knowledge across the organisation and to the community.

The first stage in water cycle management addresses **stormwater pollution**. Our stormwater management program draws together the skills and resources of water scientists, environmental educators and regulators, street sweepers, pit inserts, gross pollutant traps and effective planning policies. The program thus far has reduced pollutants entering the waterways from hotspot catchments by up to 90%. Seachange and Water You Do'In' are two examples of Council's targeted and multi-disciplinary approach to Stormwater Management.

**Waste Water** including sewage ex-filtration into stormwater, is a significant source of bacteria and nutrients in Manly's waterways. As such Council is working in partnership with Sydney Water, DIPNR and DEC to ensure targeted and accountable management of the issues. Activities have included strategic stormwater sampling and hotspot identification, dye testing and repair of the sewage network on private properties and Sydney Water's infrastructure. Other projects include the establishment of a collaborate working group to investigate grey water and sewage treatment and re-use for non-drinking purposes. If you notice sewage in our waterways please call Sydney Water on 13 20 90, or log in to the database [www.sydneywater.com.au](http://www.sydneywater.com.au)

The second stage in the water cycle program is to reduce **water consumption**. To do this Manly Council has installed waterless urinals, installed water conservation showers and taps, improved the efficiency of our parkland irrigation and sought ways to minimise the use water. Council alone cannot address the drinking water shortage issues so has sought to educate the community on ways all of us can modify our behaviours to use less water.

Manly's community is starting to install rainwater tanks, reduce irrigation and modify daily behaviour. This has the benefit of reducing our water consumption significantly whilst saving money on water rates. An exciting program to evolve is council's installation of **waterless urinals**. The study to date has resulted in a 70% water saving from our amenities buildings with an estimated savings of around 30,000 kl (\$30,000) in water per annum. Pressure reduction valves are being installed on the water saving shower posts to allow the re-introduction of push button taps. The water mains extreme pressure was causing the push buttons to fail.

In these times of water shortages and restrictions Council has sought to compliment water conservation measures with seeking alternate and sustainable source of water from within our unique catchments. Manly Council has been monitoring and assessing the use of treated stormwater and groundwater in partnership with the Department of Infrastructure, Planning and Natural Resources and the University of Western Sydney.

Results suggest in specific areas, with careful management, these are sustainable sources of water for irrigation. The program will be subject to a 3-year risk assessment and demand management study to ensure there are no adverse environmental impacts from the concept.

To date **alternate water sourcing projects** include:

- Smith St Pervious Pavement - recharging the groundwater,
- North Steyne Stormwater Treatment and reuse project - irrigating the Norfolk Island Pines,
- LM Graham Reserve - sustaining the sports fields, and
- Ivanhoe Park - Keeping the Park Green Project.
- Balgowlah Industrial Estate – depot re-use
- Cleansing and parks operations

A **LGA wide map of wet and dry water quality**, as well as various other parameters, has been completed. This map, connected to the GIS, allows for easy access to catchments, and sub-catchments wide analysis of 30 years worth of water quality monitoring.

Over 300 building sites have been visited since the start of the **Bricks & Water** program. The program continues to provide builders with information and advice on how to manage their sites in the most environmentally friendly manner. Sediment socks are now being given away to builders as part of the program, to assist them in their efforts to protect our fragile local environment.

Stage 1 of the **Starboard Right & Green** program has been completed, with the three local marinas having worked closely with Council to implement their Pollution Prevention Plans. Extensive research and planning has been undertaken leading up to the implementation of stage 2 of the program, which will involve the education of recreational boat users. Once finalised, an education kit will be distributed and a range of educational initiatives implemented.

Through the partnership program with Warringah and Pittwater Councils, **Stormwater Educational Cinema Advertisements** were developed and appeared in the 4 Northern Beaches cinemas for 56 weeks during 2003. The advertisements were shown 7,840 times, and survey results indicate that they were extremely successful. Surveys showed that 86% of people could correctly explain the key message, and 93% of people stated that they liked the advertisement.

Manly Council adopted the **Forty Baskets** and **Little Manly Cove Coastline Management Plans** in May 2004. The plans have been developed to provide a long-term management strategy to guide the sustainable management of the study areas and adjoining waters now and in the future. They identify all issues relevant to the study area, determine management recommendation and allocate the managing body. Implementation will now be coordinated through Council's Harbour Foreshore Committee based on priorities and funding availability. (refer to *Land*)

The **Middle Harbour and Northern Beaches Stormwater Management Plan** project is now operating with all surrounding Councils, to share information, develop a community education program and develop consistent planning objectives and provisions for LEPs/DCPs. A project highlighting catchment issues is being carried out using funding provided by DEC.

Manly Council continues to implement management recommendations identified in the **Cabbage Tree Bay Coastline Management Plan 2000**. Landscape improvement works associated with the Shelly Beach Landscape Masterplan form on ground outcomes of the Coastline Management Plan.

Initiatives from the Management Plan undertaken within the reporting period include:

- initiation of first round aquatic assessments to measure the effectiveness of the aquatic reserve's designation,
- autumn sampling for 2nd year Fish and Fish Habitat Surveying
- the establishment of an Eco-Sculpture Interpretive Walk promoting marine life found within Cabbage Tree Bay
- the installation and distribution of aquatic reserve signs and information brochures.
- education: Training of volunteer guides to undertake tours of the Cabbage Tree Bay Eco-sculpture Walk.

Burnt Bridge Creek Rehabilitation Works, guided by the **Burnt Bridge Creek Restoration Management Plan**, have continued to progress throughout the reporting period. Works are focused on the stabilisation of creek banks, the removal of sediment from the creek and addressing erosion caused by stormwater outlets.

Environmental impacts caused by stormwater include; the eroding of bushland at stormwater outlets which result in sedimentation and decreased water quality of the creek and the creation of weed plumes attributed to by increased nutrients and water saturation which creates ideal conditions for weed growth.

To address these impacts Council has installed sedimentation basins and rock armoured the channels with sandstone boulders. The basins are proving effective in trapping sediment, and preventing erosion. They are also providing ideal habitat for native fauna. Creek bank stabilisation has occurred at four locations along the creek. Stabilisation has been achieved by rock armouring the toe of banks with sandstone boulders, reducing the grade of creek banks, and revegetating with native plants.

Sediment that has accumulated within the creek at Balgowlah golf course weir, Manly West Park, and Manly Golf Club wetland is being removed by specialist contractors.

On completion of the project 12 sections of the creek will have been restored. Successful restoration works include:

- rehabilitated erosion zones at 6 stormwater outlets,
- the stabilisation of approximately 110 metres of creek bank,
- the removal of 206 cubic meters of sediment,
- restored water flow through Manly Golf Club wetland, and
- the planting of over 1500 native plants.

Council's bush regenerators are continuing the ongoing restoration of staged works. Stage 3 works recently commenced with primary work focused on the removal of Coral trees and other weeds in the lower section of Burnt Bridge Creek.

Manly Council secured grant funding under the State Governments **Sharing Sydney Harbour Access Program** for the implementation of the Little Manly Cove Landscape Masterplan. Proposed works include:

- the extension of regional walking track links, including the Manly Scenic Walkway and the National Parks track network throughout North Head.
- the improvement of accessibility for a variety of user groups between the land and water interface and within Little Manly Reserve.

The grant will be used to improve facilities and amenity to transform the Reserve into a space that reflects its picturesque surrounds and the localities significant environmental, heritage and recreational values.

Works are scheduled to commence early 2005.

Manly Council received \$60,000 under the State Government's Coastal Management Program to fund the '**Manly Ocean Beach Coastline Management Study & Coastline Management Plan**'. The findings of the comprehensive coastline management study will be incorporated into the Manly Ocean Beach Coastline Management Plan.

The Plan will aim to provide the best possible short, medium and long-term management of Manly Ocean Beach through the examination of coastal processes and their current and potential future impact on adjacent infrastructure including the sea wall.

More specifically the Plan will:

- take into consideration the existing coastline hazard definition study undertaken in 2002 which specifically identifies and quantifies hazards affecting the coastal area,
- identify all feasible management options whilst assessing the social, economic, aesthetic, recreational and ecological issues associated with land use of the area,
- identify the best combination of options for dealing with the identified issues and hazards, and
- outline a strategy for implementation.

Manly Council's Coastline Management Committee will monitor the project.

The **Northside Storage Tunnel** (NST) has operated 17 times in 2003-04, preventing diluted sewage from entering Sydney Harbour. Since the NST was completed in 2000, there has been a substantial reduction in bacteria levels near the overflow locations during wet weather events. The NST has also supported water quality improvements in Lane Cove River and Middle Harbour catchments. The sewage outfall at Marine Parade was closed in 2002 when it was connected to the Northside Storage Tunnel. In the reporting period the NST prevented overflows from entering Manly's aquatic environment on 11 occasions.

## 3 BIODIVERSITY

Within Council's 47 reserves there are 60 hectares (ha) of remnant bushland, 268.1 ha of national park and 88.12 ha of Crown Land. Other areas of remnant bushland that provide lasting refuge for native flora and fauna include roadside reserves and private property. Council's 16 bush regenerators help to restore and maintain the state of our reserves to preserve and enhance Manly's unique biodiversity.

In the Manly LGA there are two fauna and two flora species which are listed as Endangered and eight fauna and four flora species which are listed as Vulnerable under the *Threatened Species Conservation Act, 1995*. Manly's Little Penguin Population (*Eudyptula minor*) and Long-nosed Bandicoot Population (*Perameles nasuta*) are currently listed as Endangered Populations. There are 2 Endangered Ecological Communities and one Critical Habitat Area in the Manly LGA.

### 3.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Number of trees approved for removal under the Tree Preservation Order	287	465 126 refused	375 145 refused	322 136 refused	364 260 refused	346 241 refused	□
Species and populations listed under the Threatened Species Conservation Act Source: DEC – Atlas of NSW Wildlife	11 vulnerable 2 endangered populations	6 endangered 30 vulnerable 2 endangered populations	9 endangered 34 vulnerable 2 endangered populations	4 endangered 11 vulnerable 2 endangered populations 1 endangered ecological communities	4 endangered 12 vulnerable 2 endangered populations 1 endangered ecological communities 1 critical habitat	4 endangered 12 vulnerable 2 endangered populations 2 endangered ecological communities 1 critical habitat	□
Number of new native plantings within the Manly LGA	Data not available	14,000	14,000+	14,120	15,538	10,495 (due to drought and encouragement of natural regeneration)	□

### 3.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to conserve and enhance the integrity and diversity of the indigenous flora and fauna, and their ecosystems, and
- to achieve community awareness and assistance through education and participation for the conservation of Manly's biodiversity.

### 3.3 COMMUNITY PERCEPTIONS

Major issues of concern identified from community consultation included:

- Little Penguins,
- Long-nosed Bandicoots,
- tree preservation orders,
- the impact of tourists,
- uncontrolled dogs and cats, and feral animals impacting on fauna populations,
- noxious weeds,

- protection of marine biodiversity, and
- prevention of illegal activity within marine protected areas.

Positive initiatives identified from community consultation include:

- determination of penguin critical habitat and enforcement of associated regulations,
- determination of Cabbage Tree Bay Aquatic Reserve and associated regulations,
- bush regeneration initiatives.

Recommendations for management from community consultation included:

- extension of North Harbour Aquatic Reserve and associated regulations,
- increased regulation of CTB Aquatic Reserve,
- increased regulation of penguin critical habitat,
- undertake a penguin population viability analysis, and
- native tree planting information days and give away.

### 3.4 STATE OF OUR BIODIVERSITY

#### Flora:

There is 60 hectares of remnant bushland within the bushland and road reserves owned and managed by Council. In addition, within the LGA there is 268.1ha of National Park and 88.12ha of Crown land. Other areas of remnant bushland occur in roadside reserves and private property. Approximately 90% of the bushland in Manly is degraded to some extent due to human activities (Manly Council, 1997).

The topography of Manly's landscape and the resultant differing moisture levels influences the vegetation patterns of Manly. Steeper slopes drain more quickly than gentler slopes, more sunlight is received on north and west facing slopes and deeper soils accumulate down-slope. Different communities of plants (vegetation types) have adapted to the differing environmental conditions.

Four vegetation complexes are present in council's bushland reserves, being Estuarine Complex, Sydney Sandstone Gully Forest Complex, Sydney Sandstone Ridgetop Woodland and Coastal Sandstone Heath.

In 2003, a Flora and Fauna Survey of Council's bushland reserves was undertaken (Skelton *et al*, 2004). A total of 639 plant species were recorded, with the greatest plant diversity occurring in Wellings Reserve, followed by Nolans Bush. Of the plants recorded, 449 species were native and 189 were exotic (including weeds) or not locally native. It is anticipated that more species will be recorded in coming years, or with changes in fire regime.

Thirty-six significant or locally uncommon plant species were recorded. Two species are listed as Endangered (Schedule 1, part 1) and four species are listed as Vulnerable (Schedule 2) on the *Threatened Species Conservation Act, 1995* (sightings recorded by NSW NPWS on the Atlas of NSW Wildlife).

#### Endangered Species (Schedule 1, part 1):

- *Acacia bynoeana*, (*Bynoe's Wattle*),
- *Acacia terminalis ssp terminalis*.

**Vulnerable Species (Schedule 2):**

- *Eucalyptus camfieldii*, (*Heart-leaved Stringybark*),
- *Syzygium paniculatum*,
- *Pimelea curviflora var. curviflora*, and
- *Tetratheca glandulosa*.

Two endangered ecological communities have been identified in the Manly LGA:

- Duffys Forest Ecological Community, and
- Eastern Suburbs Banksia Scrub Ecological Community.

The **Duffys Forest** Ecological Community is listed as an endangered ecological community on Schedule 1 of the NSW *TCS Act* 1995. The community is known to occur in the Pittwater, Warringah and Ku-ring-gai LGA's and is in danger of becoming extinct if threats continue. In Manly, this community occurs adjacent to Seaforth Oval and less than 300 metres from Blight Park and Bantry Bay Reserve.

The **Eastern Suburbs Banksia Scrub** Community is also listed as an endangered ecological community on Schedule 1 of the NSW *TCS Act* 1995. The community is known to occur on North Head and in the eastern suburbs of Sydney. Of the total coverage of Eastern Suburbs Banksia Scrub community 60% is located on North Head.

