



SHOROC

State of the Environment Report

2009/2010



SHOROC – Shore Regional Organisation of Councils

Supplementary State of the Environment Report 2009/2010

Prepared by Manly, Mosman, Pittwater and Warringah Councils

November 2010

Due to the differences in the methodology in reporting by councils and stakeholders, the figures reported throughout this document may vary slightly. Any comparisons that have been drawn have been performed using the best available data and provide the most current state of an indicator.

Copyright SHOROC 2010: Manly, Mosman, Pittwater and Warringah Councils

This work is copyright. Information from this report may be reproduced provided that the source is properly acknowledged.

www.manly.nsw.gov.au

www.mosman.nsw.gov.au

www.pittwater.nsw.gov.au

www.warringah.nsw.gov.au

www.shoroc.com

Abbreviations

AHO	Aboriginal Heritage Office
CBD	Central business district
CCP	Cities for Climate Protection
CEC	Pittwater Coastal Environment Centre
CFCs	Chlorofluorocarbons
CMA	Catchment Management Authority
CO ₂ e	Carbon dioxide equivalent
CZMP	Coastal Zone Management Plan
DCC	Department of Climate Change
DCP	Development Control Plan
DECCW	NSW Department of Environment, Climate Change and Water
DEWHA	Federal Department of Environment, Water, Heritage and the Arts
DIY	Do it yourself
DLG	NSW Department of Local Government
E-waste	Electronic waste
GHG	Greenhouse gas
GIS	Geographic Information System
GPT	Gross pollutant trap
ICLEI	International Council for Local Environmental Initiatives
ICOMOS	International Council on Monuments and Sites
I&I NSW	Industry and Investment NSW
Kg	Kilograms
Kwh	Kilowatt hour
LED	Light Emitting Diode
LEP	Local Environment Plan
LGA	Local Government Area
LGSA	Local Government and Shires Association
LPG	Liquefied petroleum gas
MEC	Manly Environment Centre
NSW	New South Wales
RAP	Remediation Action Plan
RTA	(NSW) Roads and Traffic Authority
SCCG	Sydney Coastal Councils Group
SEE	Statement of Environmental Effects
SFM	Seagrass-Friendly Mooring
SHOROC	Shore Regional Organisation of Councils
SMCMA	Sydney Metro Catchment Management Authority
SoE Report	State of the Environment Report
SQID	Stormwater Quality Improvement Device
UFAAG	Urban Feral Animal Action Group
UV	Ultraviolet
VENM	Virgin Excavated Natural Material
WSUD	Water sensitive urban design



Table of Contents

1	INTRODUCTION	1
	SHOROC Region	1
	What is a State of the Environment (SoE) Report?	2
2	LAND AND COASTLINE	3
	Pressures on our Land and Coastline	3
	Condition of our Land and Coastline	3
	Responding to Land and Coastline Issues	5
3	ATMOSPHERE	11
	Pressures on our Atmosphere	11
	Condition of our Atmosphere	11
	Responding to Atmospheric Issues	14
4	WATER	19
	Pressures on our Water	19
	Condition of our Water	19
	Responding to Water Issues	22
5	BIODIVERSITY	27
	Pressures on our Biodiversity	27
	Condition of our Biodiversity	27
	Responding to Biodiversity Issues	30
6	HUMAN SETTLEMENT	35
	Pressures on Human Settlement	35
	Condition of our Human Settlement	35
	Responding to Human Settlement Issues	38
7	HERITAGE	45
	Pressures on our Heritage	45
	Condition of our Heritage	45
	Responding to Heritage Issues	47
8	TOWARDS SUSTAINABILITY	51
9	FUTURE DIRECTIONS	61
10	REFERENCES	62

1 Introduction

SHOROC Region

SHOROC, the Shore Regional Organisation of Councils, is comprised of Manly, Mosman, Pittwater and Warringah Councils. The SHOROC region covers an area of approximately 264 square kilometres (Warringah - 152sqkm, Pittwater - 90.6sqkm, Manly - 15.14 sqkm, Mosman - 8.52sqkm) and is bordered on three sides by water, namely the Pacific Ocean, the Hawkesbury River and Sydney Harbour.

As at June 2009, the SHOROC region represented 272,616 people. This is an increase of 1.76% from the previous year. Warringah has the highest population in the area, with 144,092 people, followed by Pittwater with 58,818, Manly with 40,939 and Mosman with 28,767 people.

For more information about SHOROC, visit:
www.shoroc.com

For more information on SHOROC member Council's environment and community programs, visit:

www.manly.nsw.gov.au
www.mosman.nsw.gov.au
www.pittwater.nsw.gov.au
www.warringah.nsw.gov.au



Figure 1 SHOROC Regional Map



Water Dragon in Mosman. Source: Mosman Council

What is a State of the Environment Report?

A State of the Environment (SoE) Report provides a snapshot of the condition of the environment, pressures impacting upon the environment and the response by Councils to address these pressures.

This 2009/10 Report is a supplementary SoE Report to the 2008/09 comprehensive SoE Report, as such this is a more concise document. A supplementary SoE Report identifies any new environmental impacts and provides an update on environmental trends for each environmental sector, namely atmosphere, water, biodiversity, land and coastline, human settlement and heritage. The general four year trends across the region are identified in the regional snapshot tables. The last column in the tables depict arrows which indicate any changes in trends (↑ increase, ↓ decrease, ↔ minimal change).

This supplementary SoE Report will make up a component of each Council's individual Annual Report pursuant to S.428 of the *Local Government Act 1993*.

In the future all Councils will be operating under the new planning and reporting framework, and therefore reporting on the state of the environment will take on a different form. This will occur from 2010/11 for Mosman, Pittwater and Warringah Councils and 2011/12 for Manly Council.

Due to the planning changes the 2009/10 Regional SHOROC SoE Report will be the final regional report developed by SHOROC, with each individual member Council incorporating SoE reporting into their own reporting frameworks from 2010/11.



Top: Kookaburra in Mosman. Source: Mosman Council

Middle: Delwood Beach. Source: Manly Council

Above: Waratah Source: Pittwater Council

2 Land and Coastline

The primary land uses within the SHOROC region are residential and commercial with some industrial land use. The geology of the land is predominately Hawkesbury Sandstone, which weathers to produce sandy, low fertility soils. There remains a significant amount of bushland and biodiversity in the upper catchments. Coastline areas including beaches, rocky intertidal platforms, estuaries and lagoons are important features of the SHOROC region and provide habitat and recreational opportunities for the community.



Pressures on our Land and Coastline

Key pressures include:

- urban development
- soil contamination
- land degradation
- vegetation clearing
- invasive species, and
- climate change (e.g storm damage, flooding, sea level rise, bushfire).

Condition of our Land and Coastline

The SHOROC region comprises approximately 82km of coastline which is characterised by headlands and beaches, and is largely accessible to residents and visitors for recreational pursuits. The land and coastline in the SHOROC region is highly developed, in some instances resulting in modification of dune systems and bushland, erosion, cliff instability, and pollution.



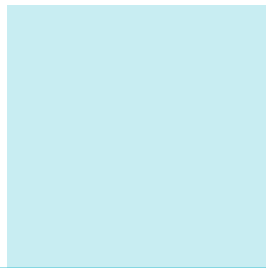
Mosman Coastline. Source: Mosman Council

Regional Snapshot

Table 1: Regional Land Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Total number of development applications received	3,505	3,818	3,568	4,009	↑
Total number of development applications approved	2,844*	3,732	3,461	3,347	↓
Total trees approved for removal on private land	1,915	1,927	1,763	1,905	↔
Total number of native plants distributed by all councils (including grasses, shrubs and trees)	102,624	66,642	58,406	57,059	↓

*Does not include Mosman Council.



Local Snapshot

Table 2: Development Applications

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Number of development applications received	2006/07	711	486	732	1,576 [#]
	2007/08	515	505	747	2,051 [#]
	2008/09	631	369	572	1,996 [#]
	2009/10	603	444	733	2,229 [#]
Number of development applications approved	2006/07	745	384 [*]	678	1,421 [#]
	2007/08	674	405	715	1,938 [#]
	2008/09	788	225	528	1,920 [#]
	2009/10	348	433 ^{**}	578	1,988 [#]

*This figure represents determinations rather than approvals. Determination refers to DA's that have been approved or refused.

**Refers to the total of DA's approved during the year – of the 433 Total DA's approved during 2009/10, 244 DA's were approved straight away, and the remaining 189 DA's were initially rejected, and then approved upon resubmission.

[#]Warringah's figures include development applications for tree removal.

Table 3: Land Clearing and Revegetation

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Approvals to remove trees (private land)	2006/07	159	370	196	1190
	2007/08	193	397	221	1275
	2008/09	173	293	237	1060
	2009/10	208	368	258	1071
Total number of local native plants supplied to volunteers, contractors and residents	2006/07	10,679	22,800	33,300	35,845
	2007/08	13,237	7,600	6715	39,090
	2008/09	8,576	7,234	10,166	32,430
	2009/10	7,413	9,724	11,009	31,913

Responding to Land and Coastline Issues

Regional Responses

Shaping Our Future

During the reporting year, Manly, Mosman, Pittwater and Warringah Councils have together developed *Shaping Our Future*, a regional strategy for SHOROC. *Shaping Our Future*, which has been put forward for Council adoption, outlines the most appropriate land use planning for the future of the region as well as the priorities for investment in transport and health infrastructure.

The NSW Government's Metropolitan Strategy has set targets of an additional 22,800 dwellings and 20,800 jobs across our region by 2031. The SHOROC member Councils are strategically planning how to best accommodate this growth in a way that is sustainable, creates jobs close to home and minimises the need for additional public transport and impact on our natural environment and way of life.

Membership of the Sydney Coastal Councils Group

The Sydney Coastal Councils Group (SCCG) represents 15 coastal councils, including Manly, Mosman, Pittwater and Warringah Councils. The SCCG undertake projects to improve the coastal environment. Further information on projects is available at www.sydneycoastalcouncils.com.au



High Tide at Church Point. Source: Pittwater Council

Summer Activities Program

SHOROC member Councils held various activities in January 2010 as part of the SCCG Summer Activities Program. Over 2,000 people enjoyed the 80 events offered. The successful 2010 program involved a number of interesting events including guided coastal walks, sustainable living workshops, snorkelling, wetland tours, and bird watching. For example, Mosman Council partnered with a National Parks Discovery Ranger to undertake a community coastal bushwalk from Taronga Zoo Wharf to Clifton Gardens.

Systems Approach to Regional Climate Change Adaptation Strategies in Metropolises

This project won the 2009 Eureka Prize for Innovative Solutions to Climate Change. The award sponsored by the NSW Department of Environment, Climate Change and Water (DECCW) was presented by the NSW Premier at the Eureka awards dinner on 18 August 2009. The judges stated that the project successfully combined cutting edge science with a practical approach and allowed local governments to identify key factors that will help them respond to climate change and its impacts.

Finalisation of Beach Sand Nourishment Scoping Study

The 'Beach Sand Nourishment Scoping Study – Maintaining Sydney's Beach Amenity Against Climate Change Sea Level Rise' examines information and data on the environmental, physical, social and economic aspects of utilising offshore marine sands to meet immediate and medium term requirements of adopted nourishment strategies at selected beach environments. The project aims to improve protection and augmentation of beach systems under immediate threat from coastal storm activity and sea level rise. During the reporting year, the final report was prepared and is anticipated to be published in late 2010.



SCCG Environment Monitoring Site

The SCCG launched an environmental monitoring website in March 2010.

The site www.monitor2manage.com.au promotes sustainable environmental management through an improved understanding of monitoring and good decision-making. The site aims to assist users in identifying monitoring needs, designing monitoring programs, dealing with data management and analysis as well as reporting. This will improve the likelihood of good decisions leading to improved environmental outcomes.

Manly Lagoon Flood Study

Warringah Council, in partnership with Manly Council, is undertaking the Manly Lagoon Flood Study. The Flood Study will define the nature and extent of flooding in the Manly Lagoon Catchment. The study will include an assessment of the lagoon entrance management, joint probabilities of river and oceanic flooding and the impact of climate change and sea level rise.

The first stage of the Flood Study is to undertake the collection of data. The Councils have engaged AWT Survey to undertake surveys of the stormwater pits and pipes which will allow the Councils to identify and manage severe overland flows.



Manly Lagoon. Source: Manly Council

Delivering Local Responses

Manly Council

Coastal Zone Management

Manly Council has already prepared and adopted six of its eight planned Coastal Zone Management Plans (CZMPs). During 2009/10 Council adopted the North Harbour Coastline Management Plan, finalised the Manly Cove Coastline Management Study and continued to prepare the Manly Cove CZMP.

During the reporting year, Council continued to implement coastal hazard remediation works at Marine Parade, developed a Landscape Masterplan for North Harbour Reserve and Ellery's Punt Reserve, developed a detailed design and obtained permits for maintenance dredging of the Clontarf pool and attempted to gain recognition of Manly-Freshwater as a National Surfing Reserve. Council has contributed and collaborated with DECCW in drafting the *Cabbage Tree Bay Aquatic Reserve: Draft Fisheries (Aquatic Reserve) Regulation 2009 and Implementation Strategy*, the first for an aquatic reserve in NSW. Public exhibition of the draft Regulation has been completed.

Seagrass-Friendly Moorings

Industry & Investment NSW (I&I NSW) in partnership with the Sydney Metropolitan Catchment Management Authority (SMCMA), Manly Council and NSW Maritime initiated a trial of installing Seagrass-Friendly Moorings (SFM) in Manly Cove. During 2009/10, a total of thirty SFMs were installed replacing traditional moorings. Monitoring of the impact on seagrass bed was also initiated.

Sandy Bay Landscape Masterplan

Development of the Landscape Masterplan for Sandy Bay Reserve was progressed during the reporting year. This involved improvements in areas of community concern including formalisation of a footpath, construction of a landscape retaining wall, provisions for seating, signage, water bubblers, dinghy storage and water access.

Remediation Works

Manly Council is currently project managing the remediation of a Declared Contaminated Site at the former landfill at Addiscombe Road, Manly Vale. During 2009/10 the Site Auditor completed their audit of the Draft Remediation Action Plan (RAP).

Tania Park - Erosion Control (Stage 1)

During the reporting period, Manly Council undertook Stage 1 erosion control and access improvement works at Tania Park utilising grant funding from the NSW Metropolitan Greenspace Program and matching Environment Levy funds. Works included the installation of stairs and native plantings to prevent erosion along the eastern embankment.

Mosman Council

Balmoral Remediation

Remediation of the remaining section of Balmoral Oval and foreshore was undertaken during 2009/10. The foreshore area was capped with virgin excavated natural material (VENM) and returfed. Grant funding from the State Government Estuary Management Program was utilised to complete restoration works in the south western corner of Balmoral Oval, which had been fenced off to the public as a contaminated site. In March 2010, works began with the removal of five mature coral trees and the treatment of noxious weeds. Earthworks were employed to cap the contaminated soil with crushed sandstone and formalise two existing drainage lines with sandstone and concrete.