**Fauna:**

The fragmentation of natural bushland areas in Manly has reduced the viability of habitat in many bushland reserves to support populations of native fauna. The bushland surrounding Sydney Harbour is known to have once supported a diversity of mammalian fauna including wallabies, bandicoots, possums, quolls and echidnas, as well as a variety of reptiles, amphibians and avifauna (Manly Council 1998b).

Many of these species are now locally extinct, however, the bushland areas, shorelines and aquatic environments within the Manly LGA still support a diversity of species.

Higher incidences of sightings of native fauna tend to occur in those reserves that adjoin or are close to larger natural bushland areas including Sydney Harbour and Garigal National Parks, and the Manly Warringah War Memorial Park.

The 2004 Flora and Fauna Report of Council's Bushland Reserves (Skelton *et al*, 2004) recorded 103 animal species, comprising of the following:

- 15 mammal species - 9 native species and 6 introduced. The most common were the Ringtail Possum and Brushtail Possum,
- 67 bird species - 61 native species and 6 introduced. The most common birds were the Noisy Miner, followed by the Australian Magpie,
- 5 frog species were recorded, with the Common Eastern Froglet being the most frequently recorded,
- 16 reptile species, and the most commonly occurring reptile was the Dark-flecked Sunskink, followed by the Eastern Water Dragon.

DECs Atlas of NSW Wildlife identifies 2 fauna species listed as endangered (Schedule 1 part 1) and 8 species listed as vulnerable (Schedule 2) as occurring in the Manly LGA:

**Endangered Species (Schedule 1, part 1):**

- Regent Honeyeater (*Xanthomyza phrygia*),
- Southern Giant-Petrel (*Macronectes giganteus*),

**Vulnerable Species (Schedule 2):**

- Osprey (*Pandion haliaetus*)
- Superb Fruit-Dove (*Ptilinopus superbus*)
- Powerful Owl (*Ninox strenua*)
- Red-crowned Toadlet (*Pseudophryne australis*)
- Southern Right Whale (*Eubalaena australis*)
- Humpback Whale (*Megaptera novaeangliae*)
- Australian Fur-seal (*Arctocephalus pusillus doriferus*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)

Two **endangered populations** are also listed on the *NSW Threatened Species Conservation Act 1995*:

- Manly's Endangered Population of Little Penguins (*Eudyptula minor*), and
- Long-nosed Bandicoot (*Perameles nasuta*) Population at North Head.

Manly's endangered population of **Little Penguins** is the only known population on mainland NSW. In 1997, the Little Penguin population at Manly Point was listed as endangered on Part 2 of Schedule 1 of the *NSW Threatened Species Conservation Act 1995*. Following its listing, a Little Penguin Recovery Team was established to provide advice regarding matters pertaining to the conservation of the population. Manly Council continues as an active member on the Recovery Team.

In 2002, Critical Habitat was declared for Manly's population of Little Penguins. Reports provided by DEC indicate that the population has remained stable at around 60 breeding pairs for the last 6 years despite concerns that the population may still be declining.

The **Long-nosed Bandicoot** population at North Head is estimated to be around 100 individuals (NPWS, 1999). Long-nosed Bandicoots are widespread along the east coast of Australia, from northern Queensland to Victoria. The populations in the Sydney Basin are now thought to be limited to Pittwater LGA, North Head and Garigal National However, the populations in Pittwater LGA and Garigal National Park are not listed as endangered. The Department of Environment & Conservation is currently preparing a **Draft Recovery Plan for Long-nosed Bandicoots** for public exhibition. Monitoring of the population is ongoing.

**Wildlife Corridors and Tree Canopy:**

Wildlife corridors are defined as areas of bushland on public land between two or more larger areas of bushland through which most ground dwelling animals can readily travel to breed, forage, disperse and recolonise. Without suitable habitat connecting the isolated pockets of vegetation, the movement of wildlife and 'mixing' of genes virtually ceases. This creates small populations in 'islands' of habitat surrounded by inhospitable 'seas' of urban or rural development. Inbreeding occurs, with generally predictable negative long-term effects on the viability of those populations.

Every tree is an important feature for connecting reserves and other remnant areas, creating the wildlife corridor piece by piece and facilitating the movement of native animals. Mature trees are an important component of wildlife corridors, as their limbs overlap and form a canopy. Street trees are also important in the network, connecting isolated pockets of vegetation. Data Gap: Little information on animal movements, numbers and quality of corridors

Manly Council's **Street Tree Masterplan** indicates that Manly LGA is characterised as having a diverse pallet of mainly indigenous street trees. The majority of the street trees are mature in age, are mostly less than 6m in height and spread. Almost half of the recorded species were found to be in fair condition, some suffering from insect damage, with only a few suffering from disease. The street trees are causing very little pavement uplift, security and safety problems with only a small proportion causing interference with power lines.

### 3.5 PRESSURES ON OUR BIODIVERSITY

The remaining bushland in the Sydney region (and the native plants and animals that it supports) is under threat from a wide array of pressures, including removal by urban development and the effects of urban areas on adjacent bushland. Incremental loss, fragmentation and isolation of bushland, threatens biodiversity and the integrity of ecological processes in remaining bushland patches, as well as causing local extinction and loss of aesthetic values. Once bushland has been disturbed by weed invasion or nutrients from stormwater or illegally dumped waste, it is usually impossible to restore it to its original state. With many years of work and at great cost, an alternate stable vegetation type can be established (Skelton *et al*, 2004)

Specific threats to bushland and biodiversity in the Manly LGA include:

- urban stormwater runoff and associated nutrient and weed propagules;
  - increased water volumes and reduced dry weather flow;
  - removal of vegetation and habitat through clearing and encroachment;
  - fragmentation, size reduction and isolation of habitat;
  - inappropriate fire regimes;
  - increased numbers of exotic predators (including domestic dogs and cats);
  - loss of vegetation and weed infestation;
  - dieback caused by the foot-rot fungus (*phytophthora cinnamomi*);
  - bushrock removal;
  - erosion and sedimentation; and
  - direct human interference (eg. Bike tracks, walking paths, tree poisoning, dumping, poor work practices, connection of utilities, etc.)
- (Skelton et al, 2004)

#### Land Clearing:

Significant vegetation removal has affected large areas of Manly at various stages of the area's development. The majority of clearing in Manly has occurred in the past 50 years (Manly Council, 1998a), with the development of the suburbs of Clontarf, Balgowlah Heights and Seaforth. In recent years, land clearing has been limited to smaller subdivisions, such as the St. Patrick's College Estate development where the endangered population of long-nosed bandicoots has lost a significant amount of quality habitat. Clearing and fragmentation of urban areas has resulted in isolated pockets of remnant vegetation, usually of minimum size, poor quality and under great pressure. When habitats decline, faunal species compete for the remaining resources, causing their populations to decline and lose genetic diversity. This reduces their ability to compete, fight disease or adapt to changing conditions. The limited resources also force animals into residential areas.

#### Clearing of Canopy:

Under Council's Tree Preservation Order, 346 trees were approved for removal by Council's Parks and Reserves Team in 2003/04, with 241 refused. Since 1999/00, there has been a decrease in the number of trees approved for removal. This trend is expected to continue in line with Council's and the communities desire to preserve our natural environment.

Data gap: The total number of trees and vegetation removed without consent.

**Stormwater Runoff:**

Stormwater runoff is the result of rain flowing from highly urbanised areas with large areas of impervious surfaces, such as shopping centres, car parks, roofs and roads. This water is generally collected in stormwater drains which discharge into drainage channels, directly into bushland areas, and into our natural waterways such as local creeks and estuaries. Stormwater collects a range of materials including: chemicals, animal excrement, leaf litter, detergents, oil, weed material including seeds, and soil (Manly Council 1998b).

The impact of stormwater runoff is highly significant. The discharge of stormwater directly into bushland increases soil moisture levels, as well as bringing with it extra nutrients such as phosphorus, and carrying weed seeds and rooting plants. This runoff also reduces water quality in natural streams and groundwater, and increases siltation and flooding of these waterways.

**Encroachment:**

Encroachment is a common problem in the bushland remnants of Manly including Gurney Reserve, Blight Park, Sangrado Reserve, Ogilvy Road Reserve and Wellings Reserve. Encroachment occurs when residents clear bushland that is on Council land and use the area as an expansion of their backyards. Disturbances include the gradual extension of grass, lawn, garden beds or other structures (pools, fences, etc.) from adjacent private properties into bushland. This is especially relevant in areas where there are no formal boundaries separating different land uses. Once encroachment is established, it is very difficult to return the area to bushland (Skelton *et al*, 2004)

**Invasive Species:**

The problem of rampant weed growth represents a significant threat to the long term survival of bushland in urban areas. Weed invasion has occurred as a result of:

- development causing bushland disturbance,
- introduced soil/fill,
- increasing light levels,
- altering soil moisture levels, and
- increasing soil nutrient levels.

All these factors change the bushland profile, often to the detriment of native species. The most troublesome weeds found in Manly's bushland originate from household gardens. This particular infiltration of weeds is facilitated by the dumping of garden refuse containing seeds and propagules of exotic garden species, seed dispersal by people, birds, wind and water, and the close proximity of bushland to domestic gardens and parks. Bushland areas into which storm water drains empty, such as creek lines, suffer greatly from weed infestation.

Common exotic weeds in the Manly LGA include vines (eg. capeivy, madeira vine, balloon vine, morning glory and turkey rhubarb), garden escapees and understorey weeds (eg. privet, wandering jew, asparagus fern and bamboo), weeds of disturbed areas (eg. lantana, blackberry, crofton weed, pampas grass) and large trees including coral trees, camphor laurels, willow and rhustrees. Many of these weeds are classified as noxious as they can pose a problem to human health, the environment, livestock or the agriculture industry. Legally, these weeds must be removed or controlled in accordance with the NSW Noxious Weeds Act, 1993. Council must enforce this Act by ensuring noxious weeds are controlled or removed.

**Bushfire:**

Fire is a natural component of many Australian ecosystems, with the Australian biodiversity evolving under its influence. Yet today's fire patterns are vastly different from those that shaped our landscape over 200 years ago. Manly native plant species have adapted to surviving fire, and some species are considered to be fire dependent.

Upon European arrival, the settlers observed that Aborigines frequently burnt the land. Using fire as a land management tool had the dual purpose of stimulating seed-setting and germination, regenerating other species, and of driving out game animals or attracting large marsupial grazers to areas of new shoots. The loss of continuous, regular burning since the arrival of Europeans has resulted in a change of vegetation patterns and species composition. This combined with native vegetation clearing has resulted in the loss of indigenous biodiversity and increased weed growth. Bushland adjacent to urban areas has seen the need for the introduction of prescribed burn-offs, undertaken to lower the risk of wildfire for the protection of property, and to assist native species in natural regeneration.

Excluding fire can result in the development of dense shrub layers which favour moisture loving species, including exotic weeds, and inhibit the germination and establishment of sclerophyllus species. Excessively frequent fires (often the result from hazard reduction burns) may kill vegetation before they mature enough to set seed. These may subsequently be replaced by grasses, bracken and other resprouting plants if recruitment is not possible from adjacent areas (Manly Council, 2000).

A lack of fire in urban areas such as Manly has favoured the growth of temperate rainforest native species such as *Pittosporum undulatum* and *Glochidion ferdinandi*, which in dry sclerophyll areas have now become an adventitious native, or 'bushland weed'. These were once mainly confined to moist gully areas by regular fire regimes, yet now have colonized many dry sclerophyll bushland areas where they thrive, shading out many species with their dense crowns.

Data gap: Impacts of fire and Council's hazard reduction programme on biodiversity.

**Introduced Animals:**

The impact of introduced species on the Australian environment has been immense. Introduced fauna compete with native fauna for food and habitat, preyed on native fauna, and caused great destruction of the bushland and other habitats. There are a number of introduced animals that have a negative impact on the flora and fauna of the Manly area. Of primary concern are foxes, cats, dogs and rabbits.

Feral animals impact on the Manly environment as:

- **Rabbits** compete with many ground-dwelling native animals for food and shelter, their burrows can cause major soil erosion, and they attack newly planted tubestock plants. Competition and land degradation by feral rabbits has been listed as a Key Threatening Process under the NSW *TSC Act* 1995 (NSW Scientific Committee, 1995). During the Flora & Fauna Survey of Manly Council's Bushland Reserves (Stelton *et al*, 2004), rabbits were recorded in 15 of the 36 surveyed reserves. The spread of exotics can also be attributed to foxes.
- **Foxes** are general omnivores, eating insects, vertebrates, and fruits from introduced plants. Both ground and tree dwelling native wildlife form a significant part of a fox's diet, including Ring-tailed Possums, Bandicoots, Blue-tongued Lizards, Frogs, Little Terns and Fairy Penguins. Predation by the European Red Fox has been listed as a Key Threatening Process under the NSW *TSC Act* 1995 (NSW Scientific Committee, 1998).

- **Feral birds** such as Indian mynas, and natives from other parts of Australia not originally from this area, such as the Rainbow lorikeet, are very aggressive and compete with local native birds for food, habitat, nesting material and nesting spots. Council received increasing numbers of complaints regarding pigeons in the Manly CBD area in the reporting period. Pigeons are known carriers of lice, mites, fleas and parasitic worms and are linked to the spreading of several diseases.
- **Feral and domestic cats** are major predators of Australian fauna, and carry and spread *toxoplasmosis*, a disease that affects both humans and native wildlife, causing blindness, birth defects and miscarriage in humans. It can also cause blindness and damage to the central nervous system and respiratory organs of bandicoots. Predation by feral cats is listed as a Key Threatening Process in the NSW *TSC Act 1995* (NSW Scientific Committee, 2000). Several endangered and vulnerable species in NSW are threatened with extinction due to predation from feral cats including Manly's population Little Penguins and Long-nosed Bandicoots. During the Flora & Fauna Survey of Manly Council's Bushland Reserves (Stelton et al, 2004), cats were recorded in 22 out of the 36 surveyed reserves.

Data gap: Extent of feral animal populations.

### Companion Animal:

Irresponsible pet owners contribute to the rapid decline of wildlife. The increase of feral cats and dogs (through dumping of unwanted pets), contribute to the increasing nuisance of wandering and barking dogs, and interfere with the well-being of the community. Cats are hunters by nature, hunting at all hours, especially at dusk and night, with the prey commonly consisting of bats, possums, bandicoots, penguins, native rats and mice, birds, lizards, and snakes. Cats have been implicated in the decline and possibly the local extinction of a number of species. They can also carry bacteria and blood parasites, which can be passed on to wildlife that have little to no resistance.

Dogs also have a direct impact on bushland by:

- preying on wildlife,
- urinating on trees to mark out territory,
- sending out warning signals to native animals to keep away,
- dog droppings are very high in phosphorous, promote growth of exotic weeds, are unpleasant to walkers, are a health hazard, and can carry parasites,
- disturbing burrowing fauna, and
- harassing wildlife, people and other pets.

Data gap: Number of domestic cats and dogs in Manly.

### 3.6 RESPONSES TO THESE PRESSURES

A **Flora and Fauna Study** of Council's Bushland Reserves was completed in 2003. This document catalogues and maps the occurrence of flora and fauna at 36 of Council's 47 bushland reserves. The findings of the report will assist Council in prioritizing bush regeneration and weed control efforts, the assessment of development applications and environmental planning.

The **Duffy's Forest** Species Impact Statement for land at Seaforth Oval has been completed and submitted to Council. Provisions will be made to protect and enhance the endangered ecological community of Duffy's Forest at this location.

In 2002 Critical Habitat was declared for **Manly's Endangered Population of Little Penguins**. Over the reporting period there has been significant positive feedback from the community. Implementation of the Little Penguin Recovery Plan continues with:

- the installation of penguin nest boxes,
- the distribution of informative brochures,
- increased patrolling of critical habitat,
- the holding of community events such as penguin landing counts and penguin aware seminar, and
- the application of strict development control conditions.

The **Draft Recovery Plan for Long-nosed Bandicoots** has been placed on public exhibition by the Department of Environment & Conservation but is yet to be adopted. Monitoring of the population is ongoing. Council continues to protect the population through the assessment of development proposals, the dissemination of education material and careful bush regeneration of known habitat areas.

On-ground works of the State Government grant funded **Harbour to Hawkesbury Walk - Stage 2** have now been completed with a public opening scheduled to occur early 2005. The walk which connects Manly to Berowra is about 47 km in length and links to 'The Great North Walk' which extends between Sydney and Newcastle. A brochure showing the walking path and containing information about places of interest has been produced. A final report on the project has been sent to DIPNR.

Cabbage Tree Bay was declared a '**No Take Aquatic Reserve**' on 31 March 2002. In 2003, Council commissioned consultants to undertake fish and habitat assessments of the Bay to monitor the effectiveness of the Bay's designation as an Aquatic Reserve. The first year of surveying has now been completed and the final report received. Results from the initial year of surveys are highly encouraging and suggest that Cabbage Tree Bay, when compared to control locations, has a diversity of habitats, contains high numbers of fish that would otherwise be subjected to harvesting and has a good larval supply of fishes. Surveys of the Aquatic Reserve are continuing and will ensure a comprehensive dataset for future comparative analysis.

Additional regulation signs were installed in the area to ensure awareness of prohibited activities and interpretive signage has been finalised and will be installed late 2004.

An aquatic reserve brochure produced in association with DPI continues to be distributed to increase community awareness about the Aquatic Reserve and the bays biodiversity.

There are 75 active **Bushcare Volunteers** who are dedicated to restoring Manly's bushland. Bushcare volunteers and Council's Parks and Reserves Team are currently working in over 42 of Manly's 47 bushland reserves.

There were two main planting sites at this years 2004 **National Tree Day** - Ivanhoe Park and Manly West Public School. Over 65 people participated in the event planting 1000 native plants at Ivanhoe Park. At Manly West Primary School over 300 natives were planted by school children to enhance the school environment. The Lions Club came for the third year running to provide support on the day.

Council in conjunction with DEC and surrounding Councils, celebrated **Weedbuster Week 2003** with the erection of temporary information stalls at major shopping centres in the region. The stalls were very popular with shoppers who took the opportunity to get advice on noxious weed removal. Noxious weed control on Council land continues as does private land inspections.

The proposed **Regional Noxious Weed list** has been finalised and endorsed by Manly Council. The regional list will go before the Noxious Weed Advisory Committee for approval before going to the Minister for final sign off.

In 2002, the vegetation communities present in the Manly LGA were mapped. The maps were utilized by the Rural Fire Service to generate fire hazard maps that were incorporated into Manly Council's Local Environment Plan (LEP). Council has been undertaking bush fire hazard reduction work in line with the **Manly / Mosman District Bushfire Management Plan**. During 2003/04, two pile burns were undertaken (Burnt Bridge Creek and Gurney Reserve). Manual clearing was undertaken in 7 of Council's reserves to maintain asset protection zones.

Council has continued to implement its **Local Companion Animal Management Plan** throughout the reporting period. The plan provides for an integrated approach to responsible pet ownership, community amenity and environmental preservation. Implemented actions have included a review of Council's on-leash areas, a review of dog-tidy bin placement, and updating of Council's information on responsible pet ownership.

The 2003 Dog Day Out was held as a means of raising the awareness of Dog Owners in regard to safe and responsible pet ownership. Displays by local businesses were complimented by information stalls provided by Council and the Animal Welfare League. Dog Owners learnt about caring for their pet as well as how to minimise the effects of their pet on the local environment.

## 4 AIR

The earth's atmosphere, which extends for about 100km above the earth, is critical in regulating our weather and climate. The combination of climatic conditions and anthropogenic emissions of gases and other pollutants results in three significant environmental problems: depletion of the ozone layer, the enhanced greenhouse effect and, in some areas, regional and local air pollution.

There are many substances in the air, which may impair the health of plants and animals (including humans), or reduce visibility. These arise both from natural processes and human activity. Substances not naturally found in the air, at greater concentrations or in unusual locations are referred to as 'pollutants'.

Pollutants can be classified as either primary or secondary. Primary pollutants are substances produced directly by a process, such as carbon monoxide gas from a motor vehicle exhaust. Secondary pollutants are not emitted. Rather, they form in the air when primary pollutants react or interact. An important example of a secondary pollutant is ozone - one of the many secondary pollutants that make up photochemical smog.

Primary pollutants produced by human activity include:

- oxides of sulphur, nitrogen and carbon,
- organic compounds, such as hydrocarbons (fuel vapour and solvents),
- particulate matter, such as smoke and dust,
- metal oxides, especially those of lead, cadmium, copper and iron,
- odours, and
- toxic substances.

Secondary pollutants include some particles formed from gaseous primary pollutants and compounds in photochemical smog, such as nitrogen dioxide, ozone and peroxyacetyl nitrate (PAN). (DEC, 2004c)

### 4.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Greenhouse Gas Emissions (tonnes of CO <sup>2</sup> ) *Corporate *Community	8061.8 146,038.2	Not Determined	8057 (yr 2000) Not Determined	8055 Not Determined	Data not available	Data not available	□
Number of trips): * Scheduled Bus Trips: (Brookvale Depot Buses) * Ferry and Jetcat Patronage (to and from Manly):	365,000 5,670,000	363,274 5,888,913	371,599 *6,597,346	381,185 5,824,100	381,948 5,146,500	389,862 6,349,708	↑
No. of Registered Vehicles within the Manly LGA	1995: 18,606 1996: 21,725	23,215	19,482	Data not available	21,301	21,297	□

#### 4.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to promote the conservation and efficient use of energy in Manly,
- to significantly improve the air quality of Manly,
- to reduce the amount of greenhouse gases emitted from Manly and consider the possible impacts of climate change, and
- to ensure that ozone depleting gases and goods which contain them are not disposed of carelessly, have their use reduced and are recycled where possible.

#### 4.3 COMMUNITY PERCEPTIONS

Major issues of concern identified from community consultation included:

- the increased usage of cars as transport,
- poor air quality,
- the lack of incentive to catch public transport to Manly rather than drive a car.

Positive initiatives identified from community consultation included:

- Council purchasing *Green Power*,
- improved bus shelters, and
- Council's progress in the Cities for Climate Protection Program.

Recommendations for management included:

- electric shuttle buses,
- a car free CBD, and
- encourage use of public transport.

#### 4.4 STATE OF OUR ATMOSPHERE

##### Air Pollution in Manly:

Urban areas like Manly suffer the impact of accumulated air pollution - that is, the proximity to the city, and being in a coastal area where natural circulation of polluted air occurs. Air pollution knows no boundaries and is subject to the prevailing weather conditions and atmospheric circulation.

The Metropolitan Air Quality Study (MAQS) showed the summer overnight and early morning land breezes carry pollutants (photochemical smog precursors) out to sea where they begin to react in the sunlight to form ozone; the afternoon sea breezes carry this ozone back onshore to concentrate in the Sydney Basin. This results in the concentration of ozone and other local pollutants in the western areas of the Sydney basin over a number of days.

Air quality issues at the regional level concern:

1. photochemical smog (visible as a white haze in summer), usually identified by the presence of ozone; this is formed through chemical reactions between oxides of nitrogen and reactive (or volatile) organic compounds in the presence of sunlight, and
2. fine particle pollution from emission sources such as motor vehicles, industry and home wood burning heaters, or resulting from bushfire hazard reduction burning or soil erosion; it is visible as a brown haze on winter mornings and results from overnight temperature inversions trapping fine particles close to the ground surface.

### Regional Air Quality - the Regional Pollution Index:

Manly is part of DEC's eastern air pollution monitoring region. This is based on a network of air quality monitoring stations which change sites periodically, including a station in Kur-ing-gai, Leichhardt and Randwick. As a result, this monitoring does not produce data indicative of air quality conditions in the Manly area.

### Pollution Complaints:

In 2003/04 there was 1 air pollution incident report made to the Department of Environment and Conservation (DEC, 2004b). Five incidents were reported to DEC in the previous reporting period.

In 2003/04, Council's Environmental Health Officers attended to 26 air pollution complaints, a decrease from 39 in 2002/03 and 61 the year prior.

A breakdown of these complaints is as follows:

- general -16
- odour/smell -8
- wood heaters - 2

### Energy Consumption:

In 2003/04 Council's electricity consumption at its 4 highest energy use sites (Swim Centre, Art Gallery, Town Hall, Library) totalled 1,705,557kWh. This is down from 2002/03 when the total electricity consumption for the four sites was 1,761,294kWh. Consumption was reduced at the Art Gallery and Town Hall, but increased at the Swim Centre and Library.

The total community consumption of electricity was 210,286,980kWh in 03/04, an increase from 205,279.8kWh in 02/03.

### Council's Electricity Consumption - 4 highest use buildings

	00/01	01/02	02/03	03/04
Swim Centre	764,137	763,648	754,404	767,982
Art Gallery	123,833	125,701	137,823	104,802
Town Hall	425,746	404,884	395,891	383,817
Library	440,252	401,447	437,176	448,956
Total	1,762,680	1,695,680	1,761,294	1,705,557

## 4.5 PRESSURES ON OUR ATMOSPHERE

### Global Issues

#### Global Warming:

The enhanced greenhouse effect is expected to lead to warming of the earth's atmosphere and other climatic changes, and is therefore recognised as a global problem that requires a global response. 150 countries signed the international agreement *United Nations Framework Convention of Climate Change (FCCC)* at the 1992 Rio Earth Summit, which came into force in March 1994 to address the concern.

Researchers suggest that potential climate changes include:

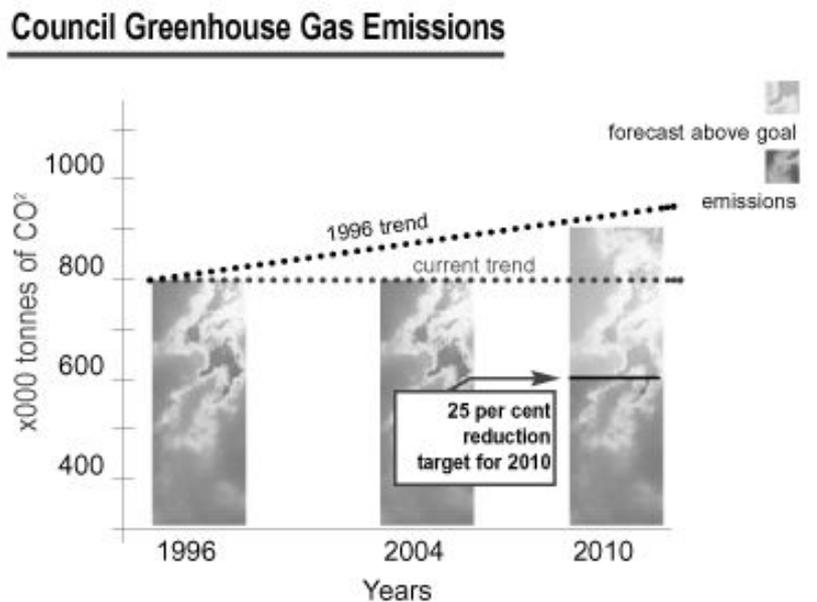
- an increase in temperature by 0.5 - 2.0°C for all seasons along the NSW coast, and by 0.5 - 2.5°C inland of the ranges,
- an increase in the frequency of days over 35°C in some parts of NSW,
- an increase in the average rainfall intensities, with heavy rainfall more than twice as often by 2070,
- an increase in the severity of storms, and increases in flood frequency and damage,
- an increase in fire danger, and
- sea level rise of up to 0.5m.

Although there are many uncertainties surrounding the timing, magnitude and patterns of the change, there is strong evidence that the change is the result of human influence.

Since the Industrial Revolution (approximately 240 years ago), the emissions resulting from human activities have substantially increased the global atmospheric concentrations of carbon dioxide, methane, and nitrous oxide - commonly recognised as the three major greenhouse gases.

Through participating in the Cities for Climate Protection Programme, Council has determined Manly's greenhouse gas emissions for the years 1995 - 2000, for both Council and the community's activities. Further, forecasts have been made which identify business as usual greenhouse gas emissions in 2010, without undertaking any abatement programmes (see below).