To improve the biodiversity outcome several habitat features were incorporated for the local fauna, including frog ponds built into the stormwater channels. The ponds were designed to receive gradual flows of water and were planted with local native aquatic species to provide further shelter and water filtration. Planter boxes were also built into the stormwater design, housing a local creekline species of Water Gum, and the site was scattered with sandstone rock piles and logs that will act as homes for small reptile species. All tree hollows that were observed in the surrounding dead trees were left in situ to continue to provide bird habitat.



*Balmoral Remediation and Creekworks.
Source: Mosman Council*

With the completion of the remediation work, the area can be enjoyed by the general public. To make the area suitable for passive recreation, Council installed an informal looping walking path, a bridge across the channel and large boulders for informal seating.

Climate Change Risk Assessment and Adaptation Project

From March to May 2010, Council took part in the State Wide Mutual Climate Change Risk Assessment and Adaptation Project. Relevant staff across various Council Departments participated in six workshops to identify risks from hot days, temperature increases, rainfall, sea level rise, wind, and storm surge, which have the potential to impact upon the natural environment (natural resources), health and safety, community recreation, service delivery and administration. Following the identification of risks a climate change adaptation plan was developed for Council for 2030.

Caring for our Coast Program - Working together to keep Mosman's Coasts Clean

Council received a grant of \$14,000 from the Australian Government Caring for our Country Grant Program, for environmental education, focusing on the coastal and marine environments. The program involved the following:

- two field days, one at Balmoral and one at Clifton Gardens, with the support of seven external marine organisations to raise community awareness and knowledge of the coastal environment, and how to protect it
- underwater clean up audits by local dive groups
- a boat drop delivery of marine protection information to 750 boat owners registered in Mosman, undertaken by the volunteer Marine Rescue NSW (Mosman unit)
- delivery of educational material to marina's in Mosman
- interpretive signage and TAngler bins installed on Balmoral and Chowder Bay Wharves, and
- establishment of the Caring for our Coast Volunteer Program.



Pearl Bay Project

The Pearl Bay project was completed during 2009/10, to improve public access to the foreshore, provide a bicycle path for the community, rebuild the seawall to improve its design, and provide habitat for intertidal and aquatic biodiversity. The seawall was partially constructed with sandstone blocks from the Drill Hall and was designed to consider wave action and sea level rise, and has become an ecological habitat for intertidal species and fish. Saltmarsh was also reintroduced along a portion of the seawall to provide habitat. A viewing platform and interpretative signage were installed, a bicycle path was constructed from a percentage of recycled material and bicycle parking facilities were installed in the reserve. A small rockpool and a beach were also created for habitat and recreational purposes respectively, and to improve the amenity of Spit Reserve.

Pittwater Council

Etival Street Foreshore Restoration

Restoration works were carried out along the foreshore off Etival Street, through grant funding received from DECCW. These works will halt foreshore erosion and provide increased protection from storm surges. Actively eroding areas, including those with under cutting behind boulders have been stabilised by planting vegetation between the foreshore and the water. There has also been restoration and planting of foreshore vegetation south of Etival Street (Etival Street to Currawong Reserve) of endemic species to control invasion of grass species into the saltmarsh.

Bushland Restoration and Track Upgrade at Salt Pan Cove

Council upgraded the walking track in Salt Pan Cove Reserve with the view of linking this reserve to Algona Reserve (roadside walk) and Refuge Cove Reserve (foreshore walk at low tide). This project will also contribute to the protection and enhancement of the endangered Pittwater Spotted Gum Forest as well as weed removal and prevention.

McCarrs Creek Foreshore Restoration Project

The McCarrs Creek Foreshore Restoration project aims to restore public reserves along the McCarrs Creek foreshore including; Bothams Beach, Brown's Bay and McCarrs Creek Reserve. Endangered Ecological Communities within areas that have been restored as part of this project include; Pittwater Spotted Gum Forest at Bothams Beach, Littoral Rainforest at Brown's Bay and Freshwater Wetlands and Swamp Oak Floodplain Forest at McCarrs Creek.

Avalon Golf Course Coastal Heath Restoration Project

Council received a Federal Government "Caring for Our Country" grant to eradicate hundreds of African Olive trees at Avalon Golf Course. The site includes Coastal Clay Heath and some rare species including; *Acacia leocalyx*, *Allocasuarina palludosa* and *Jacksonia scoparia*. Areas of intact native plants are being regenerated and woody weeds along the road edge are being replaced with native tubestock planted by community volunteers and contractors.

Pittwater Foreshore Floodplain – Mapping of Sea Level Rise Impacts

In December 2009, Pittwater Council adopted the sea level rise planning benchmarks contained in the NSW Government's Sea Level Rise Policy Statement (2009) i.e. a rise relative to 1990 mean sea levels of 40cm by 2050 and 90cm by 2100. In response to the NSW Sea Level Rise Policy Statement, Pittwater Council is currently undertaking a project to map the potential impacts of sea level rise up until the year 2100 around the foreshore of the Pittwater Estuary. Community engagement and information are key components of this project through Council's Estuary Management Community Working Group. A series of Community Workshops are proposed during the Public Exhibition phase.



High Seas Avalon. Source: Pittwater Council

Warringah Council

Lagoon Entrance Management

Warringah Council has responsibility for managing the entrances of Dee Why and Curl Curl Lagoons, and shares responsibility for management of the Manly Lagoon entrance with Manly Council, and the Narrabeen Lagoon entrance with Pittwater Council. During 2009/10, Warringah Council undertook a number of mechanical 'breakouts' of the entrances of Dee Why, Curl Curl and Narrabeen Lagoons and implemented improved alarm systems to assist staff in managing flood risks and ensuring timely entrance openings. Warringah Council also undertook a review of the management of these entrances to ensure practices are in keeping with best practice flood and environmental management.

Narrabeen Lagoon Multi-Use Trail

The Narrabeen Lagoon Multi-Use Trail Project aims to design and construct 2.5km of trail and pedestrian bridge infrastructure between Deep Creek and South Creek. This project will complete the final links of the existing trail network along the foreshores of Narrabeen Lagoon, which is the northern beaches' largest coastal lagoon.

In the 2009/10 financial year, Council completed the detailed designs and assessment for Stage 1. This will see 850 metres of multi-use trail built between Deep Creek Bridge and Middle Creek Reserve and provide a safe and environmentally responsible access for users away from the busy Wakehurst Parkway. The 2.5 m wide trail was designed to be accessible for a range of users and the majority of the trail has been elevated to prevent inundation, facilitate drainage and enable vegetation growth and fauna movement beneath. The new section of trail is designed to connect with a new bridge at Deep Creek (to be project managed by Pittwater Council), to be completed by early to mid 2011.

Stage 2 of the project involves upgrades to parking and facilities at Middle Creek Reserve and a new multi-use trail and bridge from Middle Creek Reserve to South Creek Reserve adjacent to the Sydney Academy of Sport and Recreation and Cromer Golf Club. Design for Stage 2 of the Narrabeen Lagoon Multi-Use Trail is due to commence in September 2010.

French's Creek Floodplain Risk Management Study

The French's Creek catchment is prone to flash flooding, with hundreds of homes potentially affected. The French's Creek Flood Study has been adopted by Council, and the Floodplain Risk Management Study Report is at draft stage. It is currently being reviewed by Council and DECCW, and is expected to go on public exhibition before the end of 2010. These projects have been two-thirds funded by a grant from DECCW.

FloodSafe Education

Warringah Council partnered with the local State Emergency Service to deliver the FloodSafe Education Campaign in early 2010. This involved educating the business and residential communities affected by flooding of South Creek through the delivery of a FloodSafe Toolkit, doorknock campaign, business breakfast and two information evenings. Research was undertaken into the effectiveness of the program by an independent body and the results showed increased knowledge and behaviour regarding flood preparedness. The FloodSafe education campaign will be replicated in other flood prone areas in Warringah in the future.



*Mechanical Lagoon Opening at Curl Curl Lagoon.
Source: Warringah Council.*



Manly Lagoon Catchment Study

Warringah Council are involved in managing a number of projects investigating the ecological condition of Manly Lagoon. The projects include a review of the benthic fauna within lagoon sediments, bird diversity and abundance surveys, fish diversity and abundance surveys, as well as an investigation of faecal contamination within lagoon waters during dry weather. The study also includes the development of a catchment model that will improve Council's understanding of the influence that different land-use and sub-catchments feeding into Manly Lagoon have on nutrient and sediment loading on the lagoon.

Groundwater Investigations at Curl Curl Lagoon

In 2009/2010 Warringah Council completed a detailed investigation into the quality and movement of groundwater that discharges into Curl Curl Lagoon. This investigation provides Council with important information and will be used in 2010/2011 together with the Curl Curl Lagoon stormwater investigations report to identify overall pollutants entering the lagoon. This information will help guide decisions for the future rehabilitation options for Curl Curl lagoon.

Protection of Waterways and Riparian Lands Policy

Historically many waterways in Warringah were piped as part of the stormwater network, cleared of vegetation, reclaimed with fill and developed. This has had some negative impacts including exacerbated flooding in certain areas, reduction of natural floodplains and bank stability, and a decline in water quality, biodiversity and vegetation corridors. The Natural Environment Unit have prepared the draft Protection of Waterways and Riparian Land Policy which provides clear direction for the management, development and protection of waterways and riparian lands in Warringah.

Warringah Council is committed to managing, protecting and restoring waterways and riparian land in a manner that, allows them to function, where possible, as natural systems. It also considers risks from instability, erosion and flooding, and is consistent with Council's planning controls and guidelines as well as NSW and Australian legislation and guidelines. The draft Protection of Waterways and Riparian Lands Policy has been publicly

exhibited, and is currently awaiting review by Council for potential adoption.

Dee Why Lagoon Benefits from a New Bioretention Swale – Protecting our Waterways!

Council has upgraded the Richmond Avenue carpark, adjacent to Dee Why Lagoon, using a Water Sensitive Urban Design (WSUD) approach which involved building a bioretention swale. Previously the carpark was to be unformed gravel which allowed road runoff to flow overland and into Dee Why Lagoon with no treatment. The bioretention swale system includes planted grass and rock riffles laid over specific layers of sandy loam, coarse sand and coarse gravel. Stormwater runoff is slowed, filtered of hydrocarbons and impurities, before discharging into the sand aquifer and subsoil drain. Small galvanised trash racks assist in capturing large debris and gross pollutants. These systems help to improve the quality of the water flowing into the lagoon, protecting our important environment.

The plant species in the bioretention swale were specifically chosen with consideration of the local endangered ecological community of Swamp Mahogany Forest in mind. These native local plants are important for the uptake of nutrients from the stormwater, they enhance infiltration, and attract local wildlife.



*Dee Why Lagoon Bioretention Swale.
Source: Warringah Council.*

3 Atmosphere

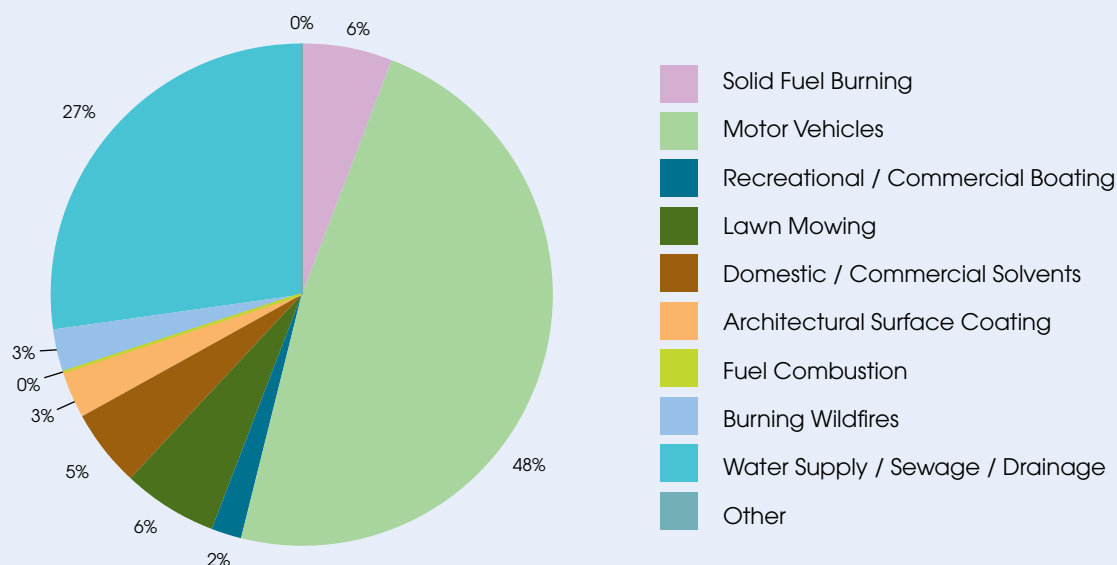
The atmosphere surrounding the earth consists of a complex balance of gases that supports life. Human based activity, such as burning fossil fuels has rapidly increased the percentage of particular gases in our atmosphere resulting in negative impacts to urban air quality, impacting on human health, and changes to our climate system.



Regional Snapshot

**Figure 2: National Pollutant Inventory
Data for the SHOROC Region**

Percentage of Pollutants Per Source for the SHOROC Region in 2008/2009



Pressures on our Atmosphere

Key pressures include:

- pollutants from motor vehicles
- increased use of private vehicles, and increased traffic congestion
- smoke from bushfires
- use of woodfires in winter, and
- industrial landuse.

Condition of our Atmosphere

Transport in the SHOROC region is a primary contributor to the emission of greenhouse gases (GHG's), and reduction in air quality. Air quality in the SHOROC region varies considerably depending on natural events such as windy days, bushfires and human activities, with poor air quality impacting on health.

The National Pollutant Inventory Data, presented in Figure 2, - identifies the substances in the airshed, originating from the SHOROC region that may impact on air quality. The atmospheric condition is also measured by the number of air quality complaints, and community and council emissions.

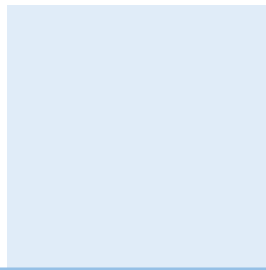


Table 4: Regional Atmospheric Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Number of registered vehicles (community)	184,929	188,940	192,555	197,037	↑
Air pollution complaints	142	156	157	191	↑
Number of council fleet vehicles	653	564	573	Data incomplete*	
GHG emissions from all council fleet vehicles (tonnes CO ₂ e)	4,131	3,848	3,719	Data incomplete*	
Electricity use – council operations (kilowatt hours)	19,350,334	20,158,240	20,073,690	20,011,617	↓
GHG emissions from council electricity use (tonnes CO ₂ e)	19,462	19,662	19,063	19,903	↔

*Manly Council data was not available at the time the SoE Report was printed.