Data gap: Specific regional predictions on the enhanced greenhouse effect impacts.



**Ozone Depletion:**

The ozone layer is located in the stratosphere, and protects life on the surface of the earth from the worst of the sun's UV radiation, which is harmful to plants, other organisms and humans. Scientists discovered that chlorofluorocarbons (CFCs) and halons were contributing significantly to the depletion of ozone in the stratosphere.

The hole in the ozone layer has attracted a great deal of international attention over the past decade, with reductions in total ozone levels over Antarctica first identified in 1984.

Seasonal ozone losses above Antarctica have been severe, with more than 60% of the total ozone being destroyed in spring over a region covering most of the continent (State of the Environment Advisory Council, 1996). Ozone depletion has also occurred at mid latitudes including over Australia, with a loss of between two and four percent (State of the Environment Advisory Council, 1996).

The Bureau of Meteorology carries out stratospheric ozone monitoring across Australia, where studies show that depletion is occurring over the most populated parts of Australia year round.

**Regional Issues****Potential Pollutants:**

The Metropolitan Air Quality Study (MAQS) and Air Quality Research Program (HARP) determined that the main sources of air pollutants come from motor vehicles, industry and domestic activities. The main pollutants are carbon dioxide, carbon monoxide, nitrogen oxides, volatile organic compounds and fine particles; all except carbon dioxide are toxic to humans and other living organisms. Motor vehicles were identified as being a major source of carbon monoxide and reactive organic compounds; diesel vehicles were significant sources of nitrogen oxides and total suspended particulates. Solid fuel home heaters were a major source of total suspended particulates in winter.

Activities contributing to air pollution in Manly are:

- transport pollution - arterial roads within Manly service much of the traffic travelling between the Northern Beaches and the City,
- community transport activities, such as private vehicle use,
- commercial cooking facilities (eg. charcoal chicken shops / takeaways),
- industry,
- NHSTP,
- street odour vents
- transport trucks from the NHSTP
- bushfires and burnoffs (fire management),
- solid fuel heaters,
- illegal backyard burning, and
- indoor air pollution such as smoking.

In Manly, domestic solid fuel heaters, transport vehicle emissions and dust from building sites are the greatest contributors to air pollution.

New developments in heater technology as prescribed in Australian Standard 4013, are promising significant reduction in emissions. The Standard is designed to ensure solid fuel heaters give the most efficient and greatest heat for the least cost and with minimal pollution.

**Managing open burning:**

Open burning is a significant source of particle pollution. Manly Council is able to regulate the level of open burning in their municipality under the [Protection of the Environment Operations \(Control of Burning\) Regulation 2000](#). The Regulation bans backyard burning in urban areas.

DEC has the power to ban all burning on days when conditions are likely to cause elevated levels of particles. However, strategically important hazard reduction burns can be specifically exempted following consultation between DEC and the [Rural Fire Service](#). The NSW [Bush Fire Coordinating Committee](#) has issued the guidelines, [Managing Smoke During Prescribed Burning](#), for use by bushfire management committees, land managers and fire-fighting authorities to help minimise the adverse effects of smoke from hazard reduction burning in smoke-sensitive areas.

Manly Council undertook two pile burns in the 2003/04 reporting period - one at Burnt Bridge Ck and one near Rignold Street. A broad scale burn (approx 30m by 10m) was also undertaken at Gurney Reserve. All of these were done as hazard reduction works and in accordance with proscribed procedures.

**Transport:**

On Census day (7 August 2001) for Manly residents, 25 (0.1%) people travelled to work by train only, 2079 (11.2%) people took the bus only and 120 (0.6%) people took both the train and bus. There were 9010 (48.4%) people who travelled to work by car, either as the driver or as a passenger and 1082 (5.8%) people either rode a bike or walked to work.

**Private Transport:**

Motor vehicles are the most significant source of urban air pollution. Technological improvements have reduced emissions from new vehicles, but in the Sydney region in particular these gains may be offset by a continuing growth in the use of vehicles.

Motor vehicles are significant contributors to airborne levels of photochemical smog, carbon monoxide, nitrogen dioxide and particles, as well as some air toxics. Actions for Air the NSW Government's 25-year air quality management plan for Sydney, the Illawarra and lower Hunter regions, identifies the reduction of motor vehicle emissions as the highest priority strategy to meet national air quality standards and goals (NSW Government 1998).

**Number of Registered Vehicle Owners and Operators** *(Statistics provided by the NSW RTA)*

	1999/2000	2003/04
Registered Vehicles to Owners	18,912	21,297
Registered Vehicle Operators	20,140	25,891

The SHOROC Transport Policy (1998) identified the approach to the Spit Bridge as a major traffic congestion area, where southbound traffic from Warringah Road, the Burnt Bridge Creek deviation and Sydney Road converge on the approach to the Spit Bridge.

**Public Transport:**

Use of public transport urgently needs to be encouraged. Australia wide, 15 million more car journeys are expected each year (State of the Environment Advisory Council, 1996). SHOROC is currently developing a Sustainable Regional Transport Solutions report, which aims to improve and promote transport solutions to make public transport more attractive, and an alternative to the private vehicle.

**Sydney Ferries & JetCat Statistics:**

A total of 6,349,708 patrons travelled the Sydney Ferry and JetCat service to and from Manly in 2003/04, with a total of 5,499,451 Ferry and 850,257 JetCat passengers (Sydney Ferry Data, 2004). This represents a 19% increase in patronage from 2002/03.

**Sydney Ferry and JetCat Patronage**

	1999/00	2000/01	2001/02	2002/03	2003/04
<b>Ferry</b>	4,368,797	5,318,555	5,082,110	4,124,500	5,499,451
<b>JetCat</b>	1,520,116	1,278,791	741,990	1,022,000	850,257
<b>Total</b>	5,889,813	6,597,345	5,824,100	5,146,500	6,349,708

**Sydney Buses:**

A total of 12,702,780 patrons travelled on Manly buses in the 2003/04 reporting period.

**Sydney Buses Patronage**

	1999/00	2000/01	2001/02	2002/03	2003/04
<b>Patronage (Manly Buses)</b>	12,864,000	12,798,686	12,485,097	12,528,743	12,702,780
<b>No. of Scheduled Bus Trips</b>	363,274	371,599	381,185	381,948	389,862

**Odours:**

'Bad smells' - or rather odours, are an important issue with the public, with from 30% to 60% of all air pollution complaints received by State environmental agencies relating to odours (State of the Environment Advisory Council, 1996). The gases and aerosols usually responsible for unpleasant odours are volatile organic and sulphur containing compounds. The odours detected are usually mixtures, making it difficult to quantify and regulate them.

Odours are produced from several sources in Manly, with complaints received by Council regarding premises manufacturing and processing food, the sewage pumping stations/treatment plant, overflows (Sydney Water, 1998b), sludge trucks carrying biosolids from the North Head Sewerage Treatment Plant and paint fumes.

Council received 26 complaints directly relating to offensive odours, fumes or smells. No penalty infringement notices were issued for breaches of the Protection of the Environment Operations Act during the reporting period.

An Odour survey undertaken in the Balgowlah area following clustered odour complaints, pinpointed a number of issues. These have been targeted through specific odour abatement, education and enforcement programs.

**4.6 RESPONSE TO THESE PRESSURES**

In November 2003 Council was awarded the SEDA **Energy Smart Business** Silver Globe Award for achieving a 25% reduction in greenhouse gas production. Council has now achieved enough savings to receive a Golden Globe award at this year's event.

Council staff are monitoring developments in **alternative fuel technologies**, such as biodiesel.

Council has continued to progress in the **Cities for Climate Protection Programme**, achieving Milestone 5 and progressing into the CCP Plus program. The Active Transport Pack project was completed with a grant from the CCP Plus Community Awareness Grants. The Cities for Climate Protection Plus program is being revised to further enhance greenhouse gas savings for participatory Councils, and staff have made comment on the proposed future direction of the program. Council continues to report to CCP on measures that have been undertaken to create further dollar and greenhouse gas emission savings and will conduct the next assessment of Green House Gas Emissions in 2005, using 2003/04 data.

In the reporting period Council continued to implement the **Local Air Quality and Greenhouse Action Plan**. This has been done through projects progressed through membership in the CCP Plus, and SEDA Energy Smart Business programs. Key actions achieved in the reporting period include the development and distribution of Manly's Active Transport Pack, and solar boosted gas heating for the amenities block at Manly Swim Centre. The latter is expected to save \$3,000/yr in energy costs, thus having a payback on investments in 4.1yrs, and reduce green house gas emissions by 37 tonnes of carbon dioxide (CO<sup>2</sup>) per year - the equivalent of taking 8 cars off the road permanently.

Council produced a grant funded pocket size guide, the **Active Transport Pack**, to inform the community that Active Transport helps your health, your wallet, and the environment. It allows you to get the recommended 30 minutes of daily physical activity without significantly altering your routine. The aim of the project is to encourage both tourists and residents of Manly to explore what Manly has to offer, or travel to and from work/school, in a more environmentally, socially, and economically beneficial way. The success of the project will be monitored through Council's annual State of the Environment Report, and through Council's Environmental Survey's.

Council continues to purchase 10% **green power** for its four highest energy-consuming sites. Monthly energy reports for the four highest energy consumption sites are being produced to monitor trends and identify further strategies to reduce Council's energy use.

NSW councils are committed to the [Sustainable Energy Development Authority's Energy Smart Homes Program](#), which is designed to ensure all new homes meet minimum energy-efficiency requirements. Manly Council, along with forty-three other councils, representing 75% of NSW residential development applications, is actively implementing an [Energy Smart Homes Policy](#).

**BASIX (Building Sustainability Index)**, a web based planning tool to assess the potential performance of a residential building against sustainability targets, came into effect in July 2004. From July, all new dwelling houses must be designed to achieve targeted reductions in potable water consumption and green house emissions and have an appropriate level of thermal performance. Targets will be progressively increased and will be applied to a wider range of residential development. BASIX replaces all associated provisions identified in Council's standards, policies or DCPs.

## 5 WASTE

As the population continues to increase, waste is growing proportionally, placing greater pressure on our waste management systems. Manly as a community needs to be responsible for its waste and take action to avoid and reduce its' generation.

Council recognises the need to focus efforts on waste avoidance in order to achieve sustainability and through the implementation of management plans and education programmes, strives to achieve higher standards of waste management.

In addition to the pressure of urban development in the LGA, tourism, as the major industry of Manly, has an impact on the local environment and on local waste generation. It is estimated that more than 6 million visitors come to Manly each year.

Reducing waste is important for Manly's future - socially, economically and environmentally. Manly residents have a history of generating some of the smallest volumes of waste to landfill per capita in the state, so a move toward zero waste is a natural progression for the community.

In moving toward zero waste, products and materials traditionally seen as waste will need to be seen as resources that ought to be reused. The 'whole of system' approach by Council recognises that there is a chain of economic activity that produces goods and materials as well as waste, and a zero waste philosophy will move the traditional emphasis from extraction and disposal to reuse and reprocessing.

### 5.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Total volume of domestic waste sent to landfill (no recycling) (tonnes)	6,052.60	6,149.30	6,148.70	6,205.10	6,082.39	*6825.41	▬
Total volume of domestic waste diverted to recycling (tonnes)	5,088	7,681.00	7,476.30	7,447.90	6856.41	7771.74	↑
Public place waste (tonnes) <i>does not include GPT waste</i>	1,898	1,540.70	686.1	948.1	871.2	730.07	↑

\* Figures have increased primarily due to a change in methodology – volume now includes domestic waste collected on trade trucks

### 5.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to reduce the total amount of waste sent to landfill from Manly,
- to ensure that waste disposal does not compromise the integrity of the environment or human health, and
- to create a resource efficient community within Manly.

### 5.3 COMMUNITY PERCEPTIONS

Community consultation indicated an overall high level of concern regarding waste. Major issues identified included:

- recycling,
- increased bin capacity,
- public place waste, and
- plastic bags.

Positive initiatives in Manly identified by community consultation include:

- waste initiatives at the Food & Wine Festival,
- Clean Up Australia Day involvement,
- beach cleanliness,
- Council's banning of smoking on Manly's beaches and reserves, playing and sporting grounds,
- DCP for Waste Minimisation & Management, and
- Council's Zero Waste Policy.

Recommendations for management included:

- enforcement of littering laws,
- education, and
- encourage composting and avoidance of waste.

### 5.4 STATE OF OUR WASTE SYSTEMS

#### Waste Disposal Sites/Landfill

The Kimbriki Materials Recovery Facility is a Solid Waste Class Two Non-Putrescible Landfill and Recovery Centre managed by Warringah Council for Pittwater, Mosman, Warringah and Manly Councils and has a life expectancy of 60.8 years as at July 2000. During 2003/04, 74% of all materials entering the facility were recycled.

There is an estimated five years landfill space left at the Belrose Waste Management Centre for putrescible wastes. There are no active landfill sites in the Manly Council LGA.

### 5.5 PRESSURES ON OUR WASTE SYSTEMS

#### Major Waste Streams:

The National Solid Waste Classification System classifies solid waste into three major streams according to the origin of the waste:

- municipal (domestic),
- construction and demolition, and
- commercial and industrial.

#### Municipal (domestic) Waste:

Landfill space is now rare and high-cost. Manly's waste to landfill is well below the Sydney average, and diversion of material generated in domestic households to recycling is at a rate of 55%.

Council's initiatives for decreasing waste in public areas include the mobile dishwashing service at Public Events, and the Events Policy (including a Waste Management Plan). Public place waste includes waste and recyclable material collected from reserves, beaches, plaza areas and street sweeping activities. Council is increasing its street sweeping activities to assist with the improvement of water quality.

**Construction and Demolition Waste:**

Construction and demolition waste contributes significantly to the waste stream, accounting for up to 36% of the total volume.

**Hazardous Waste Management:**

An average household is thought to dispose of from 1.5 to 2kg of hazardous waste per year. As it is very expensive to collect, transport, store and dispose of these wastes, this is a serious problem. It is essentially the responsibility of the individual to purchase carefully and responsibly. Council promotes the annual hazardous waste collection services offered by Sydney Water and the Department of Environment and Conservation at various locations to remove any unwanted chemicals from the community.

Data gap: Quantity of hazardous wastes produced in the LGA.

**Council Waste Management Services:**

Council provides a domestic waste and recycling service to all residents within the Manly LGA. These services contribute to the maintenance of community health, the protection of the environment and also promote an increasing emphasis on waste avoidance and minimisation.

The current domestic service is:

- one x 80 litre bin per week (or share of a 240 L bin in a multi unit dwelling) plus a sticker system (\$9) per additional collection,
- a 120 litre recycling collection for paper/cardboard and 120 L co-mingled recyclable materials (glass, aluminium, PET, HDPE, liquid paperboard and steel cans) emptied every alternate week,
- two general clean-ups per year (including separate collections of recyclable white goods and other metal products), and
- a monthly green waste (of an unlimited quantity) collection.

The current commercial service comprises:

- a waste service with container sizes ranging from 55 litres to 2.2 cubic metres, with a seven-day morning and afternoon operation,
- a recycling service that collects paper/cardboard and co-mingled recycled (same material as Residential) in containers varying from 120 litres to 2.2 cubic metres seven days per week,
- an on-call rubbish removal service, and
- a bin hire and waste removal service for public functions and events.

The recent change from a 55L bin to an 80L bin for domestic garbage was driven by the need to address Occupational Health and Safety concerns for collection crews. It was necessary to introduce a bin that could be mechanically lifted by the Council's trucks rather than by the crews themselves. The 80L bins were the smallest available locally.

Data Gap: Waste collected by private contractors.

**Financial Considerations:**

Due to the limited landfill available for Sydney's waste, the cost to Councils for disposing of domestic wastes is becoming increasingly more expensive.

In 2002/03, domestic waste and recycling collection and disposal cost \$3,560,236. However, the costs of waste and recycling collection and disposal in 2003/04 better reflected the full range of operational costs and corporate overheads and resulted in budgeted outlays of \$4,575,913. Public area cleaning costs in 2002/03 were \$1,194,309.07, which rose to \$1,315,213 in 2003/04.

**Littering and Illegal Dumping:**

Litter is the most common visual pollutant affecting our waterways and terrestrial environment. Beaches are often lined along the tide marks with plastics, bottles, tangled fishing lines, nets and other rubbish discarded by humans. Litter enters the environment after being carelessly dropped by passers-by, washed from building sites, blown out of bins, washed down stormwater drains, dumped off ships and boats, or from remote sources after drifting with the ocean currents. Litter not only looks bad, it poses a major threat to marine life.

It is estimated that 7 billion tons of debris enters the world's oceans each year. Council's Waste and Cleansing Team collect between one to seven tons of stormwater litter per week from Manly ocean and harbour beaches. This amount varies due to a number of factors, including weather events such as rainfall and wind. Should a southerly "buster" wind occur, Manly harbour beaches receive harbour litter, which can originate from the Lane Cove and Parramatta Rivers.

**Construction and Demolition Waste** is managed through implementation of the DCP (Waste).

Council regularly promotes the household **hazardous waste collection** days organised by the Department of Environment and Conservation and Sydney Water. Increasing numbers of residents disposing of hazardous waste through these opportunities attest to the success of the venture that is shared by the peninsula Councils.

Council continues to support and promote Chemical Clean Out days.

**5.5 RESPONSES TO THESE PRESSURES**

While the **Waste Boards** no longer exist, a recent study carried out by the Department of Environment and Conservation confirms that the form of recycling collection carried out by Manly Council is demonstrably the most efficient.

Under the **Waste Management – Green Organics Strategy**, Council collects annually more than 1600 tonnes of vegetation from domestic premises, all of which is recycled via Kimbriki Tip. Council has been complimented upon the quality of material presented.

Manly Council is now embarking upon a **Zero Waste Strategy**, with a goal of eliminating household waste within ten years. The Zero Waste Strategy aims to develop, implement and promote a set of actions and tasks designed to guide the Manly Community towards the goal of Zero Waste.

To achieve Zero Waste within 10 years will require a concerted effort by all sectors of the Manly Community and visitors alike. An initial target of 10% reduction on current waste levels within the first year should be increased progressively to more than 25% reduction on previous year waste levels as the pathways to sustainability become more urgent and at the same time more achievable. Under a Zero waste scenario, whilst a major focus would be avoidance, Manly would maximise its recycling rate, particularly of organics, and reduce the total amount of waste going to landfill.

Waste Stream	Current Scenario	Improved Scenario	Zero Waste Scenario
	2004	2009	2014
Recycling Rate (dry recyclables)	43%	46%	48%
Organic Processing Rate	12%	34%	51%
Disposal Rate	45%	20%	<1%

Waste Avoidance and Resource Recovery Impacts, Manly 2004 and 2014 (adapted from *Local Government Action Plan – contributing to waste reduction and resource recovery in NSW: Consultation Paper*, Resource NSW, December 2003)

Approximately 7.2 billion cigarettes are discarded in Australia each year. (DEC, 2004c). In response to this problem, Manly Council recently resolved to **prohibit smoking on all the beaches**, as well as in playgrounds and at sporting grounds. An awareness and education campaign brief is currently being prepared to promote the ban in a staged implementation, commencing with the immediate installation of signs showing the international no-smoking symbol at the relevant venues and locations.

Council's involvement in **Clean Up Australia Day** proved successful. Over 940kg of rubbish was collected along with; a number of shopping trolleys, a refrigerator, a car motor, fencing parts and tree segments, which were handed over to Parks & Gardens who will be utilising the resources as 'habitat'. Styrofoam, cigarette butts and bottles were among the most abundant forms of litter collected.

Council continues to implement the **DCP for Waste Minimisation and Management**, requiring a waste management plan to be submitted with all development applications. Associated education programmes, targeting the construction and demolition sector, have been initiated.

Council's Mobile Dishwashing Unit was utilised once again at the **2004 Manly Food & Wine Festival**. The dishwasher provided festival-goers with the opportunity to participate in a waste avoidance programme where plates are returned to the mobile dishwasher for washing and reuse. Composting was also a big part of the 2004 festival. Festival-goers were provided with the option to use compostable plates and biodegradable cornstarch cutlery. Much of the success of the event was attributed to the efforts of volunteers of the MEC who assisted the public with correct waste sorting during the event.

Council has adopted a **Litter Avoidance Strategy** which aims to prevent and/or minimise the creation of litter before it becomes a problem. This will be implemented in conjunction with the Zero Waste Policy.

Council received a **Resource NSW Illegal Dumpsite Grant** to remove illegally dumped items, erect educational and enforcement signage, and repair fencing at the Shelly Beach Headland. The project is now nearing completion. The final stage of this project will be the installation of new bins. Council is currently awaiting production of the new bins before installation on the headland and in the reserve.

Council sell compost bins at cost price to residents of the Manly LGA in a concerted effort to **increase organic waste diversion**. In order to further promote composting and waste minimisation, stickers stating composting can reduce household waste by half were fitted to the inside of the lid of the new Council issued residential wheelie bins.

A mobile display providing information on converting old bins to compost bins and worm farms was presented at the Food & Wine Festival, on Native Plant Giveaway days and relevant days of the Sustainable Living Series. It is available for Precinct meetings and community groups on request.

Council staff respond to residential and commercial compost enquiries on request and are available to assist in trouble shooting and set up.

Manly Council, through the Manly Environment Centre, continues to share a strong relationship with **Manly Food Co-op**. These two entities share and promote many similar values: waste minimisation, the benefits of organic food and living, water conservation, and energy efficiency. Both the MEC and the Manly Food Co-op rely heavily on co-operation from the local community, either as members or as volunteers.

The Co-Op has also provided support for the Manly Village Community Garden. Produce from the garden is harvested and sold at the Co-Op, in return for credit to purchase organic seeds to put back in the garden.

Further, many events throughout the year are jointly promoted between the Co-Op and Manly Environment Centre, including Community Sustainable Living Workshops, Ocean Care Day, and the Manly Food & Wine Festival.

# 6 NOISE

When sound is offensive and undesirable to the listener, it is regarded as noise pollution.

## 6.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Number of noise complaints received by Council and DEC	Not determined	Council 150 EPA 2	Council 204 EPA 5	Council 118 EPA 3	Council 105 EPA 14	Council 216 DEC 1*	↓
Biosolid transport truck movements from North Head Sewage Treatment Plant				2346	2602	2628*	↓

\* may reflect residents willingness to report incidents.

## 6.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- To minimise, and where possible eliminate, noise pollution problems.

## 6.3 COMMUNITY PERCEPTIONS

Major issues of concern identified from community consultation included:

- noise created by patrons leaving Manly's late night venues,
- air conditioners and generators, and
- construction sites.

Recommendations for management included:

- continued education, and
- enforcement.

## 6.4 STATE OF OUR ENVIRONMENT

Noise is produced by fluctuations in air pressure, and includes sound and vibration.

There are three different undesirable effects of noise: amenity, health and communication effects;

- **amenity effects** - sleep interference, annoyance (both can lead to health impacts), loss of privacy, interference with activities
- **health effects** - tension, headaches and fatigue, may contribute to cardiovascular disease
- **communication effects** - interference with business and social communication, reduction in enjoyment of activities.

Noise pollution is considered to cause a reduction in quality of life.

Noise pollution is defined under the *Protection of the Environment Operations Act 1997* (POEO Act) as 'the emission of offensive noise, which means noise that by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances, is harmful (or is likely to be harmful) to or interferes unreasonably (or is likely to interfere unreasonably) with the comfort or repose of a person outside the premises from which the noise is emitted'. The POEO (Noise Control) Regulation 2000 sets certain limits on noise emissions from motor vehicles, vessels and domestic use of certain equipment.

It is important for anyone resolving disputes over noise pollution to realise that what is music to one person might be offensive noise to another. In responding to noise complaints, an authorised officer will take the approach of what a 'reasonable person' would consider offensive.

## 6.5 PRESSURES CAUSED BY NOISE ON THE ENVIRONMENT

Noise sources can be divided into industrial, transportation and neighbourhood noise:

- industrial noise sources include factories, businesses, extractive industries, construction, agricultural and other industries,
- transportation noise sources include air, road, rail and shipping activities,
- neighbourhood noise includes the use of noisy articles, vehicles and vessels. It also includes barking dogs and music.

Excessive noise in Manly is usually associated with:

- transport (2628 truck movements from North Head - 2003/04),
- construction,
- rubbish removal,
- industry - The increase of operation hours, rezoning and past development trends often sees residential premises mixes in with or adjacent to industrial and commercial premises. This pressure does not affect the amount of noise being produced, rather the impact of noise on the surrounding environment and residents,
- public entertainment,
- air conditioner units - the number of complaints received related to air conditioners is dependant on weather conditions,
- barking dogs - barking dogs are one of the more common complaints dealt with by Council. Barking dogs cause annoyance, stress and sleep disturbances.
- swimming pool pumps,
- building site noise,
- house and car alarms, and
- private parties and amplifiers for music - The NSW Police Service mainly deals with complaints relating to private parties due to the time at which they occur.

In 2003/04 Council Environmental Health Officers received 216 **complaints** directly relating to noise pollution. This is an increase from 150 received in the last reporting period, and 122 the year prior, however, this may reflect a resident's ability to report an incident. In the 2003/04 reporting period Council Rangers received 342 calls in relation to barking dogs alone. In 2003/04 there were two noise pollution incident reports made to the NSW Department of Environment & Conservation (DEC, 2004b).

**Sydney Flightpath Noise:**

Adjusted flight path planning has indicated an impact on Manly LGA is likely, more so over the next few years. It is understood that Manly will have a share of the plane movements flying through local airspace. Council Officers continued to seek information and monitored proposals for Sydney Airport and the second Sydney Airport. Council resolved to express concern at the impact of a new airport at Badgery's Creek on the people of the Greater West and support the call of Goulburn City Council and the Goulburn Chamber of Commerce for an Environmental Impact Statement to be carried out for a second airport at Goulburn. There has been increasing reports and concerns regarding aircraft noise in the Manly Council area following changes to flights paths.

**Helicopters/Light Planes:**

Helicopter noise and safety concerns have been raised by members on Council committees, particularly those with advertising banners, joy flights and those associated with televised events.

**6.6 RESPONSE TO THESE PRESSURES**

An increase in noise complaints throughout the Manly LGA has prompted the inclusion of **noise controls in the review of the Residential DCP** in an attempt to ensure these matters are prevented before new developments take place. It is hoped that noise complaints will begin to plateau and slowly decrease over time following the introduction of the DCP. Educational material continues to be disseminated and Council's Rangers and Compliance Officers continue to enforce noise restrictions.

The Environmental Health Officers undertook individual noise readings using the Bruel & Kjaer Type 2236 Precision **Sound Level Meter**. These readings were taken ranging from business hours to 12.30am. Results are analysed using the Bruel & Kjaer Reporter Type 7736 Noise Application Software. Remaining noise complaints are resolved through the issuing of verbal and written advice and warnings.

Council resolved to take the following motion to the Local Government Association Conference 2004 regarding helicopter operations:

'That the LGA advise the Federal Government to review existing - and place tighter - controls on **helicopter activities**, other than emergency services, to reduce noise pollution and safety concerns'.

The motion was subsequently adopted by the Association.

## 7 ABORIGINAL & NON-ABORIGINAL HERITAGE

Heritage is defined as those places, objects, customs and cultures that have aesthetic, natural, historic or social significance or other special values for present and future generations. It provides links to our past and is integral to our "sense of place"; that is, the notion of intangible heritage that considers and includes cultural landscapes.

Aboriginal oral histories as heritage create a dynamic and within the entirety of places, landscape, subject and story. They are not those of remembrances but comprise a dynamic and contemporary series of oral maps. Therefore they have a contemporary and historical connection to the past and present. Inclusion of Aboriginal attachment to places, or cultural values, forms part of the process of documenting the Indigenous heritage of the municipality. It forms part of current methodology and assessment of cultural landscapes rather than a site or series of sites with tangible heritage. The main focus is on linking people, place and event, both historical and present, with the local environment as a whole.