Local Snapshot

Table 5: Air Quality

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Air pollution complaints received by council	2006/07	20	2	49	71
	2007/08	8	3	65	80
	2008/09	3	2	63	89
	2009/10	16	3	71	101

Table 6: Greenhouse Gas Emissions

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Registered vehicles in council LGA*	2006/07	23,113	16,733	44,968	100,115
	2007/08	23,727	17,305	45,676	102,232
	2008/09	24,585	17,649	46,842	103,479
	2009/10	24,804	17,967	48,247	106,019
Number of council fleet vehicles^	2006/07	170	40	219	224
	2007/08	162	35	156	211
	2008/09	177	28	155	213
	2009/10	Data unavailable*	26	154	178
CO ₂ from council fleet vehicles	2006/07	1335	220	1071	1505
	2007/08	1367	202	1112	1167
	2008/09	1384	157	1104	1074
	2009/10	Data unavailable*	174'	975	995
Electricity use- councils operations (kWh)	2006/07	5,697,935	2,808,530	4,924,714	5,919,155
	2007/08	5,441,382	2,853,297	5,574,036#	6,289,525
	2008/09	5,427,222	2,846,023	5,351,914#	6,448,531
	2009/10	5,561,846	2,847,151	5,257,342	6,345,278
GHG emissions from kWh (tonnes CO ₂ e)	2006/07	5485	2915	4471	6321
	2007/08	5775	2962	4796#	6129
	2008/09	5760	2694	4605	6120
	2009/10	5755	2809	5392	5947

*Figures provided by NSW RTA.

^Includes passenger fleet, light, commercial, heavy truck and plant vehicles (if present in councils fleet).

#kWh figures from Pittwater 07-08 amended to reflect increased carbon accounting accuracy.

'Whilst Mosman Council has reduced the number of vehicles in its fleet (average over 12 months), the CO₂e have increased since 2008/09 because Council introduced the Mosman Rider (free community bus) during 2009/10, which runs on diesel and is operational every day on a 30mins loop.

*Manly Council data was not available at the time the SoE Report was printed.



Responding to Atmospheric Issues

Regional Responses

Shaping Our Future

During 2009/10 SHOROC progressed its *Shaping Our Future* Strategy. One of the key priorities of this Strategy is investment in public transport infrastructure across the region. *Shaping Our Future* calls for the State and Commonwealth Governments to invest in Bus Rapid Transit systems from Dee Why along Warringah Road to Chatswood and from Mona Vale along Pittwater/Spit/Military roads to the city. Land use planning will also seek to create more jobs close to home for residents to minimise car use.

Sustainable transport is also a key element of the next part of the *Shaping Our Future* Strategy, to be developed in 2010/11.

Climate Change Inventory

During the reporting year, SHOROC worked with staff from its member Councils to develop a climate change inventory detailing what each council is doing to adapt to and mitigate climate change impacts with a view to identifying where there are common goals, strategies and policies. Meetings will continue to be held in 2010 to identify synergies and opportunities for the SHOROC member Councils to continue to work together on climate change policies and projects for the region.

Climate Action on the Northern Beaches

On 24 October 2009, over 1200 residents from across the Northern Beaches formed human signs in the shape of 350 on Mona Vale, Dee Why and North Steyne beaches as part of a world wide event coordinated by 350.org. On that day, over 5000 actions in 181 countries were delivered around the world, to send a message to decision makers at the UN Climate Change Conference in Copenhagen that urgent action to limit greenhouse gas emissions was needed. The local event was initiated by Climate Action Pittwater and supported by Pittwater Council. Climate Action Manly Warringah joined the effort and were supported by Manly and Warringah Councils in a coordinated effort across the northern

beaches region. Mosman Council supported its community in taking action on climate change, with students from two primary schools in Mosman forming a human sign of 350 on Alan Border Oval.

Earth Hour

Earth Hour, an initiative of WWF-Australia, was supported by the SHOROC member Councils in March 2010, through Council participation, the hosting of local events and promotion of Earth Hour to the community through local media. Manly, Mosman, Pittwater and Warringah Council's all switched off lights and appliances in their main Council buildings for one hour and promoted Earth Hour to the local community. Overall, all Australian capital cities, 56% of local councils and 49% of Australian adults participated in Earth Hour.

Fridge Buyback Program

This program run by Next Energy with funding from DECCW, provides a free community collection service for working second fridges, and offers a \$35 rebate where applicable. All fridges collected are degassed and the metal recycled. SHOROC member Councils have promoted the Fridge Buyback Program across the SHOROC region to the community through the local newspaper, Council websites, noticeboards, letterbox drops and through the rates notice. In total **871** fridges were collected across the SHOROC region during 2009/10. Over the total life of the project, **2,224** fridges have been collected across the SHOROC region, saving **18,494** tonnes of CO₂e and **177.7** kg of CFCs, recycling **199.5** tonnes of metal, and collectively saving residents **\$3,467,000** on their electricity bills.



Fridge Buyback Program. Source: Pittwater Council

Delivering Local Responses

Manly Council

Manly Carbon Emissions Reduction Project

Manly Council resolved on 14 September 2009 that Council's target on carbon emissions be brought in line with the Federal Government's announcement to work towards a 25% carbon emission reduction on the 2000 level by 2020. This amended the previous Council's resolution to become carbon neutral by the end of 2010. This year Council commenced preparation of a Carbon Emissions Reduction Plan to achieve, and where possible exceed, Council's target. Given limitations on data from the year 2000, the Action Plan will use 2008/09 as its baseline from which carbon emissions savings will be measured.

Manly Oval – Energy Efficient Flood Lighting & Recycled Fence

This year Council installed energy efficient flood lighting at Manly Oval to help reduce Council's GHG emissions. Council has also been working with the sporting user groups to raise awareness of their energy use at the site. The lighting installation was funded through the State Government's Public Facilities Program with further funding provided by Council. The lighting was due for replacement, as was the fencing around the oval, which was replaced with a picket fence made from recycled plastic milk bottles.

Climate Change Adaptation Action Plan

During the reporting year, Council completed a "Manly LGA Climate Change Risk and Adaptation Action Plan" Project under the Commonwealth Department of Climate Change's Local Adaptation Pathways Program (LAPP). Council has worked to build on the outcomes of the Project in order to develop a more comprehensive Adaptation Action Plan for Manly LGA. It is anticipated that the Action Plan will be finalised in 2010/11 and will provide a strategic approach to climate change risk management and adaptation for Manly Council and the community.

Hop, Skip and Jump – Manly's Free Community Bus

This free community bus service continued to grow throughout 2009/10, transporting residents and visitors alike to reduce the community's reliance on private vehicles. A total of 383,704 passengers were carried during 2009/10, an increase of 6.5% compared to 2008/09 bringing the progressive total to 1,391,160 passenger journeys. By using the Hop, Skip and Jump community bus, patrons are contributing to a cleaner, healthier and happier future for all Manly residents and making a significant improvement to our environment. The buses operate on a 20% biodiesel blend and it is calculated that the use of this fuel, as opposed to standard diesel, has significantly reduced GHG emissions during the year. This is in addition to the less-quantifiable reductions achieved by residents turning away from private vehicle use to the bus service.



Energy Efficient Lighting At Manly Oval and Recycled Fence Source: Manly Council



Mosman Council

Mosman Rider

The Mosman Rider commenced service on December 1, 2009 as a free shuttle bus servicing the Mosman area. Operating around a 9.1km loop every half hour the bus was introduced as a viable alternative to using a car in Mosman. The Mosman Rider has experienced steady growth in the number of passengers with 21,404 people using the service to the end of July 2010. The bus is decked out with a distinctive blue and pink wrap depicting Mosman's affiliation with Whales, making it an easily recognisable service to locals and visitors. The route and timetable are available on Council's Website or in brochures located in Council facilities.

Car Share Scheme

Council continued its twelve month car share trial in partnership with GoGet Carshare, during 2009/10. Two Car Share vehicles are currently used in Mosman, with one parking space provided in the Mosman Square Carpark and the other in the Raglan Street East Carpark, enabling easy access for the Mosman community. The Carshare Scheme has saved approximately 78.7 tonnes of GHG emissions over the last year.

Energy Efficiency Business Program

Mosman Council supported DECCW's Energy Efficiency Business Program during 2009/10, encouraging local businesses to sign up for the program. The Program involved an energy audit of local businesses and the provision of an action plan report showing businesses what actions they could take to reduce their energy consumption and electricity bills. Approximately 47 businesses registered and participated in the program, undertaking lighting retrofits and other behavioural changes to reduce their energy bills and carbon pollution.

Walk Against Warming

Mosman Council supported the Walk Against Warming on 12 December 2009, to show its commitment to climate change action. Council promoted the Walk to the community through the Council website, community noticeboards, sustainability e-newsletter, Mosman community newsletter, distribution of flyers at the Mosman Festival, and advertisements in the local newspaper. Council also invited staff and members of the community to join in the Walk to support the cause by walking behind the Council banner. A total of 16 staff, councillors and community members joined in the Walk.

Walk to Work Day

Council supported Walk to Work Day on 2 October 2009 to promote a healthy lifestyle and improved air quality, through the use of sustainable transport modes such as walking. Council promoted the Walk to Work Day to the Mosman community, and Council staff also participated in the day and were rewarded with a healthy breakfast, as well as prize giveaways to the three staff members that walked the furthest to work on that day. A total of 28 staff took part, with the winner walking/running 17km to work.



Top: Mosman Car Share. Above: Mosman Rider
Source: Mosman Council

Pittwater Council

Reducing Fleet Emissions

Pittwater continues to pursue the purchase of fuel efficient clean diesel vehicles for both its passenger and commercial fleet resulting in 19,000 litres less fuel being burnt. The move to more widely available E10 fuel has significantly contributed to a drop in Council's overall GHG emissions with an 11% reduction recorded. Maintenance training has commenced with Council drivers with a view to educating them on how to get optimal fuel efficiency from the use of their vehicle.

LED Lighting at Whale Beach Rock Pool

In December 2009, Council energised two new 150 watt marine grade light emitting diode (LED) floodlights at the Whale Beach rockpool with resulting triple bottom line sustainability outcomes – financial, social and environmental. For many years this pool had been serviced with two 1,000 watt flood lights that were mounted on a pole some 30 metres above the pool on the headland. The floodlights were a source of irritation for many residents across the bay as light spilled into people's homes. By installing stainless steel poles, Council was able to focus the new lights directly down onto the pool, eliminating light spillage. Pool users are very happy with the improved lighting as LED lighting penetrates the water allowing swimmers to see the bottom. LED lighting has a longer lifespan, thus reducing maintenance costs and only consumes 20% of the electricity in comparison with the old lights, resulting in GHG emission reductions and lower electricity bills.

Going Solar at Mona Vale Library

In December 2009, Council installed a 2.0 kilowatt solar panel system on the Mona Vale Library and Administration building in Park Street. The panels were funded by Council's Revolving Energy Fund and were installed to offset the additional power consumption involved in upgrading security lighting in the Village Park precinct. The system is grid connected and comprised of 10 x Kyocera 205 watt solar panels. The north-west facing roof of the building is ideal for the solar panel location and the pitch of the roof at 34 degrees is ideal for year round generation of clean, green electricity. Solar panels generate electricity 7 days a week, 365 days

a year and the system has averaged 10 kilowatts per day since installation. To date, the system has generated over 2,400 kilowatts of power. The system is expandable, and it is envisaged that future add-on panels could give a capacity of 10 kilowatts per hour on the existing roof areas.

Climate Change Expert Coastal Advisory Panels

Through the Coastal Environment Centre, Pittwater initiated three popular and interactive community events on Climate Change with live Question & Answer with expert speakers, including a 'Climate Change Forum' with Dr Ben McNeill (University of NSW) and Bruce Thom (University of Sydney); 'The Coast of Australia' including a book launch with Professor Andrew D Short OAM (University of Sydney); and 'Climate Change and the Coast' a regional Teacher Professional Learning Day.



350 at Mona Vale. Source: Pittwater Council



Warringah Council

Warringah Energy Program

Under Council's Energy and Water Saving Program, Warringah has been installing photovoltaic panels and solar hot water systems at a number of community buildings and facilities. In 2009/10 photovoltaic systems were installed at the Dee Why Surf Club, Collaroy Progress Hall, Belrose Community Centre, Cromer Community Centre, Brookvale Children's Centre and Manly Vale Community Centre. Solar hot water systems were installed at the Cromer Administration Building and Old HR House.

Replacement of the air-conditioning thermostats at the Belrose Library was undertaken to improve the efficiency of the system. In addition, it is anticipated that the roof upgrade of the Civic Centre being undertaken in 2010/11 will enable the proposed installation of a large scale photovoltaic system of up to 29.9kw.

Power-Mates on Stand-By at Warringah Libraries

Since October 2009, energy-conscious residents have been able to borrow a Power-Mate Lite from one of Warringah Council's four libraries to measure the electricity, GHG's and costs of running common household appliances. The device connects between an appliance and the power socket to provide accurate measurements of energy consumption when an appliance is running or in stand-by mode, helping households to identify and reduce energy costs and GHG emissions.

The Power-Mate Lite can be used to estimate the energy usage, GHG's and costs of running appliances over hourly, quarterly and yearly periods and can even show whether an appliance left switched on at the wall while not being used, such as a toaster or kettle, is still consuming power. The devices have proven so popular that since their introduction, there is a waiting list for borrowers.



Top: Power-Mate Lite. Source: Warringah Council.
Above: Solar Panels at Manly Vale Community Centre.
Source: Warringah Council

4 Water

In this section 'Water' refers to beaches, bays, lagoons, creeks, wetlands, groundwater, stormwater and potable water. The SHOROC region is characterised by a diverse array of water assets, which provide vital ecosystems for aquatic and intertidal biodiversity, and are highly valued for their aesthetic and recreational opportunities.



Pressures on our Water

Key pressures include:

- stormwater runoff from impervious surfaces
- sewer overflows, outfalls and licensed discharges
- litter
- nutrient run-off from gardens, industrial estates and animal waste
- water pollution incidents
- increase in population and water consumption, and
- drought conditions (reduced rainfall).

Condition of our Water

As a life source good quality water is essential for ecosystem health, consumption and recreational activities. There is a responsibility to ensure that good water quality is maintained whilst also ensuring a sustainable level of consumption. The condition of water in the SHOROC region is highlighted below.

Regional Snapshot

Table 7: Regional Water Condition

Indicator	SHOROC Region				
	2006/07	2007/08	2008/09	2009/10	Trend
Number of pollutant traps (council control)	174	175	180	183	↑
Total gross pollutants removed from pollutant traps (tonnes)	1,603	1,447	1,005	1,059	↓
Total residential potable water use (kilolitres per capita)*	75	71	80	81	↑
Total council potable water use (kilolitres)	384,941	357,601	364,356	413,876	↑

*Total Regional residential potable water use divided by the regional population.



As of 2009/10, Harbourwatch/Beachwatch water quality results are no longer reported as percent compliance. Instead, Beach Suitability Grades under the National Health and Medical Research Council guidelines for Managing Risks in Recreational Waters (2008) are utilised to grade the beaches. The Beach Suitability Grade is a long term assessment of the suitability of a swimming location and is derived from a combination of sanitary inspection and water quality measurements gathered over previous years. The sanitary inspection identifies potential pollution sources, assesses the risk posed by each and then determines the overall risk at the swimming site, and the microbial water quality is attained by calculating the 95th percentile of enterococci water quality data. The Beach Suitability Grades can be either Very Good, Good, Fair, Poor or Very Poor.

Table 8 below shows the beach suitability grade for beaches within the SHOROC region.

Table 8. 2009/10 Harbourwatch/Beachwatch Suitability Grading for SHOROC Beaches

Harbour Beaches		
Council	Beach	Beach Suitability Grade
Pittwater	Barrenjoey Beach	Very Good
Pittwater	Paradise Beach Baths	Good
Pittwater	Clareville Beach	Good
Pittwater	Bayview Baths	Good
Pittwater	Elvina Bay	Good
Pittwater	North Scotland Island	Good
Pittwater	South Scotland Island	Good
Pittwater	The Basin	Very Good
Pittwater	Great Mackerel Beach	Very Good
Manly	Gurney Crescent Baths	Fair
Manly	Clontarf Pool	Good
Manly	Forty Baskets Pool	Good
Manly	Fairlight Beach	Good
Manly	Manly Cove	Very Good
Manly	Little Manly Cove	Good
Mosman	Clifton Gardens	Good
Mosman	Balmoral Baths	Good
Mosman	Edwards Beach	Good
Mosman	Chinamans Beach	Good
Warringah	Davidson Reserve	Poor

Ocean Beaches		
Council	Beach	Beach Suitability Grade
Pittwater	Palm Beach	Good
Pittwater	Whale Beach	Very Good
Pittwater	Avalon Beach	Very Good
Pittwater	Bilgola Beach	Very Good
Pittwater	Newport Beach	Good
Pittwater	Bungan Beach	Very Good
Pittwater	Mona Vale Beach	Very Good
Pittwater	Warriewood Beach	Good
Pittwater	Turimetta Beach	Good
Warringah	North Narrabeen Beach	Good
Warringah	Narrabeen Lagoon (Birdwood Park)	Poor
Warringah	Collaroy Beach	Good
Warringah	Long Reef Beach	Good
Warringah	Dee Why Beach	Good
Warringah	North Curl Curl Beach	Good
Warringah	South Curl Curl Beach	Good
Warringah	Freshwater Beach	Good
Manly	Queenscliff Beach	Good
Manly	North Steyne	Good
Manly	South Steyne	Good
Manly	Shelly Beach	Good

Local Snapshot

Table 9: Stormwater

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Number of gross pollutant traps (council control)	2006/07	23	30	22	99
	2007/08	24*	30*	22	99
	2008/09	23**	31	27	99
	2009/10	23	32	29	99
Total gross pollutants removed from GPTs (tonnes)	2006/07	183	377	57	986
	2007/08	158*	302	96	891
	2008/09	79**	286	99	621
	2009/10	169	180	110	600

*Two Manly units and one Mosman unit were not performing to full operational capacity during 2007/08.

**Four Manly units were not performing to full operational capacity during 2008/09

Table 10: Water Consumption

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Total LGA potable water use (kilolitres)	2006/07	3,776,919	2,903,941	5,064,615	11,727,414
	2007/08	3,565,403	2,816,409	4,709,263	11,277,076
	2008/09	3,774,512	2,915,400	4,910,571	11,581,445
	2009/10	3,726,619	3,019,243	5,181,272	11,963,629
Total residential potable water use (kilolitres per capita)	2006/07	80	88	75	84
	2007/08	76	83	72	80
	2008/09	77	86	75	82
	2009/10	76	89	76	83
Total council potable water use (kilolitres)	2006/07	104,967	50,000	119,615	110,359
	2007/08	79,185	43,981	104,356	130,079
	2008/09	80,350	49,690	120,963	115,927
	2009/10	82,213	48,861	131,715	151,087



Table 11: Participation in Sydney Water's Water Saving Program

Water Saving Program	Manly		Mosman		Pittwater		Warringah	
Date	09/10	Total 99 to 2010	09/10	Total 99 to 2010	09/10	Total 99 to 2010	09/10	Total 99 to 2010
DIY Kit	97	1,457	16	830	30	1,520	158	5,145
WaterFix your home	31	3,971	21	2,238	45	5,241	118	14,777
Washing machine rebate	381	2,679	241	1,753	401	2,906	1,052	7,664
Rainwater tank rebate	35	363	13	300	69	1,245	108	1,797
Love Your Garden	100	379	93	335	19	470	51	933
Toilet rebate	102	164	60	76	197	389	653	1,106
Total Participation	746	9,013	444	5,532	761	11,771	2,140	31,422

Source: Sydney Water

Responding to Water Issues

Regional Responses

Formation of the SHOROC Water Cycle Management Working Group

The SHOROC Water Cycle Management Working Group was created in 2009. The group comprises staff from each of the four member Councils as well as Sydney Water, SCCG, DECCW, and SMCMA. The objective of the group is to drive best practice and coordinate the sustainable and efficient sourcing, delivery and use of water resources (including wastewater, stormwater, groundwater and potable water), with a focus on protection of environmental and public health within the SHOROC region. The group meets bi-monthly.

Narrabeen Lagoon

Creating a Sustainable Catchment

2009/10 has been the third year of this joint Warringah and Pittwater Council restoration project, which was awarded a grant of almost \$2 million from the NSW Environmental Trust in 2007. The sustainable living education campaign has produced a number of highlights over the 2009/10 year. One of the major projects was a Bushcare DVD entitled "Caring for our Catchment – the Story of Narrabeen Lagoon". The DVD, highlighting the natural beauty and cultural spirit of the catchment area, outlines what is currently being done to protect the area and what

everyone can do to preserve the Lagoon's unique environment. Outdoor events including spotlight walks, eco-paddles, bird walks and bushwalks also featured, as well as the Sustainability Champions program with workshops on energy reduction, increasing backyard biodiversity and waste reduction. Schools education included a Teacher Professional Learning Day which was a high quality, well received event reaching seventy-six teachers within the catchment area.

In February 2010, Warringah Council coordinated a two day practical workshop on new approaches to promoting behavioural change on sustainability. The workshop was led by Dr Doug McKenzie-Mohr, a world leader in the growing field of community-based social marketing which draws on environmental psychology to increase public participation in sustainability at a community level.

The grant has also funded a number of on-ground works in the catchment. To date, nine long term bush regeneration contracts are in progress focusing on major creek systems including Middle, Oxford, Deep, Nareen and Mullet Creek.

They include works such as:

- severing exotic vines and clearing lantana from native canopy trees, then maintaining buffer zones to allow natives to revegetate these clearings in place of the weeds
- the removal of all *Ludwigia peruviana* (Primrose Willow) and Pampas Grass growing in the creek line and swamp areas
- maintaining areas of endangered ecological communities such as Bangalay Alluvial Forest
- maintaining and expanding areas of resilient bush and good bushland core areas; linking areas of good bush to each other through revegetating and regenerating bushland areas, and identifying bushland areas which will prove to be the most resilient or least prone to weed re-infestation.

Additionally, Warringah and Pittwater Councils are working in close connection with a community committee that has been formed to provide a conduit to the greater community and to build ownership and empowerment amongst the members.

Sewer Leak Investigation

Manly and Warringah Councils are working with Sydney Water to improve water quality of ocean and harbour beaches. The collaborative program involves dry weather monitoring of stormwater drains to waterways to identify and fix sewer leaks. Manly and Warringah Councils along with Sydney Water have extended this program to Manly Lagoon. During and after rainfall there are elevated levels of faecal bacteria in the stormwater system. This affects the water quality in Manly Lagoon and investigations are being undertaken to determine sources of faecal indicator bacteria in wet weather within the catchments.

In 2009/10, Warringah Council investigated all the stormwater pipes entering Manly Lagoon from Warringah's side of Manly Lagoon. The investigation involved sampling of any water draining from stormwater pipes during dry weather into the lagoon for indication of raw sewage. Unexpected results were communicated to Sydney Water for further investigation.

Delivering Local Responses

Manly Council

Water Savings Program

Manly Council's Water Savings Program began in 2000/01, and has resulted in a 55% reduction in Council's total organisational potable water usage. The Program involves the use of harvested stormwater, groundwater, and rainwater projects for non-potable uses to reduce the use of potable water, demand reduction and the use of water conservation devices.

In 2009/10 Manly Council continued a successful leak investigation program which identified and repaired a range of concealed leaks in Council's facilities. Council has also continued the implementation of new rainwater tank and water conservation devices to a range of sites.

Manly Lagoon Rehabilitation Works

The rehabilitation of Manly Lagoon (jointly managed by Manly and Warringah Councils) has been ongoing for a number of years following preparation of the Manly Lagoon Estuary Management Study (1995) and adoption of the Manly Lagoon Estuary Management Plan (1998), and the Manly Lagoon Integrated Catchment Management Strategy (ICMS, 2004). These documents highlighted a number of major and minor works to be undertaken to progress estuary rehabilitation. A major outstanding project highlighted in these plans is the removal of catchment-borne accumulated sediment in Manly Lagoon to the west of the Pittwater Road Bridge. This project has received \$690,000 funding from the NSW DECCW, to be matched by the Councils. Progress in 2009/10 included:

- appointment of a suitably qualified contractor to undertake the works and plans
- completion of environmental assessments (Review of Environmental Factors) with public exhibition in July/August 2010, and
- NSW Government agency approval to proceed with the works.



Mosman Council

Water Savings Action Plan

In March 2010, Mosman Council submitted the third annual report on the progress of Council's Water Savings Action Plan to DECCW. The annual report highlighted Council's water savings through actions such as the installation of dual flush toilets in the Civic Centre, the installation of touch free taps in the ladies toilets in the Civic Centre and the installation of stormwater reuse storage tanks for oval irrigation.

Creek Monitoring

The Mosman creek monitoring program was completed on 30 June 2010. Monitoring was undertaken on a quarterly basis at four creeks, for physio-chemical parameters and biannually for macro-invertebrates. Three wet weather events were also sampled for two of the creeks. Water quality was generally good, with the exception of parameters such as faecal coliforms, total nitrogen and phosphorus and copper, which were elevated at some of the creek sites, particularly following rainfall. Only very common and common water bugs were found inhabiting the creeks, as these water bugs have a greater tolerance to lower water quality levels.



Mosman Bay Creek. Source: Mosman Council

Botanic Road Stormwater Reuse Scheme

A treatment train incorporating a Stormwater Quality Improvement Device (SQID) and a Stormwater Storage System was completed during 2009/10, at Botanic Road. The storage system is located underground in the Botanic Road Reserve, and water in the storage system is treated with a ultra-violet (UV) treatment system before being used to irrigate Balmoral Oval and surrounding gardens and parkland.

Urban Irrigation Program

Mosman Council signed on to become a partner in a two year research program entitled, "Sustainable Watering to Purpose in Urban Landscapes: Developing Irrigation Benchmarks for Science-Based Policy and Practice". This program is a partnership program between the University of Western Sydney, the Council of the City of Sydney, Mosman Council, Woollahra Municipal Council, Marrickville Council, and Rockdale City Council. One or more of Mosman's ovals will be utilised as a case study for the program to determine the correct amount of irrigation required to find the balance between sustainable water consumption and oval maintenance requirements.

Pittwater Council

Warriewood Wetland and Nareen Wetland Plans of Management

Plans of Management have been adopted for both Warriewood and Nareen Wetlands, significant natural areas in Pittwater. The development of these Plans of Management were funded by SMCMA and address the following key issues: vegetation, biodiversity, habitat management, water quality, maintaining access and improving recreation areas, dealing with encroachment of private assets and community education and participation.

Estimate of Environmental Flows in Mullet Creek

Through a "Creating a Sustainable Catchment Grant" from the Environmental Trust, Pittwater undertook an environmental flow assessment study to assess the flow regime in the Mullet Creek catchment. The study aimed to develop an understanding of the impact of the main water storages in the catchment, flow extractions and transfers in creek hydrology. This study will help provide an initial step to potentially developing a Water Sharing Plan to manage the Mullet Creek resource.

The Coastal Environment Centre is also educating the community about caring for local catchments, creeks and aquatic fauna through their catchment education program. This has included recruiting volunteers for ongoing water quality monitoring and conducting community days to discover Mullet Creek and its waterbugs.

Water Management Forum

Pittwater Council in conjunction with Watersave Australia held a best practice workshop on integrated water management for public open space at Mona Vale Golf Course in September 2009. The event was held on the 29 September 2009 and 111 people attended. The purpose of this workshop was to discuss how to get the best results with a limited water supply on sports fields, reserves and golf courses, covering topics such as drought resistant grasses, innovations in irrigation, stormwater harvesting and sewer mining.

Following on from the Forum the Coastal Environment Centre has been working with Mona Vale Golf Course on educating the community and schools on their integrated water project. This project has enabled the club to clean and store stormwater for irrigation purposes, making them now fully self-sufficient and saving 22 megalitres/year of drinking water.

Great Mackerel Beach Floodplain Risk Management Study and Plan

Great Mackerel Beach is a high risk flood prone area. The Great Mackerel Beach Floodplain Risk Management Study and Plan has been drafted and recently placed on Public Exhibition. The primary aim of the Plan is to reduce the flood hazard and risk to people and property in the existing community and to ensure future development is controlled in a manner consistent with the flood hazard and risk. A detailed assessment of the impacts of climate change (sea level rise and increased rainfall intensities) on the community at Great Mackerel Beach were also included in the project. High priority actions in the Plan include the preparation of a Lagoon Entrance Management Policy, the inclusion of additional information on property planning certificates, the commencement of adaptation to climate change through development controls and the preparation of a Community Flood Emergency Response Plan.



*Great Mackerel Beach Community Information Day.
Source: Pittwater Council*



Warringah Council

Every Drop Counts at Warringah Council

Warringah Council has achieved four stars under Sydney Water's five star 'Every Drop Counts' program as a result of a concerted effort across Council operations to reduce water consumption. The objective of the five-star water management program is to help organisations take a holistic approach in managing their water resources. To date, only a handful of councils have reached four stars and above.

Backwash Recycling System at the Warringah Aquatic Centre

During 2009/10, a backwash recycling system was installed at the Warringah Aquatic Centre. This proposal was subject to an options evaluation process as part of Council's Business Excellence Program, including a risk evaluation and decision-making matrix which contained reference to the environmental, economic and social constraints and opportunities associated with the proposal. The system was funded through the Local Government Infrastructure Program and was commissioned in late 2009. It will reduce the need to use around 3ML of mains-supplied water per year.

Cities as Water Supply Catchments

During the reporting period, Warringah Council joined a world first water research program, Cities as Water Supply Catchments, which is aimed at meeting the challenges of housing a growing population in an era of climate change. The national five year research initiative will look at effectively and efficiently harvesting stormwater to supplement water usage across Australia. It will also provide ongoing practical solutions to harvesting stormwater by improving existing infrastructure and implementing new environmentally friendly systems. The program includes researchers from Monash, Melbourne and Queensland Universities, representatives from local, state and federal governments across Australia and industry representatives. The SMCMA through its Water

Sensitive Urban Design in Sydney Program is acting as a lead agency to facilitate a regional Sydney Metropolitan Consortium of interested councils and NSW Government agencies. Key advantages of this program over other research initiatives include:

- delivering a sound research program with strong industry focus
- allowing leading researchers from across all key discipline areas to work together, and
- providing holistic solutions to climate change challenges.