Council, with the appointment of an Aboriginal Heritage Officer, is moving toward identifying and classifying groups or suites of sites as Aboriginal precincts, rather than the conventional means of identifying solitary items. This strategy gives greater possibility for inclusion on the State Heritage register, the guidelines for which now recognise intangible heritage and the principle of substantial curtilage in order to protect the spirit of place that surrounds precincts.

### 7.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Areas listed of local state, national or world heritage significance *	No data	No data	North Head*	The Corso Conservation Area	Pittwater Road Conservation Area	No New Listings	
Number of known Aboriginal sites in Manly LEP 1998	103	123 New Methodology	126	126	126	126	
Grouped items of heritage listed in Manly LEP 1998	224	229	228	228	229	229	
Cultural & Natural Heritage Listings							
*Architectural and Archaeological items	No data	153	152	152	153	191	
*Landscape items		75	75	75	75	78	
*Conservation Areas		1	1	1	2	2	

\*Register of national Estate

## 7.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to protect and preserve all culturally significant sites including Aboriginal sites within Manly.
- to raise the awareness and appreciation of cultural and Aboriginal heritage in Manly, and
- to reclaim the traditional place-names within the municipality.

## 7.3 COMMUNITY PERCEPTIONS

Major issues of concern identified from community consultation included:

- the leasing of the Quarantine Station (and associated changes),
- vandalism and destruction of sites,
- lack of knowledge associated with the identification of heritage sites,
- unsympathetic development, and
- conflicts with heritage buildings.

Positive initiatives identified from community consultation included:

- Council's support for the conservation of the Quarantine Station,
- the employment of a heritage officer by Council, and
- St Patrick's College Estate and programmes to conserve the heritage of Manly.

A recommendation for management identified as an outcome of the community consultation was to undertake a heritage inventory of the entire Manly LGA.

## 7.4 ABORIGINAL HERITAGE

### 7.4.1 State of our Aboriginal Heritage:

At the time of European settlement, the Manly area was the traditional home of the Gurringai tribe, speakers of the Gurringai language. The 50 - 60 Aboriginal people who lived in Manly were known as the Cannalgal clan, while there may also have existed a second clan known as the Kay-ye-my. The name 'Cannalgal' is derived from the word 'canna' meaning to burn. Initially, relations were good between the first European settlers and the Kurringgai tribe, but they were soon soured when convicts began attacking and stealing from the Aborigines. In 1789 a smallpox epidemic spread through the local Aboriginal tribes and killed between 50–90% of the population. By the 1830's, only a few dozen Aborigines remained in the Manly area (Manly Council, 1996).

### Aboriginal Sites:

Aboriginal heritage encompasses items and sites of cultural significance to the Australian Aboriginal and Torres Strait Islanders, such as artefacts, engraving art sites, sites of religious significance, dance and music. The authority responsible for the management of Aboriginal sites and relics in NSW on both public and private land is the Department of Environment & Conservation (formerly NPWS). Council is working closely with DEC to ensure the conservation of culturally significant sites within the Manly LGA. Most sites of significance are located within the Sydney Harbour National Parks, some are located in bushland reserves, and others remain unidentified in residents' backyards. DEC has reported 126 known Aboriginal sites in Manly LGA (DEC, 2004c). Breakdown of sites is as follows:

- axe grinding grooves - 5
- burials - 4
- middens - 26
- open camps - 13
- rock engraving - 26

- shelter with art - 12
  - shelter with deposit - 7
  - shelter with midden - 31
  - other - 2
- TOTAL: 126.

#### 7.4.2 Pressures on our Aboriginal Heritage:

Threats to the conservation of Aboriginal heritage and sites include:

- lack of knowledge, appreciation and recognition,
- vandalism and destruction of sites (deliberate or otherwise) - bush regeneration volunteers untrained in site awareness and the issues of plantings appropriate to the area, stormwater and excavation works, construction of ferneries and rockeries in rock shelters adjacent to private lands,
- erosion or damage of sites from wind, water, sun and human activities - many of Manly's aboriginal sites are exposed to natural elements which progressively leads to natural deterioration,
- loss of language, traditions, and/or culture through isolated generations - the verbal nature of the Aboriginal culture is impacting on its survival. The Aboriginal culture is largely reliant on verbal communication for the passing on and telling of stories and culture. As Elders pass on and other cultures imprint onto the lives of new generations there is a filtering effect of the Aboriginal culture. As a result many stories, rituals and ceremonial activities have been lost,
- development pressures - many Aboriginal sites lay unknown until a potential development is proposed. Unless appropriate site assessment is completed prior to development Aboriginal heritage sites may be lost.

### 7.5 NON-ABORIGINAL HERITAGE

#### 7.5.1 State of our Non-Aboriginal Heritage:

##### History of Manly:

Manly was traditionally inhabited by Aboriginal people (please see *Aboriginal Heritage* in this Chapter). It was visited by Europeans and claimed for Britain, which sent an occupying force with settlers and convicts to Sydney Cove in 1788, under the leadership of Captain Author Phillip, R.N.

Manly takes its name from the area's Aboriginal Clans - Phillip's impression of the natives found in this locale were of a 'manly' stature. However, it did not always have this name, with the estate referred to as Brighton by Henry Gilbert Smith - the 'Father of Manly', who later purchased the land.

The region remained in a natural state for many years, accessible only by water and by land via the punts at The Spit and North Sydney in the 1850s - a two-hour trip.

Yet remoteness was not the only reason for Manly's slow development, as settlers were already at Pittwater some distance north of Manly. The rough terrain of Manly made the agricultural potential very poor, seen as a 'primeval forest' in 1852.

Henry Gilbert Smith recognised the potential of the area, especially for tourism, with its boundaries both adjacent harbour and ocean. On 9th March, 1853, Smith bought his first land right in the heart of present Manly - 100 acres for 800 pounds from John Thompson, embracing all lands now north of The Corso to nearly Carlton Street, and bounded by Parkview Road on the west.

Smith developed the area as an estate, responsible for all public amenities, including roads and open space areas such as parks, while creating Australia's first tourist resort.

Manly Council was formed in 1877, 10 years after Smith's departure to England. Prior to this, Manly was a 'private town' for which he was wholly responsible. Smith was then to give Manly Council control of his estate at a very reasonable cost, with an 1888 deed indicating that another 'gift' of land (including Kangaroo, Gilbert and Tower Hill parks, tennis courts and Market Square), was given to Manly Council for 10 shillings. This included a narrow strip of land on the harbour foreshore, resulting in the formation of East and West Esplanade, and demonstrating Smith's commitment to conserving public open space.

### **Heritage Sites:**

Non-Aboriginal heritage includes historic sites, modified and built environments with community values, such as townscapes, buildings, roads, and aspects of our current multicultural society involving ethnic traditions, cultural events, national, state, and local symbols, artworks, craft, and literature.

Cultural landscape is part of cultural heritage, and refers to those parts of the environment that have been significantly modified by human activity, and as such distinguishes them from the natural landscape, where human impact is less apparent.

A cultural landscape is an expression of human attitudes, values and interactions with the environment, and the relation of people and place.

A cultural item may be recognised due to its:

- aesthetic and social significance,
- architectural and building significance,
- typical representative sample,
- connection of place with major historical event or person,
- information content,
- rarity, and/or
- past usage.

### **7.5.2 Pressures on our Non- Aboriginal Heritage:**

Threats to the conservation of cultural heritage include:

- lack of awareness and appreciation of cultural heritage, often resulting in damage of important cultural features,
- development, including:
  - development adjacent to sites,
  - detracting of special qualities,
  - loss of views important to heritage,
  - loss of heritage colour schemes,
  - unsympathetic alterations and additions,
  - destruction,
  - loss of record,
  - deterioration, and
  - population pressures - as the population grows, pressure mounts for an increase in residential densities around town centres and public transport nodes.
- planning Controls and framework for heritage,
- tourism and visitation, and
- lack of incentive for heritage owners employing responsible management.

**Quarantine Station —Conservation Management Plan and Tourist Development Proposal:**

In February 2000, DEC announced its proposal to lease the Quarantine Station for accommodation and tourist related commercial activities. The lessee, Mawlands Pty Ltd, is currently finalising an Environmental Impact Statement for public exhibition and comment. Council's principal concern is the conservation of the historical, natural and cultural significance of the Quarantine Station for present and future generations and to ensure that appropriate preservation, use and management of the site occurs.

A new conservation management Plan was prepared by DEC, and was endorsed by the NSW Heritage Council in April 2000. Council and community representatives participated in a reference group which sought to ensure that the natural environmental and cultural values of the Quarantine Station, within its setting on North Head, was fully considered in the Conservation Management Plan.

**7.6 RESPONSES TO THESE PRESSURES**

In 2004 the **Manly Aboriginal and Torres Strait Islander Committee** successfully extended the Gurringai Festival to include the Northern Sydney region, the traditional homelands of the Gurringai peoples. The Gurringai Festival aims to raise awareness and support of Aboriginal and Torres Strait Islander cultures and heritage on the Northern Beaches. The 2004 Coo-ee Surf Classic; as part of the festival, drew record crowds and the beachside element was a cultural and financial success.

With the naming of **Kay-ye-my Point** adjacent to the Fairlight Beach pool in 2004, Council has moved towards reclaiming the traditional place-names within the municipality. This forms one of the Council's key goals of the Manly Sustainability Strategy.

The Council's **Aboriginal Heritage Officer** is developing a cross cultural awareness course addressing the lack of knowledge of Aboriginal cultures, their historic landscape usage patterns and the modification of landscapes.

Manly Council is developing a **Plan of Management** that provides information that will assist Council's staff to better determine whether a parcel of land, regardless of tenure, is likely to have Aboriginal sites and what precautions need to be taken. In tandem with the plan, Council's Aboriginal Heritage Officer is providing staff training in sites awareness for relevant staff and volunteer bush regenerators. The management plan provides strategic advice and a sites probability predictive model to simplify planning decisions.

The draft LEP seeking to have **Bower Hall** listed as a heritage item is currently on exhibition. A report addressing any submission will be prepared prior to returning the draft Plan to the Minister.

The draft **Pittwater Road Conservation Area DCP** was placed on exhibition from September 2003 to the end of January, 2004. The DCP aims to maintain the heritage significance of the Pittwater Road Conservation Area by:

- describing that significance,
- defining, in relation to that significance, what needs to be retained, and
- setting out requirements and guidelines for the development of property.

It is anticipated that the DCP will be adopted by Council in the final quarter of 2004.

Work is underway to prepare a **Development Control Plan** that will apply specifically to properties fronting **The Corso** and to give explicit attention to heritage conservation. It is apparent, from the number of recent Development Applications lodged and other inquiries with Council staff that The Corso is entering a period of increased development pressure. It is also noted that the sesqui-centenary of the street is New Year 2005.

Work has commenced on historic research and community consultation to complete a Conservation Management Plan for the future use and development of the **North Steyne Surf Lifesaving Club**, retaining its current and historic use as a Surf Life Saving Club and community building.

Having recently been supplied with the latest version of the **State Heritage Inventory database** from the NSW Heritage Office, the information will be updated, to include more detailed descriptions, historic information, heritage assessments and current photographs. Updates of items within the Town Centre (formerly known as The Corso) Conservation Area and Pittwater Road Conservation Area have been completed.

Council is currently developing a **Heritage Policy**, which will outline the principles of heritage conservation, in accordance with the Australia ICOMOS Burra Charter and Council responsibilities to manage and conserve heritage items within the LGA. This is being composed with the assistance of Council's Heritage Committee. The Policy includes the definitions and purpose of the relevant legislation and non-statutory guidelines; a brief description of the pre-historic and historic habitation of the Manly area; review of previous heritage studies; review of Council's existing policies and strategies relevant to heritage conservation; the goal of the heritage strategy; and ways this would be achieved. Council's Aboriginal Heritage Officer is undertaking a site survey and the development of a management plan for inclusion in the draft Heritage Policy.

Implementation of a **Manly Cemetery Conservation Management Plan** and associated conservation works commenced during the reporting period. Initiative of the Plan include conservation works to secure the site and associated memorials, community consultation to identify most appropriate techniques to ensure future conservation of the site, photographic recordings of grave sites and a public awareness/school education program to assist in the prevention of vandalism.

The **Wishing Well Shelter Project** involves design, documentation and supervision of its conversion to a seating area and commemoration of past uses. Documentation is being finalised by Council's Architect. A graphic designer has been engaged and artwork for the interpretive panels will be submitted to the Heritage Committee late 2004.

Manly Council has been conducting the **Local Heritage Assistance program** annually since 1995. It provides grants to the owners of listed heritage items to assist in their appropriate conservation. The grant ranges in value from \$200 to \$1000. The types of work generally include (but are not limited to) developments visible from the street such as painting, heritage fencing, minor repairs and reinstatement of original detail. Allocation of the next round of heritage grants will commence in August 2004.

The final event of the **Gurringai Festival** was held in the forecourt of Council Chambers. The "Ngurra Camp" (meeting place) was a great success, with a large number of the Indigenous community in attendance, as well as locals and day-trippers. There were artist stalls, workshops, music, and a forum discussing "Honouring the Ancestors".

## 8 SOCIAL

*Livability* is defined as the human requirement for social amenity, health and well being and includes individual and community well being in both the human and wider environment.

### 8.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Population (ABS Regional Statistics NSW 2000)	34,895 (1991) 36,265 (1996) 37,821 (1998)			37587 (2001)	38868 (2002)	40190 (2003)	▬
Dept. of Housing Dwellings	27	30	37	37	330**	322	↑
Number of crime incidents		7562.5 (1999)	7656.4 (2000)	7870.2 (2001)	7196.1(2002)	6294.8(2003)	↑
Population attending Precinct Community Forums per month (%)	Not determined	0.50%	0.60%	0.56%	0.57%	0.46%	↓
Usage rates of libraries							
*Internet Use	n/a	5,133	8,825	8,825	16,923	16,494	↑
Shorelink	n/a	n/a	Service Commenced	2,072,427	1,849,841	2,054,850	↑
Catalogue Use							
*Door count	404,124	354,395	360,345	360,345	393 866	380,388	
Visitors Information Centre patrons	Data not available	105,089	181,500***	287,624***	292,776	310,000	↑
Visitors to Manly Art Gallery and Museum	Not determined	45,000	50,000	55,000	72,000	93,000	↑

\*The Bureau of Statistics regularly recalculates population estimates using both Census and other data sources

\*\*Noted change in method of recording. Figure reflects current stock, not new provision.