New Environmental Assessment Strategy for Local Industry

Warringah Council adopted a new Environmental Assessment Strategy for Local Industry in September 2009. The strategy is aimed at improving the environmental performance of business operations in Warringah, thereby improving the quality of our local environment. The strategy was launched in May 2010 with an industry trade event where local businesses accessed environmental information and materials to assist their businesses. Environmental assessments are undertaken for local industries, initially targeting businesses with greater risk potential to cause pollution. Council's Compliance Services team also responds to pollution spills with regard to enforcement and overseeing clean up actions.



*Backwash Recycling Plant - Warringah Aquatic Centre.
Source: Warringah Council*

5 Biodiversity

Biodiversity is the variety of all life forms - the different plants, animals and micro-organisms, the genes they contain and the ecosystems in which they live. Biodiversity underpins the ecological processes which make life on Earth possible, such as provision of fresh air, clean water, nutrients and pollination of plants. It provides medicines, fertile soils, food, as well as recreational opportunities and cultural identity.



Pressures on our Biodiversity

Key pressures include:

- altered and inappropriate fire regimes
- clearing and fragmentation of native bushland
- spread of weeds
- illegal poisoning of trees
- illegal dumping of rubbish
- predation by domestic and feral animals
- plant diseases such as Phytophthora
- stormwater /sewer discharges into bushland and waterways
- climate change impacts
- anchoring of boats, and
- replacement of swimming nets.

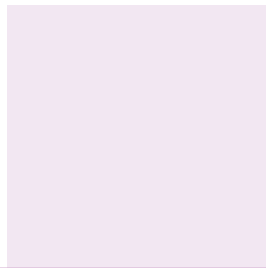
Condition of our Biodiversity

Biodiversity in the SHOROC region incorporates terrestrial, intertidal, and aquatic based plants, animals and micro-organisms and the ecosystems in which they live. The region is home to many threatened plants, animals and communities. Whilst most of this diversity is contained in the region's bushland areas and waterways, it is complemented by biodiversity in urban residential areas, including private gardens and street trees.

Regional Snapshot

Table 12: Regional Biodiversity Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Total noxious weed notices to residents	199	234	253	233	↑
Total noxious weed assessments undertaken	354	389	546	354	↔
Bushcare program volunteer hours	15,744	21,067	17,157	15,360	↓
Total number of active registered Bushcare volunteers	937	907	585	630	↓
Number of threatened species (flora and fauna)	167	167	183	194	↑



Local Snapshot

Table 13: Council Biodiversity Condition

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Noxious weed notices	06/07	48	0	90	61
	07/08	83	0	56	95
	08/09	40	0	161	52
	09/10	36	0	167	30
Noxious weed assessments undertaken	06/07	0	25	177	152
	07/08	47	24	171	147
	08/09	80	9	170	287
	09/10	48	18	188	100
Number of registered active Bushcare volunteers	06/07	210	177	250	300
	07/08	66 [#]	196	356	289
	08/09	86 [#]	87 [#]	181 ^{##}	231
	09/10	26 [']	90	240	274
Bushcare program volunteer hours	06/07	583	2,754	6,207	6,200
	07/08	528	5,292	9,283	5,964
	08/09	598	2,054	7,220	7,285
	09/10	675	2,550	4,615	7,520
Number of active Bushcare groups	06/07	16	17	26	51
	07/08	11	34	28	51
	08/09	12	17 ^{##}	37	51
	09/10	12	22	41	35
Number of native plant species recorded in LGA	06/07	449	454	Unknown	914
	07/08	449	454	Unknown	914
	08/09	449	454	Unknown	914
	09/10	449	454	285	929 ^{**}

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Number of threatened flora species	06/07	10	3	14	20
	07/08	10	3	14	20
	08/09	10	3	21	20
	09/10	10	3	22	20
Number of threatened fauna species	06/07	20	4	42	54
	07/08	20	4	42	54
	08/09	20	4	46	59*
	09/10	20	4	56	59
Number of endangered ecological communities	06/07	2	3	9	16
	07/08	2	3	9	16
	08/09	2	3	10	16
	09/10	2	3	11	16
Number of endangered fauna populations	06/07	2	0	2	0
	07/08	2	0	2	0
	08/09	2	0	2	0
	09/10	2	0	2	0
Number of feral fauna species targeted through programs (e.g. rabbits, foxes, cats)	06/07	2	2	3	6
	07/08	2	1	2	4
	08/09	1	1	2	3
	09/10	1	1	2	3

*In Mosman during 2008/09 there were 157 registered volunteers but only 87 of these were active. Previous years recorded the number of total registered volunteers, even if not active. Active volunteers have been recorded for Manly from 2007/08 to 2008/09 and during 2008/09 for Pittwater and Warringah. Previous years also included registered, non-active volunteers.

**Mosman has 7 informal individual Bushcare groups with 1 or 2 volunteers not formally supervised by Council, therefore not included in the figure for 2008/09. These informal groups were included in the figure for 2007/08 which explains the discrepancy in group numbers.

‘During 2009/10 a major overhaul of Manly Council’s volunteer database was conducted. Previous years data includes inactive volunteers as well.

**The total number of flora species recorded in Warringah increased by 15 this year from the 2005 inventory. The increase was recorded in the recent update of the Warringah Natural Area Survey – Vegetation Communities and Plant Species.

*The number of threatened fauna in Warringah increased in 2008/09 due to new determinations by the NSW Scientific Committee, as well as findings from the flora and fauna assessments and the first known reporting of a Bush-stone Curlew in 2008.



Responding to Biodiversity Issues

Regional Responses

National Tree Day

Tree planting makes a positive contribution to our environment by enhancing the local habitat, providing shelter for our native animals and helping to absorb carbon emissions. Each of the SHOROC member Councils participated in National Tree Day in July 2009. In Warringah, over 2,000 plants were planted at Greendale Creek by scouts, students and community volunteers. Manly Council held a planting event at Seaforth Oval, with approximately 55 people planting about 600 native plants to provide a buffer to the Duffys Forest Endangered Ecological Community. In Pittwater over 650 plants were planted by the community at Billarong Reserve. In Mosman over 600 native plants were planted by the community at Rosherville Reserve.

Urban Feral Animal Programs

During 2009/10, representatives from the SHOROC member Councils attended quarterly meetings of the Urban Feral Animal Action Group (UFAAG) to discuss and exchange information on feral animal issues across the region and possible solutions/programs that could be implemented. The SHOROC member Councils continue to coordinate and implement ongoing feral animal monitoring and control programs. Priority species for the SHOROC region include european red foxes, rabbits, cats, Indian mynas and seagulls. Methods implemented during 2009/10 to control feral animals included trapping, biological control, shooting, education and baiting.



National Tree Day. Source: Pittwater Council

Delivering Local Responses

Manly Council

Duffys Forest Endangered Ecological Community Restoration

The restoration of Duffys Forest Endangered Ecological Community has been ongoing since the construction of a new access road into Seaforth Oval in 2009. Several initiatives have been undertaken to improve the condition of this important vegetation community. Soil translocation was undertaken to ensure the soil seed bank was protected, and has resulted in the successful regeneration of native plants. A vast array of species are appearing in this section, which is becoming the most species diverse section within this vegetation community. Tree planting has been undertaken to revegetate the degraded edge of this vegetation community to provide a buffer from weed incursions. In addition, protective fencing has been installed to minimise impact of people walking through the regenerating site.

Burnt Bridge Creek Restoration Project

Burnt Bridge Creek is one of three creeks entering Manly Lagoon. The creek has been subject to a range of impacts including poor water quality and bushland degradation. In 2008/09, Manly Council received \$1,997,570 from the NSW Government Environment Trust (Urban Sustainability – Major Projects Program), to fund a three year Integrated Restoration Project for the creek. The project represents an alliance partnership with Warringah Council.



Weed Infestation Eradicated Through The Burnt Bridge Creek Restoration Project. Source: Manly Council

The program is now in the second year. Expenditure of project funds is now underway to achieve six major environmental outcomes for the creek over a three year period. These include:

1. stormwater harvesting for Balgowlah Golf Course and Balgowlah Oval (providing an alternate water source for irrigation, increasing wet weather stormwater retention capacity of the sub- catchment and reducing dry weather dam extraction)
2. stormwater treatment for the Sydney Road Catchment (improving stormwater quality)
3. modification of the existing artificial Burnt Bridge Creek Weir to a sediment control basin with future truck maintenance access
4. removal of aquatic and riparian weeds
5. creek bank restoration along Burnt Bridge Creek, and
6. community engagement/education to protect Burnt Bridge Creek catchment values.

Progress in 2009/10 included:

- completion of the project Business Plan
- component 1 & 2: designs finalised, environmental assessment and approvals underway
- component 3: draft designs completed
- component 4: all contracts appointed, and work commenced.
- component 5: draft designs for all sites underway
- component 6: education strategy written and Catchment Education Officer to be appointed.

Threatened Species

Threatened populations of Little Penguins (*Eudyptula minor*) and Long-nosed Bandicoots (*Parameles nasuta*) are present in the Manly LGA. During 2009/10 Manly Council continued its active involvement in the Little Penguin Recovery Program in association with the DECCW and other stakeholders, through implementation of a variety of actions. For example the installation of an interpretive sign at West Esplanade to assist the volunteer penguin wardens with their ongoing community education. Council also continued to provide input into the development of the Long-nosed Bandicoot Draft Recovery Plan.

Mosman Council

Native Bogul Project

The Native Bogul Project is being undertaken by the University of New South Wales, the University of Sydney, and Taronga Zoo, with support from DECCW, Mosman Council and Rentokil. Mosman Council is providing in-kind and monetary support, and promotion of the project to the Mosman community. The project will provide information on the impacts of invasive black rats on native flora and fauna, remove black rats from Mosman bushland areas, re-establish a self-sustaining population of native bush rat (Bogul) in bushland areas, increase community awareness of biodiversity issues and restore the natural ecosystem. During 2009/10 black rat populations studies and trapping of the black rat began. The captive breeding program of the Bogul also commenced.

Biodiversity Factsheet

The Biodiversity Factsheet was completed in June 2010 and distributed to the Mosman community with the rates notice. The Biodiversity Factsheet was the fourth factsheet in the Sustainability 'Our Planet Our Future' Factsheet Series. The Factsheet included information on 'what is biodiversity?', 'threats to biodiversity', 'did you know facts about biodiversity', 'why should I take action', 'biodiversity in Mosman', 'actions I can implement to help conserve biodiversity', and useful website links. The Biodiversity Factsheet was distributed during 2010 to coincide with the International Year of Biodiversity.



Mosman Bushcare. Source: Mosman Council



Mosman Council Bushcare Program 2009/10

The Mosman Council Bushcare Program provides an opportunity for the community to work in partnership with council to improve Mosman's local environment. The Bushcare program fosters the aim of enhancing biodiversity and conserving native flora and fauna. In 2009/10, Mosman Council supported 22 Bushcare Groups and 14 individual volunteers. In addition trees were planted by members of the community on Trees for Mums Day at Beaconsfield Park, with a total of 120 participants planting 1200 native tube stock.

Bushcare Workshops/Events

Two annual events, the 'Weeds and Bush Friendly Gardens' Workshop and the 'Spit to Parriwi' bushwalk were undertaken in 2009/10, offering bushcare volunteers the opportunity to increase their skills and knowledge of local environmental issues.

To celebrate the history of the Friends of Bradleys Bushland Reserve and to pay tribute to the work achieved by the recently retired bushcare group, Mosman Council hosted a well attended wildflower walk and talk in September 2009 at Bradleys Bushland reserve.

Feral Animal Program

In February 2010, Mosman Council in conjunction with other key land managers across Sydney released Rabbit Haemorrhagic Disease Virus RHDV to control rabbit populations. The virus was released in reserves in Mosman, including Little Ashton Park and Sirius Cove. The release of RHDV in Mosman resulted in a significant reduction in the number of adult rabbits in these areas. The release of the virus at Balmoral Park was halted due to the discovery of a roosting Powerful Owl, which is a threatened species.

Pittwater Council

Careel Creek Estuarine Rehabilitation Project

Council received funding from DECCW for rehabilitation of Careel Creek Estuary. This project included 1000's of trees planted as well as bush regeneration contractors conducting weed control along the length of the creek. The result of this project will be a continual corridor of native vegetation along the length of the creek from Careel Bay mangroves to the Avalon Village and connecting the mangroves with Avalon Beach dunes. Endangered Ecological Communities where restoration has occurred include; Coastal Saltmarsh and Swamp Oak Flood Plain Forest.

Pittwater Spotted Gum Forest Restoration

Pittwater Spotted Gum Forest is a listed endangered ecological community which is home to a large number of local native animals, including many bird species and the endangered Squirrel Glider. Council undertook works to help restore and protect the natural state of the Pittwater Spotted Gum Forest in critical areas, especially in public reserves. In addition Council is continuing to work with local property owners to ensure this forest community is going to be around for generations to come.



Grevillea species. Source: Pittwater Council

Targeting Noxious and Environmental Weeds

A number of projects targeting noxious and environmental weeds have been completed utilising "Caring for Our Country" grant funding. The Warriewood Beach Coastal Biodiversity Project involved primary weed control, planting of native tubestock, creation of new dunes to assist the provision of native animal habitat and beach stabilisation in the face of climate change. The Crown of Newport Conservation of Endangered Communities Project supported private land owners to learn about weeds and native plants on their properties as well as bush regeneration work to restore two endangered ecological communities: Pittwater Spotted Gum Forest and Littoral Rainforest. The Mona Vale Dunes Biodiversity Protection Project involved professional bush regeneration, interpretive signage and field days to plant in the dunes.

In addition work has continued with the Crown Land grant to control the Bitou bush at Palm Beach, Bangalley and Careel Heads and noxious weeds have also been controlled on crown land sites at Ingleside and North Newport. Aquatic and terrestrial noxious or high priority weeds have also been controlled including *Ludwigia peruviana*, *Salvinia molesta* and *Paspalum quadrifarium*.

Fauna Surveys

Through the Coastal Environment Centre, Pittwater is conducting fauna surveys across 6 sites in the Narrabeen Lagoon catchment area to determine a baseline of fauna across a number of habitat types. The aim is to identify any trends in the populations of mammals, reptiles, birds and amphibians as well as including biodiversity education such as anabattling, frogging, spotlighting and seabird rescues.

Feral Rabbit Threat Abatement

Through the "Caring for our Country" grant program more areas have been controlled for rabbits using a combination of methods. Rabbit Calici virus was released for the first time in Pittwater with strong anecdotal success within 1km from release sites.

Warringah Council

Update of Warringah's Natural Area Survey - Vegetation Communities and Plant Species

Warringah Council updated its Natural Areas Survey (undertaken in 2005) during the 2009/10 year. The Natural Areas Survey is an inventory of the vegetation communities and flora species present within the LGA. A significant tool and feature of the survey is the electronic vegetation mapping that accompanies the report. The mapping spatially displays Warringah's vegetation communities and the locations of threatened species. The mapping is used extensively by Council staff, and is essential for Council's planning and management activities.