\*\*\*increase due to VIC relocation

### 8.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to significantly improve the level of amenity and quality of life for both residents and visitors in Manly,
- to foster community and civic pride in Manly, and
- to assist Manly to become a major ecotourism destination, yet ensure that this does not compromise the environment of local residents and the natural environment.

### 8.3 COMMUNITY PERCEPTIONS:

Major issues of concern identified during the consultation process included:

- the impact of major events on the community,
- the possible closure of Manly Hospital,
- lack of affordable housing, and
- safety around the Manly Town Centre.

Consultation indicated that the community was supportive of Council's efforts to curb vandalism and create a safer environment.

Recommendations for management identified from the consultation process included:

- the need to put the community, not businesses or tourists first,
- to encourage a 'sense of ownership' in community members, and
- increased police presence after midnight on the Corso.

#### 8.4 STATE OF OUR SOCIAL ENVIRONMENT:

##### Demographics (statistics from Census 2001):

In the 2001 National Census, Manly's population was 37,587, including overseas visitors. This represents a growth of 3.6% since the 1996 census (36,265), and an increase of 7.7% since the 1991 Census (34,895). In 2003 Manly's population was estimated at 40190.

- **Age Profile**

The census data indicates that there have been significant changes in the age profile in Manly. Adults 30-39 years of age make up the most populous age group in Manly representing 19% of the population. Children under 14 years follow representing 16.7% of Manly's population, then Adults 40-49 years of age at 14%.

- **Cultural Diversity**

In 2001, the proportion of Manly residents born overseas was 28.2% compared to 29.5% in 1991. Manly has a lower number of people born overseas compared to the Sydney region (31.2%), but more than the Northern Beaches (25.3%).

- **Aboriginal & Torres Strait Islander Community**

There were 93 people (representing 0.3% of Manly's population) identified as being of Indigenous origin in the 2001 Census. (57 males and 36 females).

- **Education**

Manly residents were more qualified than those living in the Sydney region and the Northern Beaches. 20.3% of Manly residents held a bachelor's degree, compared to 12.3% in the Sydney region and 14.3% in the Northern Beaches. 58.7% of Manly residents aged 15 years and over have completed Year 12 or equivalent, compared to 49.1% of Northern Beaches residents. Enrolment at University among the Manly population increased from 3.7% in 1991 to 4.8% in 2001.

- **Income**

The medium weekly individual income of Manly residents in 2001 was \$600 - \$699. Manly residents earn more than residents of the Sydney region (\$400-\$499) and the Northern Beaches (\$500-\$599). The mean weekly family income in Manly was \$1,500 - \$1,900.

##### **Tourism:**

Tourism is the major industry of Manly, making significant contributions to sustaining a viable business community and providing an income stream for the maintenance and improvement to infrastructure and amenities for the benefit of residents.

Manly is a seven-day-a-week functioning international and domestic tourist destination. It is estimated that Manly attracts more than 6 million visitors each year (Visitor Information Centre data). This includes tourists, visitors and day trippers, arriving by road or water.

Council's Visitors Information Centre had a total of 310,000 visitors to the Centre during 2003/04. This has more than doubled since 1999/00 when visitors numbered 105,089.

The Manly destination continues to be the major industry of Manly and a major tourism icon in Sydney. It attracts a high profile and wide demographic of visitors. Council has a major focus of managing tourism issues to maximise benefits and minimise negatives to ensure employment opportunities, protection of the environment and a range of experiences for the benefit and enjoyment of residents and visitors.

A survey by Roy Morgan Research commissioned by Tourism Sydney has rated Manly (<http://www.manlytourism.com>) and Bondi as Sydney's top two precincts in terms of interstate visitors' high levels of awareness and high interest in visiting.

### Manly Library:

Public support for this facility has been continually high. The door count, internet usage, and Shorelink catalogue usage has increased steadily since 1999/00.

### Manly Library Usage

	1999/00	2000/01	2001/02	2002/03	2003/04
<b>Door Count</b>	354,395	360,345	360,345	393,866	380,388
<b>Internet usage</b>	5,133	8,825	8,825	16,923	16,494
<b>Shorelink Catalogue</b>	n/a	service commenced	2,072,427	1,849,184	2,054,850

### Precinct Community Forums:

In 1990, Council resolved to extend the involvement of its community in decision-making through community consultation and participation by introducing a system of 12 Precinct Community Forums. Precinct Community Forums are made up of groups of people who live, work or own property in the local Precinct area. They meet on a monthly basis to discuss matters referred by Council for Community consultation, and matters of local importance and interest to the community. The Committees are organised by the residents, and play a vital part in ensuring that future changes in the local area are taken into account, and sympathetic to the amenity of the local residents. Their decisions are advisory, their comments responded to and considered by Council in its statutory decision making role.

The monthly average attendance at Precinct Community Forums during 2003/04 was 0.45% - the lowest recorded attendance over the last five reporting periods.

### Precinct Community Forums

	1999/00	2000/01	2001/02	2002/03	2003/04
<b>Monthly attendance at each precinct</b>	0.5%	0.6%	0.56%	0.57%	0.45%
<b>Number of Precinct Executives / volunteers</b>	36	38	44	56	48

### Affordable Housing:

Affordable housing in the Manly Local Government Area currently numbers 322. This is comprised of 50 cottages, 248 apartments, and 4 villas. (*Statistics provided by the Department of Housing*).

## 8.4 PRESSURES ON OUR SOCIAL ENVIRONMENT:

### Crime:

The below table indicates the number and type of crime incidents occurring in the Manly LGA during 2003/04 (Source: NSW Bureau of Crime Statistics, 2004).

There has been a decrease in assaults, break & entering, stealing and drug possession. Break & entering incidents have reduced significantly, and to a lesser extent stealing and drug possession. The number of drug dealing incidents is marginally lower than that reported in 02/03.

Average response time for Manly Police attending urgent (priority 1 and 2) jobs was 5.48mins, an increase from 2002/03 when response times were at 4.49m. However, it is a marked improvement on response times in 1999/00, which averaged 10 minutes and 33 seconds. Response times are commenced when the police officer acknowledges a job and is completed when they attend the job and called off at that location. Due to the constant use of the radio channel police can't always call off when arriving at a location and do call off as soon as is possible. This may cause a delay in the actual response times reported.

### NSW Recorded Crime Statistics (Rate per 100,000 Popn):

Source: NSW Bureau of Crime Statistics and Research

	1999	2000	2001	2002	2003
<b>Assault</b>	931.3	880.4	920.7	932.3	914.3
<b>Break &amp; Enter</b>	1376	1363.5	1782.0	1233.7	852.5
<b>Stealing</b>	4504.6	4393.6	4182	3980.4	3407.5
<b>Drug – Possession</b>	128.1	225.9	275.6	191.3	162.3
<b>Drug – Dealing</b>	26.1	33.8	28.2	25.6	28.4
<b>Drink Driving</b>	596.4	675.3	581.9	780.4	929.8
<b>TOTAL</b>	<b>7562.5</b>	<b>7656.4</b>	<b>7870.2</b>	<b>7196.1</b>	<b>6294.8</b>

### Visual Pollution:

Our visual environment - that which we see every day - has a large impact on our well-being, and can have an effect on how we feel. Residents in Manly consider Graffiti, aerial cabling and the ocean beach stormwater pipes as visually obtrusive.

### Unemployment:

In the 2001 Census, 758 people (454 males and 304 females) were unemployed, representing 3.9% of the labour force. Of these, 501 (66.1%) people (345 males and 156 females) were looking for full-time work and 257 (33.9%) people (109 males and 148 females) were looking for part-time work. In the 1996 Census, there were 878 (4.5%) unemployed people (547 males and 331 females) and 1224 (6.6%) unemployed people (712 males and 512 females) in the 1991 Census.

### Tourism and Ecotourism:

Manly Council has a vision to become a world class eco-tourism destination. Ecotourism is defined by the Ecotourism Association as: 'Ecologically sustainable tourism that fosters environmental and cultural understanding, appreciation and conservation'.

Through ecotourism, the local community and visitors of Manly can gain a greater knowledge and appreciation of the local the environment, while also generating funds which could contribute towards the rehabilitation, restoration and regeneration of the area. Ecotourism can only have positive benefits where it can be controlled. Therefore management and education are essential to ensure that it is a sustainable activity. Potential detrimental impacts may include pressures on the landscape, pressures on culturally significant sites and the intrusion of privacy.

The responsibilities of Council associated with tourism include the provision of services such as waste removal, servicing public toilets, litter removal from parks and reserves and the servicing of special events for the community, regional and international tourist.

## 8.6 RESPONSE TO THESE PRESSURES

Manly Council's draft **Manly Social Plan** 04/09 was placed on public exhibition throughout August and September 2004. It is anticipated that a final document presented to Council for adoption in the last quarter of 2004. The Social Plan is a summary of ongoing processes of engagement with the community to identify issues affecting the wellbeing or quality of life of people in Manly. It identifies the needs of individuals and groups within the community and provides a framework for meeting those needs.

Manly's joint regional project - the **Local Government Housing Initiatives** Program for Manly Warringah has provided information for a report to Council to amend the Local Environmental Plan to include an affordable housing objective. The consultants (Key Workers) research report on essential service workers in the local area is now in its final stage of preparation. Local stakeholders - including Council staff, child care centre coordinators and local recruitment agencies have been consulted.

Manly Council's **Childcare Centre DCP** is part of a broader SHOROC initiative to increase the supply of high quality childcare facilities within the region. The DCP is accompanied by an information fact sheet providing guidelines on how to set up a childcare centre within the Manly LGA.

**Family day care** quality assurance is a Federal Government initiative that aims to provide children and families using this type of service with high quality childcare. A service has to meet at least 75% of the indicators to receive a high quality rating. During the reporting period, Manly Council's Family Day Care Scheme achieved an overall rating of High Quality. The process entails ongoing quality assessment and improvement with the next study due for submission in October 2005.

Council opened its new **Harbour View Childcare Centre in Ross Street**, Seaforth offering 40 care places per working day. Despite Council's provision of additional placements, the waiting list for childcare remains high in Manly and across the region.

In the reporting period alterations and additions were made to Manly's **Senior Citizens Centre**. The building was vacated for the construction period. A very positive response has been received from the Mayor and members of the centre.

The **Late Night Summer Bus** program was successfully trialled and became a financially self sustaining service over 2002/03. The service continued during the 03/04 summer season. The bus aims to provide a safe and cheap alternative for late night visitors to Manly to get home.

A **Late Night Entertainment Venue** report was considered at Council's Extraordinary Meeting on 16th February 2004. Impact of late night venues are to be monitored and a further report to be made to Council in February 2005. In the meantime a policy is being developed to establish operating hours and other controls for late night take-away establishments.

A **Road Safety Officer**, funded by the Roads and Traffic Authority (RTA), was appointed to Council in April 2004. Initial responsibilities included the analysis of statistics and identification of specific traffic related issues in the LGA. This work has led to the development of a draft action plan for 2004/2005. The focus for the role is to address behavioural issues and to work on education and awareness campaigns. The campaigns aim to change driver and pedestrian behaviour, and to reinforce state-wide road safety messages developed by the RTA.

The **Meals on Wheels** program has been successful in obtaining new program funding for its designated client group to run a community restaurant and a shopping 'on line' program. In 2004, the Meals on Wheels facility was relocated and upgraded to the Manly Senior Citizens Centre. Upgrade works included the installation of new phone, fax and internet lines, increased storage space and a community hall.

Council's **Playground Committee** endorsed a strategy for the ongoing redevelopment and refurbishment of key playgrounds in high use locations across Manly. Recent refurbishment works included; equipment enhancement and the installation of a shade structure at the **Little Manly Point Playground and Clontarf Reserve**; and upgrades to **The Corso Playground** to meet Australian Standards.

Council undertook a **KIDSAFE** Training course for all staff who have involvement with the regulation of playgrounds. This was followed by a KIDSAFE audit on all major playgrounds.

Council anticipates that the **Seaforth Oval Sports Facilities Building** will be completed in April 2005. This project was funded by Manly Council, SHOROC, Seaforth Soccer and the NSW Department of Sports and Recreation.

The Manly Arts Festival is a community event organised each year by community arts representatives under the auspices of the Manly Art Gallery & Museum. The festival covers a range of events including exhibitions, performances, music, literature, film, workshops and childrens events such as Chalkfest and Music on the Ferries. The Festival seeks to:

- provide a special opportunity to bring artists and the community together to increase awareness, appreciation and affection for the achievements, dedication and innovation of Manly's creative community;
- liaise with Manly's local arts organisations, artists, galleries, and businesses to put together a dynamic program of events;
- be guided by the principles of inclusion, diversity, and quality. The Festival is a celebration of Manly's historic interest and support for the arts;
- increase community awareness of Manly as a major cultural precinct that has a unique and special character within the Sydney metropolitan area.

The first Manly Arts Festival was held in 1994 and has since grown into one of the state's leading community-based arts festivals. Each year, Manly's arts and cultural organisations and Manly Council, with the support of local business, join forces to develop a creative and entertaining program of events for Manly's residents and visitors. The 2003 Manly Arts Festival (5 - 21 September), saw a total immersion in fresh, new arts and entertainment gathered from across Sydney and the world.

Initiatives from the **Manly Crime Prevention Plan** 2000-2004 continue to be implemented with strategies focusing on reducing property theft, anti-social behaviour and alcohol related violence in the CBD and drink driving.

Late night assaults and related anti-social behaviour incidents have been significantly reduced. Late night transport options have been improved and community complaints are less than the last reporting period.

Council has implemented a number of high priority projects of the plan including; the late night summer bus, the Manly Liquor Licensing Accord and resulting 2am restricted access policy at licensed venues within the Manly town centre, beach lockers, and the installation of CCTV at key locations.