The purpose of the project was to update Council's flora species records, update new threatened species locations, map and classify new areas of vegetation that were omitted in the 2005 survey and to re-classify vegetation that was not assigned a vegetation community. Some of the significant outcomes of the update included the addition of 15 flora species, an increase of 134 ha of vegetation assigned a vegetation code (of this, 64.83 ha had not been mapped previously), and a 20% increase in the area of vegetation mapped as the Duffys Forest Endangered Ecological Community. The updated report is in draft form and will be presented to Council for adoption during the 2010/11 financial year.



Asparagus Fern Out Day. Source: Pittwater Council



Support for Bush Regeneration Volunteers

All Warringah Friends of the Bush volunteer sites have been assessed for strategic value and most groups have now been provided with a contract supervisor and a site plan. The program supports 231 volunteers at approximately 51 sites. A propagation nursery at Manly Dam has been established to supply volunteers with local native plants required for regeneration works.

Endangered Bird Found in Dee Why

Many people may remember that in December 2008, Warringah was visited by an endangered Bush Stone-curlew, nicknamed "Curly". Given the vulnerability of Curly's new home, she was relocated by staff from DECCW and Council officers to a safe location in Kincumber on the NSW Central Coast, where a lone male was known to reside. In January 2010, Council Officers were informed by DECCW that Curly and her mate had successfully reared a chick, which is an excellent outcome for regional biodiversity.

BioBanking Feasibility Assessment

Warringah Council conducted a BioBanking feasibility study on crown managed land in the Wheeler Creek Valley in 2009/10 to assess the potential for private landholders to create BioBank sites in Warringah (results of which are detailed in the Wheeler Creek Valley BioBank Feasibility Assessment July 2010). BioBanking is a market-based scheme, introduced by the NSW government, that enables biodiversity 'credits' to be generated by landowners who commit to protect and enhance biodiversity values on their land through a biobanking agreement. Results of the study showed the proposed Biobank site has the potential to generate 454 ecosystem credits representing 4 vegetation types and 673 species credits.

Bushland Plans of Management

Warringah Council has been working in consultation with the NSW Land and Property Management Authority to develop the Oxford Falls Regional Crown Reserve Plan of Management. The plan covers the management of multiple parcels of the crown land within the Oxford Falls region of Warringah.

Warringah Pittwater Bushfire Risk Management Plan

Warringah Council held a public meeting on 6 May 2010 to discuss the draft Warringah Pittwater Bushfire Risk Management Plan which was on exhibition for public comment. The draft plan identifies the level of bushfire risk across the Warringah and Pittwater LGAs and establishes strategies to manage bushfire risks that everyone can implement.

The draft Bushfire Risk Management Plan includes information about the local area and sets out strategies that can be implemented to manage bush fire risks, including:

- ensuring developments in bush fire prone land comply with the NSW Rural Fire Service's *Planning for Bush Fire Protection*
- requiring permits to light a fire during the bush fire danger period
- distributing Bush Fire Safety Pamphlets to all rate payers, and
- weed control and mowing on Council Reserves.

New Wildlife Webpage

One of Warringah Council's objectives is to manage the natural environment by conserving and protecting Warringah's unique native fauna. In order to do this Warringah Council has taken the initiative to complete fact files for residents that provide information about the native wildlife. The webpage promotes the protection and conservation of Warringah's animals of which there are over 400 species of native animals living in oceans, wetlands, lagoons, creeks, sandstone outcrops, hilltops, woodlands coastal scrubs and our own backyards. Of the 400 native species found in Warringah, 22 are classified as threatened in Australia, 34 are threatened in NSW and ten are threatened in Warringah Shire.



Endangered Bush Stone Curlew 'Curly'.
Source: Warringah Council

6 Human Settlement

Human settlement is about reaching a balance to achieve a good quality of life for the community. Population growth, housing, waste generation and noise in an urban setting are all factors that impinge either positively or negatively on the community. Human settlement indicators have been selected to measure regional issues of population pressures, noise complaints and waste generation.



Pressures on Human Settlement

Key pressures include:

- waste generation
- growing population
- increased packaging
- illegal dumping
- electronic waste, (e-waste), and
- noise from various sources (e.g urban developments, companion animals, transport, construction and recreation).

Condition of our Human Settlement

The SHOROC region is home to over 272,616 people, is bordered on three sides by water and continues to experience higher density living. The increased number of people living in the area can have both positive and negative implications. Negative implications include an increase in waste and noise which may have an effect on human health and wellbeing, whilst positive implications include a greater sense of community.

Regional Snapshot

Table 14: Regional Human Settlement Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Estimated population at 30 June 2009	263,134	265,666	266,727	272,616	↑
Total waste to landfill per capita, including general cleanup (kg)	221	227	222	219	↔
Total waste to recycling per capita including metal and green waste (kg)	218	226	221	230	↔
Noise complaints including general and barking dogs	3,143	2,946	2,626	1,585	↓



Local Snapshots

Table 15: Population

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Estimated population of each LGA – at 30 June 2009	2006/07	39,103	27,936	56,619	139,476
	2007/08	39,677	28,152	56,920	140,917
	2008/09	39,667	28,356	57,018	141,686
	2009/10	40,939	28,767	58,818	144,092
Residential density (persons per hectare)*	2006/07	25.82	32.79	6.25	9.33
	2007/08	26.21	33.04	6.28	9.42
	2008/09	26.20	33.28	6.29	9.47
	2009/10	27.04	33.76	6.49	9.63

*Residential density calculates persons per hectare. Land included in the calculation may not be used for habitation e.g. shopping centres, national parks, large bodies of water, which is why Warringah and Pittwater which have larger open space land areas have a lower residential density than Mosman or Manly whose LGA's are predominately residential housing.

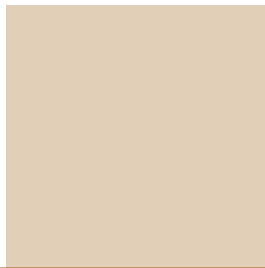
Table 16: Noise

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
General noise complaints received by council	2006/07	40	50	186	730
	2007/08	90	79	92	825*
	2008/09	87	71	325	640
	2009/10	117	51	235	249
Barking dog complaints received by council	2006/07	7	45	260	1825
	2007/08	67	41	127	1625*
	2008/09	16	38	221	1228
	2009/10	30	50	207	646

*Figures for Warringah LGA in 2007/08 are sourced from two information systems as well as anecdotal information due to a system changeover mid year.

Table 17: Waste

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Total waste to landfill including general cleanup (tonnes)	2006/07	7,921	6,791	12,029	31,256
	2007/08	8,402	6,891	12,692	32,796
	2008/09	8,416	6,363	13,420	31,984
	2009/10	8,453	6,409	13,293	31,522
Total waste to recycling including paper, co-mingled, metal and green waste (tonnes)	2006/07	7,479	5,637	11,304	32,832
	2007/08	7,576	5,609	11,636	35,243
	2008/09	6,618	5,567	11,729	34,936
	2009/10	7,407	5,528	11,674	37,975
Total waste to landfill including general cleanup per capita (kg)	2006/07	203	243	212	224
	2007/08	212	244	223	233
	2008/09	212	224	235	226
	2009/10	206	223	226	219
Total waste to recycling including metal and green waste per capita (kg)	2006/07	193	202	200	235
	2007/08	191	199	204	250
	2008/09	167	196	205	246
	2009/10	181	192	199	264
Green waste diverted from landfill per capita (kg)	2006/07	41	39	36	102
	2007/08	44	54	41	109
	2008/09	30	56	46	112
	2009/10	45	59	45	134
General cleanup sent to landfill per capita (kg)	2006/07	22	16	20	33
	2007/08	22	16	36	35
	2008/09	30	14	29	34
	2009/10	24	14	29	33



Responding to Human Settlement Issues

Regional Responses

E-Waste Recycling Kerbside Collection

From 1 January 2010 the SHOROC member Councils, were the first in Australia to ban the general kerbside collection and disposal of e-waste (electronic waste) to landfill. This means e-waste such as televisions, computers, printers, scanners, modems, DVD players, CD players, VCRs and gaming machines are no longer picked up in general kerbside collection across the region.

This ban and lobbying by SHOROC led to the Federal Minister for the Environment announcing the introduction of a nationwide e-waste recycling scheme from 2011 and the introduction of legislation for extended producer responsibility (EPR) to make manufacturers responsible for the recycling and safe disposal of e-waste.

As a solution for residents to dispose of their e-waste in the meantime, until the Commonwealth Government legislation is put in place, the SHOROC member Councils implemented a number of options for residents, including special kerb side e-waste recycling collections, drop-off days and the provision of a facility for residents to drop off items for free for recycling at Kimbriki resource recovery centre.

For example, Mosman Council held a two day e-waste collection in March in partnership with Apple, collecting a total of 50 tonnes. An additional kerbside e-waste collection was conducted during the week of 31 May - 4 June 2010, with a total of

9.92 tonnes collected from the kerbside. Pittwater Council also hosted an e-waste collection event for residents, collecting a total of 52.8 tonnes

The e-waste ban has been a success and raised awareness about the issues of e-waste and the importance of waste reduction, reuse, recycling and waste avoidance. It is estimated 400 tonnes of e-waste will be diverted from landfill and recycled annually.

Kimbriki Resource Recovery Centre

Kimbriki is a general, solid waste (non-putrescible) landfill and recycling centre operated by Kimbriki Environmental Enterprises Pty Ltd. Warringah, Manly, Mosman and Pittwater Councils are the shareholders of this new company.

Recycling and re-use processes developed at Kimbriki result in only 26.4% of the 170,900 tonnes of waste material received at the site going to landfill. In 2009/10, Kimbriki recycled 75,300 tonnes of vegetation, 46,100 tonnes of concrete/brick including stockpiles and 3,100 tonnes of metal products with 45,200 tonnes of waste going to landfill.

Construction of the new Eco House and renovation of the Eco Garden were completed, using recycled materials. The poles in the structure are rescued power poles, wall panels came from the ABC studios, and the timber floor and front doors were from timber sources destined for disposal. The improvements to the garden include an outdoor classroom and more seating throughout the themed 'rooms' in the garden.

The venue has hosted workshop days for teachers in the local Ready Set Grow program. Many schools and seniors groups have visited Kimbriki this year for an informative site tour and session with Peter Rutherford, Senior Ecologist and teacher. Eco gardening workshops for adults continued with a variety of topics including 'Growing Fruit Trees' and 'Small Space Edible Gardens'.



Kimbriki Eco House. Source: Warringah Council

Noise Management

Noise pollution is regulated under the *Protection of the Environment Operations (POEO) Act 1997* and councils use a range of measures to ensure noise in the community is kept at an acceptable level. Noise impacts are carefully considered during the development approval process and consents are appropriately conditioned to regulate and control noise. Noise requirements are also considered and included within planning instruments such as development control plans to reduce and control noise.

Companion Animal Education

Manly, Pittwater and Warringah separately host Dog Days and Mosman hosted a Pets Day Out. These events provide residents and visitors with a forum for companion animal social interaction. The events also provide Councils with a valuable opportunity to communicate with dog owners and raise awareness of responsible dog ownership such as minimising barking.

SHOROC Waste Tip Collaborative Ad Series

A series of monthly waste tip advertisements were developed jointly by the waste officers in each of the SHOROC member Councils, and advertised in both the Mosman Daily and Manly Daily to encourage residents of SHOROC to reduce their waste to landfill, increase their recycling rates, shop sustainably to reduce packaging and food waste, as well as inform residents on what to do with unwanted household items, green waste, and metals, and provide tips and activities that residents can take to reduce their ecological footprint. Regular evaluations show the ads continue to be a popular information format. Local residents feature with a waste tip on avoiding waste and recycling.

Clean Up Australia Day

Each of the SHOROC member Councils took part in the 20th Annual Clean Up Australia Day on Sunday 7 March 2010. Councils offer support to the Clean Up events to help raise awareness of litter issues and how litter affects our terrestrial and aquatic environments. Clean Up Australia established that 15560 tonnes of rubbish was removed from beaches, waterways, parks and bushland across Australia, with approximately 588,000 volunteers taking part at 7073 registered sites, which was a 6% increase on volunteer numbers since 2009.

Household Chemical CleanOut

The Household Chemical CleanOut program is delivered in partnership with DECCW and local councils. CleanOut enables the environmentally responsible disposal of common household hazardous waste reducing community and environmental exposure to hazardous waste. The CleanOut program has facilitated the collection, treatment, recycling and safe disposal of household hazardous waste throughout the Sydney, Hunter and Illawarra regions of NSW. The SHOROC member Council's supported the Chemical CleanOut event in April 2010. A total of 58810.5 kg was collected at the collection point in Pittwater, with 1772 people attending, and 2,355 people dropped their chemical items at the collection point in Warringah, with a total of 85,330kg of items collected. In addition, 84 Mosman residents also disposed of their chemical items at the collection point in Willoughby.



Household Chemical Cleanout. Source: Warringah Council

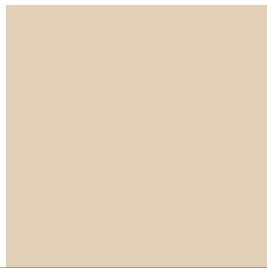


Figure 3: Types of Hazardous Waste Disposed of During the Chemical Cleanout Collection Held at Pittwater.

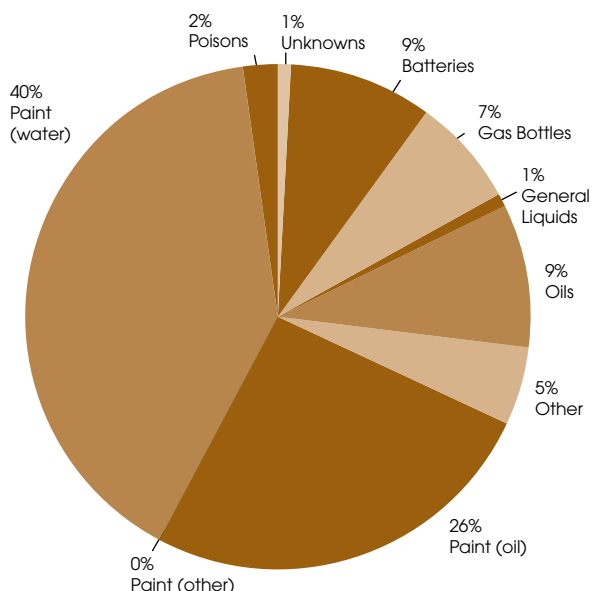
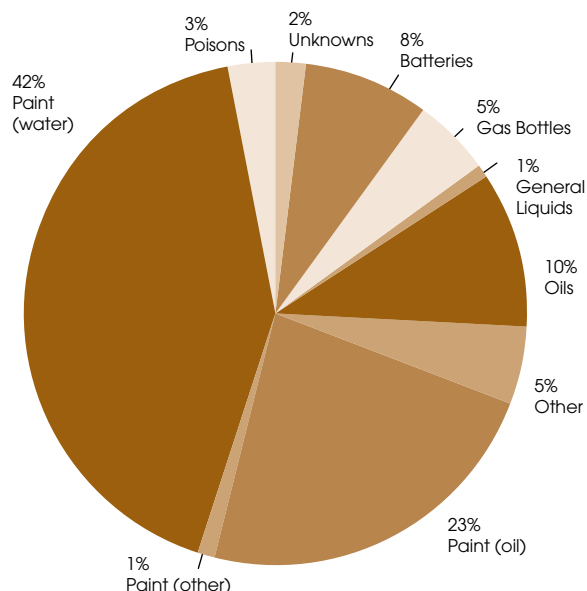


Figure 4: Types of Hazardous Waste Disposed of During the Chemical Cleanout Collection at Warringah.