The second **Sustainability Youth Forum** will take place on 14th September, 2004, at Freshwater Surf Club. The event has been expanded in 2004 to include two 'Catchment Snapshots' leading up to the Forum. These snapshots will involve students travelling from the top of the catchment to the bottom around Manly and Warringah, undertaking water testing and discussing catchment issues. The outcomes of the snapshots will be workshopped at the Forum, and students will work towards a sustainability action plan to take back to their school. The Sustainability Youth Crew (formed through last years Forum) will be heavily involved in the implementation of the Forum outcomes.

Three **Community Sustainable Living Workshops** have been held to date, covering: rainwater tanks, sustainable gardening, and sustainable building & renovating.

'Get Tanked' rainwater tank workshop was held at North Steyne Surf Club, with over 150 people crowding the hall to learn about purchasing and installing rainwater tanks. Speakers included Council staff, a Master Plumbers representative, and a member of the community who spoke of her experiences with a rainwater tank. The rainwater tank expo that followed was also extremely successful, with suppliers of all different variations of tanks and pumps attending to display their products and services.

'Bloomin Green' sustainable gardening workshop was also a great success with over 80 people attended the event at Manly West Public School. Speakers included Andrew O'Sullivan from ABC TVs Gardening Australia and specialised Council staff. The expo involved a variety of stalls related to sustainable gardening, including rainwater tanks, irrigation, nurseries and innovative composting products. Further, Mr O'Sullivan ran a fantastic children's workshop, teaching them about the values of resource re-use and how to grow plants.

'EcoBuild' - sustainable building and renovating workshop attracted over 90 attendees. Speakers included leading Sydney green architect Tone Wheeler, engineer Harry Partridge, and Manly Council's architect. The Mayor of Manly, Dr Peter Macdonald opened the day in front of a mixed audience, including residents, builders, developers, and Council staff. The expo was extremely popular, with suppliers of innovative sustainable building materials displaying their products to the attendees.

This exciting series of workshops will continue throughout 2004 with workshops covering waste management and sustainable water consumption.

**Sustainable Tourism** - Council has resolved to undertake a study on the environmental, social and economic impacts of tourism on Manly during 2004/05. The study will identify strategies to minimise any impacts from tourism. Further, Council is working with the University of Western Sydney to gain grant funding to assist tourism operator's to develop Environmental Management Plans.

Councils **Youth Services** staff in conjunction with **Manly's Youth Council** and other community organisations, implemented many successful projects, programs and events for young people and their families, including;

- an Adolescent and Family Counselling service
- the Links to Learning program for early school leavers
- GL@M (gays and lesbians at Manly) support group
- Club Friday social respite and recreational service for young adults with an intellectual disability

- Clearway event based drop-in activities and local band nights, monthly Vocal Nights and an Indigenous Art Exhibition
- skateboarding events such as Friday night Decks After Dark and school holiday skateboard competitions
- the refurbishment of the Keirle Park skate bowl and mini ramp was completed and opened with an event at the site
- Kangaroo Rock concerts
- the inaugural 24/7 Youth Film Festival competition, forum and workshops as part of the Manly Arts Festival
- the Summer "Pumpkin" Bus late night transport awareness project
- National Youth Week "Elements of Youth" art exhibition and acoustic performance night
- Steer Clear / Arrive Alive drink driving and road safety awareness program
- participation in the review of councils Social Plan for the men, young people, gays, lesbians, bisexual and transgender people populations

The program services approximately 1400 people per month.

Council continues to be an active member on the **Northern Beaches Multicultural Network** who have facilitated a number of events including the Migration Information Day. Cross cultural awareness training was provided as part of a joint Warringah and Manly Council project in 2003. Manly Council provided funding assistance to the Manly Community Centre to employ a multicultural seasonal worker.

The Council has implemented a number of **Traffic Management** initiatives to manage parking, traffic control and transportation issues within the Manly LGA. Initiatives to date have included:

- the introduction of **Resident Parking Schemes** for the Ocean Beach and Fairy Bower areas to manage parking demand and provide greater opportunity to residents in and around the Manly CBD,
- continued servicing of the **Manly Traffic Committee** with over 100 items reported throughout the year. The items reported to the Traffic Committee included parking / zones, traffic management, pedestrian, traffic control, road safety, traffic calming and road occupancy,
- development of the **Balgowlah/Fairlight and Seaforth Local Area Traffic Management (LATM) schemes**. These schemes aim to control vehicle volumes, reduce speeds and provide adequate facilities for pedestrians, and
- input into the development of the **SHOROC Sustainable Regional Transport Solutions report**. The report aims at improve and promote transport solutions to make public transport more attractive and an alternative to the private vehicle.

## 9 IMPLEMENTATION

### 9.1 TRENDS AT A GLANCE

Environmental indicator	1996/97	1999/00	2000/01	2001/02	2002/03	2003/04	Movement Towards Sustainability
Council staff dedicated to environmental sustainability (effective full time)	Not determined	26.5	42.5	65	65	65	↑
Relevant grants obtained by Council and Council sponsored organisations	Data not available	Environmental \$432,488 Social \$1,598,150	Environmental \$393,390 Social \$2,098,760	Environmental \$1,748,438 Social \$972,632	Environmental \$1,102,914 Social \$1,122,464	Environmental \$111,721 Social \$2,698,417	↑
Environmental Levy Expenditure (included grant funding)			\$1,879,926	\$2,139,078	\$1,515,770	\$1,578,625	↑

\*Any grant income is deemed to be a movement towards sustainability as it is outside of Council's general revenue.

### 9.2 KEY GOALS OF THE MANLY SUSTAINABILITY STRATEGY:

- to ensure the Manly Conservation Strategy is an active document, and is continually monitored, reviewed and updated to keep Manly on track towards ecological sustainability;
- continue to develop a whole-of-Council EDMS

### 9.3 IMPLEMENTATION

The **Manly Sustainability Strategy** was adopted by Council in April 1998 and updated in 2001/02. It is a 10 year plan developed to integrate Ecologically Sustainable Development (ESD) and Total Catchment Management (TCM) principles throughout Council and the community, to place Manly firmly on track towards sustainability. The Strategy addresses the Ecologically Sustainable Development (ESD) amendments of the Local Government Act (NSW) 1993 and the international agreement of Local Agenda 21.

It aims to direct six key areas of action over the next 10 years:

- Managing and improving Council's own environmental performance.
- Integrating ESD and TCM into Council's policies and activities.
- Awareness raising and education within Council and community.
- Involving the community in planning and action.
- Developing and strengthening partnerships with the community, business and other government agencies.
- Measuring monitoring and reporting on progress towards sustainability.

The Strategy is linked with Council's SoE, enhancing the use of the report as an auditing tool, by allowing the SoE to monitor, report and review the implementation process of the Manly Sustainability Strategy (see each chapter of this SoE). The SoE may also identify certain responses, which will be translated into future directions of Council via the Manly Sustainability Strategy's three-year review or the annual Corporate Plan review.

The three-year review of the Manly Sustainability Strategy is scheduled to take place in November 2004, this will aid in the identification of new actions to address amended and newly developed Council policies. Since the Strategies adoption in 1998, of the 438 actions identified through out the Strategy, over 110 actions have been completed, 217 initiated and 110 actions are ongoing.

**The Manly Education for Sustainability (EFS) Strategy** has been developed to direct Council's environmental education activities in regard to moving Manly toward a sustainable society. The strategy emphasises the importance of education and facilitates Council's policy of Ecologically Sustainable Development as prescribed in the Local Government Act 1993. The Strategy will:

- address the educational strategies identified in the Manly Sustainability Strategy,
- provide strategic direction for the environmental education programs in Manly - this will ensure priority and tailored educational programs are developed ,
- monitor progress on the implementation of the EFS Strategy to guide future educational initiatives in Manly, and
- ensure environmental education is an integral part of council operations.

#### **Environmental Management Systems (EMS):**

A whole of Council Environmental Management System is being developed in Manly Council. The EMS is the next layer, or process, of the Manly Sustainability Strategy, as it provides a delivery mechanism to implement the principles and actions identified within the Strategy into Council activities and practices. An EMS provides a systematic framework for ensuring that Council complies with environmental and OH&S legislation and improves its performance, with emphasis on continual improvement.

The development of the EMS is expected to continue over a further two-year period with current progress focusing on education and development of standard operating procedures for key operations. Implementation will focus on 'continual improvement', and for this reason, will be for an indefinite period. In the reporting period Council undertook significant staff training for outdoor operations, and commenced development of Standard Operating Procedures.

#### **Triple Bottom Line Reporting:**

Council commenced the introduction of Triple Bottom Line reporting within Council operations through a "Statement of Intent" in Council's 2004/05 Management Plan. This will be further progress in the Annual Report for 2004/05. Further, Council has trialled a TBL assessment system to determine the impact of a major Development Application submitted to Council. This system will be progressively rolled out during 2004/05

#### **Scientific Advisory Panel:**

A 12 member Scientific Advisory Panel was established in 1998 to provide expert advice in the implementation and validation of actions identified within the Manly Sustainability Strategy, as well as provide advice for other Council initiatives. The Panel is composed of members of the community who are professionals in various environmental fields relevant to the Manly Sustainability Strategy, and are offering their services voluntarily. During their 6-year term, the Panel has advised Council on over 150 projects. With the new Council term commencing in March 2004, a new Scientific Advisory Panel of 6 members was endorsed by Council and continues to work with staff on various sustainability matters.

**Manly Environment Centre (MEC):**

Council's Manly Environment Centre (MEC), now in its fourteenth year, is located in a shop front location at 41 Belgrave St Manly. The MEC is a comprehensive environmental resource centre, aimed at educating members of the community, industry, business, Council, schools and special interest groups. The MEC also facilitates positive environmental change in the Manly Lagoon Catchment through programmes, projects and events based on the principles of ESD, TCM and environmental best practice management.

Three effective full-time staff members are funded by Manly Council, along with the Environmental Levy funded Catchment Liaison Officer. The MEC is supported by corporate sponsorship with community volunteers contributing to thousands of hours a year in-kind sponsorship. Please note that many MEC Education Initiatives are highlighted throughout the SoE in the relevant *Environmental Sector* chapters.

**Volunteers:**

In the last two years volunteer hours have doubled, their financial value is estimated at \$165,000. Local volunteers include individuals from all walks of life as well as various employment, training and university and school student work experience programs. Graduate researchers and local graduates also make a significant contribution to Manly's environmental knowledge and resources.

**Environment Levy:**

Council received approval from the State Government to introduce a three year Special Rate increase from 1 July 1997 to fund a range of projects of an environmental nature. This rate is referred to as the Environment Levy. The aim of the Levy is to achieve substantial enhancement of Manly's environment. The Levy expired at the end of the Council term in September 1999, and went to referendum at the Council Elections. A Poll of Electors in Manly resulted in 63 per cent of voters in favour of a continuation of the Environment Levy.

Each year, a proposed list of projects, identified from various Plans of Management by Council staff project managers is presented to the Manly Council Community Environment Committee for recommendation to Council for adoption. Three weekly progress meetings are held to ensure the Levy implementation is progressing smoothly. An Environmental Levy Expenditure Review Committee comprising of Council staff, Councillors and Community representatives, has been established to:

- monitor expenditure and to ensure that such funds are accounted for separately to normal budget provisions,
- ensure that such funds are used for new Works and environmental initiatives over and above Council's normal operational and capital expenditure budgets,
- periodically report (by way of Newsletter) to residents on the progress of the environmental projects relative to budget forecasts,
- report at the end of the financial year on whether the funds have been separately accounted for and, in particular, and
- express a view as to whether the additional revenue has been directed to new environmental initiatives additional to the Council's normal operational and capital budget expenditure.

In the 2003/04 reporting period, \$1,578,625 was spent on environmental restoration and protection projects under Council's Environment Levy. Since the Levy's inception in 1997, Council has implemented over 80 projects. These projects have been reported on through the relevant sections of this report.

Note: TOTAL includes grant, levy and interest funding

### **New South Wales Council on Environmental Education:**

Councillor Aird is the Local Government representative on the NSW Council on Environmental Education. The role of the Council is to improve the co-ordination of environmental education across Government and between other key sectors and groups (industry, environmental groups and Local Government). The Council is made up of a broad balance of academics, professionals, educators, environmental groups and various levels of Government representation. The Council was responsible for the development of the NSW Environmental Education Strategy, which guides environmental education programs in NSW.

### **Ethical Standards:**

Council has recommenced its ethical standards Working Group to develop a '*Statement of Sustainability and Ethical Standards*' for use in the consideration of tenders, a system to achieve a balance between these standards and their negative impacts on Council activities. The Working Group has been set with the task of developing a set of criteria against which tenders are assessed. This criteria should set a subjective 'benchmark' and be developed from Council's policies relevant to ESD and their key objectives, such as the Manly Sustainability Strategy. It is envisaged the Policy will integrate with Council's draft Purchasing Policy.

### **Awards:**

Council won a number of awards in 2003 - 2004 in recognition of its efforts in preserving our environment. Awards include:

- the Environment Local Agenda 21" Category of the **National Innovation Awards** for the Hop In And Help Manly Lagoon project,
- two **2003 Keep Australia Beautiful Metro Pride Awards** in the following award categories:
  - 1st prize in the Gum Fighters Community Environmental Initiatives Award for the Sustainability Youth Forum/Leading The Way Program, and
  - 3rd prize in the Landcom Sustainable Communities Award for the Hop In and Help Manly Lagoon project.

These awards recognise the importance of Council's projects at local, state and national level.
- the **2003 Keep Australia Beautiful – Clean Beach Challenge Awards** Manly Council and Manly Beach were victorious in 5 of the 8 awards entered at Sydney Level:
  - Energy Australia Friendliest Beach Award – Winner
  - The Partners Local Government Leadership Award – Winner
  - Overall Clean Beach Challenge – Winner
  - The Friendly Beach Award – Winner
  - Sydney Water Resource Conservation and Waste Management Award – Highly Commended
  - Community Action Award – Highly Commended
- the **National Clean Beach – Community - Local Government Partnership Award**
- the **NSW Sustainable Energy Development Silver Globe Award**
- Council received the Highly Commended award in the :Environmental Education Award for the "Leading the Way: Facilitating Youth Action for a Sustainable Future" Project, at the **2003 LGSA Excellence in the Environment Awards.**