Delivering Local Responses

Manly Council

Second Hand Saturday

Second Hand Saturday is a program aimed at promoting reuse and repair as opposed to disposal by encouraging residents to host a garage sale prior to their general clean up. This may effectively reduce the amount of waste that is sent to landfill and reduces demand on resources for new goods.

Second Hand Saturday also promotes community spirit by encouraging neighbours to get together to organise a garage sale or street sale. Council supports residents by advertising their garage sale in the Manly Daily and providing posters to assist with promotion. Over the past year over 35 households participated which means goods that may otherwise end up in landfill have been acquired by someone else.

Litterguards

The Litterguards Program was developed in response to community pressure to reduce littering on and around the Ocean Beach area of Manly during the peak summer period.

The main objectives of the program are to:

- decrease litter on the beach and in the marine environment
- educate the public about the social, economic and environmental impacts of litter, and
- encourage best practice waste management in public places and litter avoidance.

Litterguards wear distinctive clothing and directly approach groups and individuals on the beach reminding them to properly dispose of their waste and recycling. The focus for 2009/10 was visitors and youth, who were observed to be the most prolific offenders by Council rangers, compliance staff and Litterguards alike. Litterguards patrolled more than 200 hours on our beaches over the summer months and also spoke with over 6000 individuals reminding them to take their rubbish with them and dispose of it appropriately.

Beach litter levels decreased visibly during the 2009/10 reporting period, according to Council

cleansing staff, with beach litter weights recorded by council's beach rake reduced by approximately one quarter compared to the 2005/06 season before the introduction of the Litterguards Program. Overall the response to the Program from both visitors and locals was extremely favourable and Litterguards received many positive comments during their 2009/10 beach patrols.

Food Wine and Sustainability Festival

Manly Council's annual Food and Wine Festival attracts around 30,000 people. The festival is an opportunity to provide information on waste and recycling and encourage home composting. The 2010 Food Wine & Sustainability Festival featured biodegradable cutlery and crockery that was collected after use at numerous bin stations for large scale composting. More than 86% of the total waste generated by this year's 20,000 – 30,000 participants was diverted from landfill for recycling, which is our best outcome yet. This included 3.06 tonnes of plastic, glass, aluminium and steel containers, 2.5 tonnes of paper and cardboard recycling and over 1 tonne of food organics which was composted at the WSN UR3R facility. There were over 100 volunteers assisting with waste awareness and helping festival goers use the correct bins.



Manly Food and Wine Festival. Source: Manly Council

Mosman Council

Public Place Recycling

An additional twelve public place recycling bins were installed along Balmoral Foreshore, Rosherville and Sirius Cove Reserves, and Clifton Gardens, to encourage the public to recycle away from home, maximising resource recovery from public places.

Balmoral: Each of the 16 x 240L recycling bins at Balmoral are emptied twice daily in summer, and usually filled to capacity. Approximately 7,680L recyclables and 15,360L waste are collected each day during summer. In winter approximately 3,840L recyclables are collected on weekends.

Clifton Gardens and Rosherville Reserve: The 4 x 240L recycling bins are collected daily, twice daily in summer with a maximum volume of 1,920L recyclables collected.

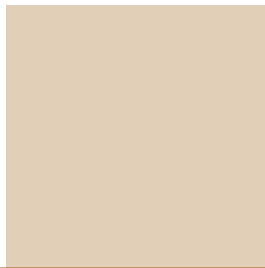
Sirius Cove: The 2 x 240L recycling bins are collected daily, twice daily in summer with a maximum volume of 980L of recyclables collected.

Waste Education Programs

As a member of Keep Australia Beautiful, Council is able to provide the Waste Watchers Program to local primary schools. The Waste Watchers Program was implemented during 9-16 March 2010 at four Mosman primary schools, involving 512 students. These students were able to learn about waste consumption, the three R's – Reduce, Reuse, Recycle, and organic waste.

In 2010, Council undertook Worm Farming Workshops in two primary school classes with 35 students in each. The students were able to learn how to build and care for a working worm farm at school, to use for their lunch food scraps.

The Northern Sydney Region Rubbish Free Lunch Challenge was held in August 2009, with four out of nine schools in Mosman participating, involving approximately 180 primary school students. These students were involved in undertaking a waste audit at their school during lunch time before and after the challenge, and on a specific day all participating students took up the challenge of packing a lunch with minimal waste.



BOXWORLD Event

BOXWORLD is a spectacular miniature city made almost entirely of recycled materials. It is created by one man, Warren Thomas, an environmentalist and model maker, originally from Tasmania. The BOXWORLD Exhibition opened at the Mosman Art Gallery in June 2010, and was exhibited until 18 July 2010. A BOXWORLD workshop was held on World Environment Day 5 June 2010, with thirty people in attendance, to raise awareness of the three R's - Reduce, Re-Use and Recycle.



Top: BOXWORLD. Source: Mosman Council
Public Place Recycling Bins. Source: Pittwater Council

Pittwater Council

Reduction of Waste to Landfill at Council Facilities

Council has implemented a number of initiatives to reduce the amount of waste to landfill and to encourage recycling by staff members. Council installed workplace recycling in kitchens, installed a worm farm at Boondah Depot and Mona Vale Library, and placed both mobile and battery recycling boxes at each council administration facility.

Public Place Recycling Bins

Pittwater installed 20 public place recycling bin enclosures at its parks and beaches. The enclosures include separate bins for general waste and commingled (container) recyclables with a cigarette butt disposal facility installed on the sides.

Commercial/Industrial Recycling

As part of Councils 'Commercial/Industrial Environmental Inspection Program' in the Mona Vale basin area and Councils 'Food Inspection Program' business were educated and recommended to recycle waste products such as paper, commingled (containers), waste oils, metals and batteries.

Land Use Planning Strategy

During 2009/10, Council commenced the process of writing the Pittwater Land Use Planning Strategy which will inform Councils comprehensive Local Environmental Plan in the future. This strategy will provide a framework for the management of existing and future development to ensure that the ecological processes on which life depends are maintained and the needs of the community are met without compromising future generations. The Land Use Planning Strategy will cover the period until 2031, and will provide a basis for the preparation of a new comprehensive Local Environmental Plan (LEP).

Warringah Council

Public Exhibition of the Draft Local Environmental Plan and Development Control Plans

Warringah's LEP 2009 and the Warringah Development Control Plan (DCP) will replace Warringah LEP 2000 and its associated development control plans and policies. Warringah's draft LEP and DCP were on public exhibition until 11 December 2009, and then adopted by Council on 8 June 2010. The DCP has been approved and will come into force from the date of publishing. The draft LEP has now been forwarded to the Minister for Planning for publishing. The LEP and DCP are made in accordance with the NSW environmental planning and assessment legislation.

Unleashed Dog Exercise Area Review

A review was undertaken of potential additional dog unleashed exercise areas in Warringah. Following consultation with the community and stakeholders and taking into account flora and fauna assessments, four new areas were put under a six month trial which concludes in September 2010. Of these areas two are open unlimited hours while two involving sporting fields are open only in the early morning. In one of the limited hour locations a contractor was employed to remove any dog faeces on the grounds prior to the weekend sports to help solve the issues raised by the sporting associations.

Introduction of a New Residential Waste Contract

The commencement of a new Waste Contract with United Resources Management (URM) in July 2009 saw substantial benefits flowing to Warringah residents. The new service makes it easier for residents to recycle, minimising waste going to landfill. Regardless of recycling number or symbol, all containers with firm sides and which are not made of polystyrene can be recycled. This includes all plastics, cartons, metal and glass containers.

Residents also received a free lime lidded vegetation recycling bin and collections are now fortnightly. This resulted in approximately 50% more (4,500 tonnes) vegetation being collected in kerbside collections than the previous year. A waste and recycling calendar was distributed and a comprehensive advertising and publicity campaign ensured residents knew about the changes and how to get more information.

Waste Presentations, Events and Workshops - Revitalising Recycling

Community engagement was emphasised this year as Warringah's Waste Education Officers went "on the road" as guest speakers to talk about reducing waste, recycling better and providing the opportunity for residents to have all their waste and recycling questions answered. There were 165 community engagements reaching 12,352 residents.

Council's Waste Education Officers delivered 11 presentations to 571 residents, including local clubs such as Probus and View Club. Two high profile speakers - Ian Kiernan and Tanya Ha - were also sponsored to speak at Council's Hilltop to Headland Sustainability Series. In addition, 6 practical workshops were delivered on reuse activities, worm farming, composting, sustainable shopping and recycling. The increasing participation in these programs is a clear indicator of Warringah's waste messages being integrated into residents' consciousness and activities.

Second Hand Mystery Tour

As part of the Living Green Festival, celebrating World Environment Day in June 2009, Warringah residents were invited to venture on a mystery tour and discover more about shopping for uniqueness, environmental and economic benefit. Approximately 40 residents thoroughly enjoyed seeing what happens at the Toy Repair Workshop and browsing through a variety of shops with preloved items before having a low waste lunch and tour at Kimbriki. The response was so positive that 120 residents had to be put on the waiting list for the next tour.

School Program

The schools program continues to be very popular with 19 schools taking up waste education opportunities which reached 1,378 students. Three schools had edible gardens with composting and worm farming systems established; other schools had the popular Waste Watchers program delivered while yet more schools took the opportunity to attend a tour and workshop at Kimbriki.



Swap A Lots

A new level of participation and awareness in re-use was introduced to events with Swap-A-Lots. Residents eagerly exchanged cds at Council's Music in March event, teens exchanged games and music at Youth Week, and everyone swapped children's clothes, accessories, books, cds, dvds and games during National Recycling Week as part of the 'Big Aussie Swap Day'.

Waste to Art Competition and Exhibition

The Waste to Art category was introduced as a separate category in the Warringah Art Exhibition adding a very interesting dimension to the Exhibition, further promoting an awareness of waste and the importance of reuse. A photographic exhibition of the 30 works was displayed over 48 days at public events and locations across Warringah, focusing attention to issues around our disposable society and Council's awareness and actions in relation to sustainability.



Swap Day. Source: Warringah Council

LGSA Waste Avoidance Commendation Award for Avoiding Food Waste Campaign

Avoiding Food Waste has been a major campaign theme in Warringah with residents receiving worm farms, compost bins, workshops and extensive information. The campaign's success was recognised with a Commendation Award in Waste Avoidance at the Local Government and Shires Associations of NSW 2008/09 Excellence in the Environment Awards.

Publications

Four target brochures were distributed to residents as part of the contract with Council's waste contractor URM. The 'A-Z of Waste' was also compiled, put on the web, advertised and printed. This publication provides disposal methods for a myriad of items. In addition further in-depth information and links are provided to residents on Council's web site.



Warringah Council Waste to Art. Source: Warringah Council

7 Heritage

Heritage is defined as places, objects, customs and cultures that have aesthetic, natural, historic or social significance or other special values for present and future generations (Australia ICOMOS, 1999). Heritage indicators have been selected to measure Aboriginal and Non-Aboriginal heritage in the SHOROC region.

Pressures on our Heritage

Key pressures on heritage include:

- low awareness of Aboriginal heritage
- low awareness of built and natural heritage
- natural processes such as wind, water, erosion and fire
- urban development, recreation and vandalism
- destruction, deterioration and unsympathetic restoration of built heritage, and
- lack of funding to adequately maintain sites.

Condition of our Heritage

Our local heritage gives us a sense of living history and provides a physical link to the way of life of earlier generations.

Evidence of past Aboriginal occupation in the SHOROC region includes rock engravings, rock paintings, shell middens, axe grinding grooves, sites of cultural significance, fish traps, seed grinding patches, open camp sites and stone arrangements.

The region's non-Aboriginal heritage is diverse and includes historic sites, modified and built environments such as dwellings, public buildings, townscapes, gardens, reserves, buildings, roads, as well as ethnic traditions, cultural events, artworks, craft, and literature.

Regional Snapshot

Table 18: Regional Heritage Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Total number of Aboriginal heritage sites	954	978	838	840	↓
Total number of non-Aboriginal heritage items	1,027	1,033	1,064	1,064	↑
Heritage conservation areas	20	20	21	21	↔

Local Snapshot

Table 19: Aboriginal Heritage

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Number of Aboriginal heritage sites	2006/07	62*	107	322	463
	2007/08	66*	105	291	376
	2008/09	68*	105	291	376
	2009/10	68*	105	291	376

N.B. Data provided to councils by DECCW through the Aboriginal Heritage Office for the 2008/09 SoE Report has revealed anomalies in previously reported Aboriginal heritage site data.

*This data includes sites within Council jurisdiction only. Previous SoE Reports (2006/07, 2007/08 and 2008/09) have also included sites managed by DECCW and the Sydney Federation Harbour Trust.

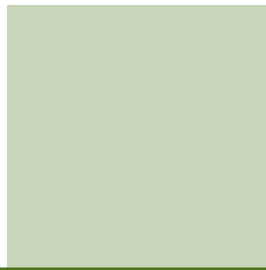


Table 20: Non-Aboriginal Heritage

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Total number of non-Aboriginal heritage items	2006/07	306	478	101	142
	2007/08	312	478	101	142
	2008/09	314	478	130	142
	2009/10	315	478	130	141
Breakdown: Number of built items	2006/07	194	437*	69	102
	2007/08	199	437*	69	102
	2008/09	201	437*	74**	102
	2009/10	202	437*	74	101***
Number of landscape items	2006/07	78	34*	20	36
	2007/08	79	34*	20	36
	2008/09	79	34*	28**	36
	2009/10	79	34*	28	36
Number of archaeological items	2006/07	34	16	7	2
	2007/08	34	16	7	2
	2008/09	34	16	28**	2
	2009/10	34	16	28	2
Heritage conservation areas	2006/07	2	11	5	2
	2007/08	2	11	5	2
	2008/09	2	11	6	2
	2009/10	2	11	6	2

*Some items in Mosman are classified as both built and landscape items, therefore the breakdown figures add up to a number greater than the total number of items.

**Heritage items are no longer broken down into built items, landscape items and archaeological items in Pittwater LEP. These numbers have been estimated and can not be used to compare with 2007/08 figures.

***Data reflects the adoption and pending gazettal of Draft Warringah LEP 2009 under which one item has been removed from the current heritage inventory as it has been deemed to have been previously altered to an extent that it does not qualify as a heritage item.

Responding to our Heritage Issues

Regional Response

Aboriginal Heritage Office

Manly, Pittwater, and Warringah Councils partner with other NSW Councils to jointly fund the Aboriginal Heritage Office (AHO). The AHO has the support of the NSW Heritage Office and DECCW. The AHO works to ensure the protection of Aboriginal sites and cultural heritage through day to day site protection work as well as longer term education, training and management advice. The office works in partnership with key stakeholders such as the Metropolitan Local Aboriginal Land Council in assisting councils and the community at large in ensuring that Aboriginal heritage is not impacted.

Highlights for 2009/10 include the completion of the Rock Art Recording Project and new exhibits and activities at the Keeping Place and Education Centre. A total of 43 Aboriginal rock art sites were fully recorded to provide a permanent record of the irreplaceable but fragile art of the region. The data will allow the AHO and councils to continue the process of prioritising key locations for conservation works, monitoring and signage.

The AHO received funding for a continuation of its volunteer monitoring program through the Department of Environment, Water Heritage and the Arts (DEWHA) Indigenous Heritage Program. More volunteers were trained in basic Aboriginal heritage site awareness and an expanded network of Site Care volunteers was established throughout the partner Councils to provide regular monitoring and care of specific Aboriginal sites. The project ran over 2009/2010 and has allowed the AHO to build a sustainable program that can continue into the future.

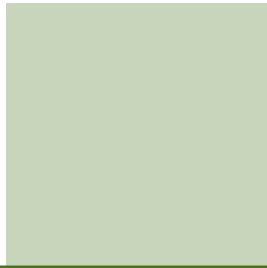
During 2009/10 the NSW Department of Planning grant funded a series of projects including events for schools in the area, site management reports and updates, and an upgrade of the AHO website to help promote the richness of the Aboriginal heritage of the area.

An important part of the role of the AHO is to enhance appreciation of Aboriginal heritage in the wider community. The new AHO Education Centre and Keeping Place in Northbridge has continued to expand in its exhibits and scope. Numerous resources are available for free download from the AHO website www.aboriginalheritage.org

Table 21: Status of Art Sites for Each Council LGA

Site Features	Manly*	Pittwater	Warringah	Total
Accessible	1	7	3	11
Private land	1	4	2	7
Destroyed	2	N/A	1	3
Duplicate/not in Council LGA	N/A	1	3	4
Not located	2	2	10	14
Art not visible	N/A	N/A	2	2
Total sites	6*	14	21	41

*Manly does not include North Head sites now under management of the Sydney Harbour Federation Trust.



Delivering Local Responses

Manly Council

Heritage Festival

The National Trust of Australia (NSW) held the 2010 annual Heritage Festival during April. The theme of the Festival was "The Making of Our Nation", in celebration of the 200th anniversary of Governor Lachlan Macquarie's 12 year tenure as the 5th Governor of the colony of New South Wales. The Festival also focused on local people whose lives and contributions helped shape our 'nation'. In Manly a number of free activities were organised during the Festival to promote the cultural heritage of Manly including a guided tour of Manly Cemetery, exhibition at the Manly Art Gallery and Museum, North Head Sanctuary Foundation Nursery Open Day and a guided Bantry Bluff walk at Seaforth.

History Week

The NSW History Week was held from 5-13 September 2009. The theme was 'Scandals, Crime and Corruption'. In Manly a number of activities were held to promote the rich history of the area including a display of a century of infamous crimes that made the headlines in Manly at Manly Library, exhibitions at the Manly Art Gallery and Museum, an open day at the Q-station and a number of walking tours.

Local Heritage Assistance Fund

In 2009/10 a number of heritage conservation projects were assisted under Council's annual Local Heritage Assistance Fund. This included the conservation of a sandstone front fence, reinstatement of an original bullnose and timber post verandah, replacement of a balcony balustrade with original iron lace detail, replacement of 20th century front door with a 19th century style front door to suit the architectural style of an 1860s cottage and conservation works to a grave in Manly Cemetery.

Manly Heritage Review

In 2009/10 Council continued to review a number of identified potential heritage items and undertook consultation with property owners on the heritage values of the property. As a result of this ongoing review a number of properties have been recommended for listing. Council has prepared a draft amending LEP to add six additional heritage properties to the Manly LEP 1988. Council's Heritage Planners have also been reviewing the existing heritage schedule in preparation of the new Manly LEP and updating the heritage inventory sheets for existing items.

Mosman Council

Balmoral Baths Receives Heritage Award

The rehabilitation of the Balmoral Baths and jetty, completed in 2009, received a Commendation in the heritage category for the NSW Planning Institute of Australia 'Planning for Excellence' Awards. The judges believed that the understated quality of the design faithfully respected the original materials and technologies of marine structures from the period (c1899) ensuring the baths and jetty would be enjoyed for many years to come.

Draft LEP - Proposed Listing of New Heritage Conservation Areas and Items

Mosman's Draft LEP 2010, which was developed during 2009/10 and is expected to be gazetted by the end of 2010, will include two new Heritage Conservation Areas, and seven new heritage items. The Glover and Nathan's Estates draft heritage conservation area covers approximately three hundred semi-detached and detached dwellings, and is representative of the type of late 19th century and early 20th century residential development in Mosman.



Balmoral Jetty. Source: Mosman Council.

Mosman Police Station

Council adopted a new conservation management framework for Mosman Police Station following announcement of its sale by NSW Police in 2009. A key recommendation was to subdivide the lot and dedicate the northern portion to the Council owned Hampshire Park which adjoins the Police Station site, thereby maintaining the historical garden setting of the building, as well as continuing public access to the open space around the site. The framework will ensure future use and development are sympathetic to the heritage significance of the building.

Boronia House

In 2009/10, Council completed stabilisation and restoration works to the second storey verandah of Boronia House, a Victorian Italianate two storey house on the State Heritage Register, located in Spit Junction. The project, jointly funded by the Heritage Branch, used recycled timber from a demolished paper mill in Port Botany (c. 1908) and also involved replacing old corroded bolts and missing elements to the balustrade. Boronia House continued operation as a function centre during these works.

Restoration of Clifton Gardens Jetty

The upgrade and rehabilitation of Clifton Gardens jetty commenced in 2009, with the reconstruction of the dilapidated jetty head taking priority due to its heritage value. The refurbishment was undertaken to improve the jetty for public access and maintain its aesthetic and heritage features.



Mosman Police Station. Source: Mosman Council

Pittwater Council

Heritage Report

Pittwater Council received a grant from the NSW Department of Planning to prepare a three year heritage report for the management of heritage items within the Pittwater LGA. This will assist Council to manage both Aboriginal and non-Aboriginal heritage items.

Guringai Festival

Council promoted the Guringai Festival and supported a local Sorry Day event held in May 2010 organised by the Aboriginal Support Group. The event started at Berry Park, Narrabeen for Welcome to Country then included a Remembrance Walk to Bilarong Scout Hall. In addition Aboriginal Heritage Officer Dave Watts gave a talk at Mona Vale Memorial Hall, speaking about the role of the AHO.

Northern Sydney Aboriginal Social Plan

Council maintains involvement on the Northern Sydney Aboriginal Social Plan, which is supported by 11 northern Sydney councils. The Project Officer for this plan continues to be a point of contact for the Aboriginal Community and works across a wide range of formal and informal networks. Over the last six months the Project Officer has been working on an Aboriginal Health and Wellbeing project.

Harmony Day - Indigenous Ceremony

As part of the 2010 Harmony Day celebrations, Memorial Poles were erected in front of the CEC in honor of an individual that the local aboriginal community considered significant to them. The poles were mounted and painted by Fisher Rd Special School students.



Warringah Council

Heritage Inventory Review

At its meeting on 22 June 2010, Warringah Council resolved to include a heritage review within the 2010/11 works program. The project is expected to be completed in the second half of this financial year and will be carried out by consultant resources. Council's strategic planning team will manage the review and will issue a report once the data has been gathered.

A review of Warringah's heritage inventory has not been carried out since data was gathered for the preparation of the Warringah LEP 2000, over ten years ago. The review provides the opportunity to not only review the existing heritage inventory but also, where appropriate, add new items to the list.

Guringai Festival

In 2010 Warringah Council hosted a special event at Glen Street Theatre to mark the 10th anniversary of the festival. In the morning a free panel discussed, 'The Future of Indigenous Arts' and was led by Susan Moylan-Coombs, the Guringai Festival Committee Co-Chair, Neil Armfield, Artistic Director of Belvoir Street Theatre, Emma Donovan, an established Indigenous singer/songwriter and Lydia Miller, Executive Director, Aboriginal and Torres Strait Islander Arts, Australia Council. The highlight of the day was the performance by David Page of his production, Page 8 which offered the Guringai community a special ticket price that was subsidised by Council. This was followed by an official launch of the 2010 Guringai Festival with a special reception and live music by the Freshwater Girls. Approximately 250 people attended the show and enjoyed the launch.

In 2010 a special dinner was held at the Northern Beaches College - TAFE to mark the handing over from Council to the TAFE of a magnificent seven metre long mural which was created by local children who participated in the 2009 Guringai Festival 'Star Dreaming Rainbow Serpent' event at Glen Street Theatre.



*Guringai Festival. Painting by Bibi Barba.
Source: Pittwater Council*



Guringai Festival Sorry Day. Source: Pittwater Council

8 Towards Sustainability

'Sustainability' is being able to meet the needs of the present without depleting resources or harming natural cycles for future generations. Planning for environmental sustainability provides a framework which links economic, social, environmental and governance matters.

The awareness and action of the community are vital in achieving sustainable outcomes. Each Council has adopted measures to ensure operations are moving towards sustainability, and run programs for the community aimed at achieving environmental sustainability across a range of issues such as water conservation, biodiversity management, sustainable transport, energy reduction, waste avoidance and minimisation.

This chapter builds on the previous chapters by providing further detail on community and corporate action for sustainability.



Responding to Sustainability Issues

SHOROC STRATEGIC FRAMEWORK: *Shaping Our Future*

The SHOROC member Councils together developed the *Shaping Our Future* Strategy to strategically shape the way the region will look, feel and grow over the next twenty years. It provides direction for transport, health, housing and jobs for a vibrant sustainable SHOROC region. This regional strategy identifies the priorities for State and Commonwealth Government investment including rapid buses, better roads, a new Hospital, and how to accommodate the extra population, houses and jobs the NSW Government requires for the region in a way that doesn't compromise our way of life or natural environment.

Shaping Our Future aims to address the real challenges facing our region including significant road congestion, limited and inefficient public transport as well as the lack of access to an appropriate and accessible high quality health service. Population is expected to increase by around 30,000 people, an 11% increase over the next 20 years. This growth brings with it targets from the NSW Government to accommodate an additional 22,800 new dwellings and capacity for an additional 20,800 jobs in the SHOROC region, a coastal area which is potentially at risk from climate change.

Our way of life and natural environment are valued highly by the SHOROC community and councils. The principles underpinning SHOROC's *Shaping Our Future* are to maintain and enhance these characteristics as the region grows.



Traffic in the SHOROC Region. Source: Mosman Council



Regional SHOROC Sustainability Plan

Strategies for what is needed regionally in the way of other infrastructure and service delivery to maintain and enhance the region's vibrant way of life and natural environment will be covered by SHOROC's *Shaping Our Future Liveability* and *Shaping Our Future Sustainability*.

The SHOROC sustainability strategy will bring together the extensive range of work that Mosman, Manly, Warringah and Pittwater Councils already do, as well as look regionally for opportunities to take collaborative action to maintain and enhance our region's sustainability and way of life. In development potential for regional opportunities to create more sustainable communities will be explored, with a focus on areas such as transport, health and wellbeing, resource management and the natural environment. These strategies are to be developed for release in 2011/12.

'Health of the Region' Indicators Project

The SHOROC member Councils are in the process of developing 'health of the region' indicators to help track how Council's are progressing towards sustainability, as well as how regional strategies are progressing to improve our region's way of life. Indicators will be grouped under themes such as community wellbeing, resource management, employment and natural environment.

Regional Sustainable Purchasing

SHOROC supports the principles of sustainable procurement and pursues the specific objective of purchasing products and services that are socially, ecologically and financially sustainable. All member Councils are members of the LGSA's Sustainable Choice Program and actively seek sustainable alternatives in the sourcing of goods and services. As a regional body SHOROC has developed a comprehensive Sustainable Purchasing Policy that is applicable to all procurement activities carried out by the SHOROC purchasing group.

SHOROC's approach towards sustainable procurement aspires to a number of corporate and community benefits including, but not limited to:

- reductions in the use of energy, water and other natural resources
- cost reductions and avoidances
- reductions in production of waste and pollution
- reduced environmental and human health impacts of products and services purchased
- supporting the development of environmentally friendly products and the associated marketplace
- improving the viability of recycling, and
- support equity, fairness and the removal of discrimination in all procurement activities.

SHOROC Sustainability Forum

The SHOROC member Council's supported a SHOROC Conference in October 2009, hosted by Warringah Council as part of the Narrabeen Lagoon Creating a Sustainable Catchment Grant Project. The Conference was aimed at supporting the SHOROC member Councils in their commitment in establishing, promoting and maintaining a culture of sustainability and environmental responsibility within each council, inter-council, amongst staff and the community. This was to be achieved by bringing together staff representatives from the SHOROC member Councils to share their experiences and knowledge about sustainability not only within the community but within council governance as well. The conference was centred on three key sustainability themes, comprising: (i) embedding sustainability and identifying local indicators; (ii) examining process improvement; and (iii) showcasing regional projects. Interactive workshops followed session allowing participants to interact and identify key elements of sustainability as they related to the topic. A highlight of the conference was the third session - 'Showcasing Regional Projects' where five regional projects were showcased to demonstrate success in sustainability.

There were 106 conference delegates including attendees from SHOROC member Councils, external organisations and regional councils and such as Willoughby, Hornsby, Hunter's Hill and Fairfield City, as well as Northern Sydney TAFE, SCMMA, Local Government and Shires Association, Local Government Managers Australia, University of Technology Sydney, SCCG and the NSW Environmental Trust. Positive evaluation reports show that the participants gained valuable knowledge from sharing their ideas and experiences and the conference has forged effective partnerships between various councils. Ninety-six percent of respondents stated they will implement more sustainable workplace practices as a result of the conference and will explore new sustainability initiatives that were presented by conference delegates. Since the conference there are five newly formed SHOROC regional project groups that are demonstrating their commitment to regional collaboration by devising new projects and working towards regional sustainability.



*Winner Sustainability in Landscaping.
Source: Pittwater Council*

Delivering Local Responses

Manly Council

Sustainability and Climate Change Committee

The Sustainability and Climate Change Committee (SCCC), one of Council's special purpose advisory committees, continued to meet this reporting year. The SCCC has provided valuable strategic input into some of Council's projects and plans that relate to sustainability and climate change. A few examples include the Education for Sustainability Program, the Carbon Emissions Reduction Project and implementation monitoring of the Manly Sustainability Strategy.

Manly Sustainable Business Awards

The Manly Sustainable Business Awards Program was conducted for its fourth year in March 2010. This initiative expands upon and replaces the annual Green Business Awards Program that was run by Council for 11 years. Manly Sustainable Business Awards looks at business management across the triple bottom line: social, economic and environmental. The aim of the Awards Program is to promote corporate responsibility within the local business sector and provide community acknowledgement for outstanding sustainable business management. In 2010 awards were offered under six categories: Water Use Management, Waste Management, Energy Efficiency, Fair Trade, Contribution to Local Community and Excellence in Sustainable Business Management.

Manly Sustainability Fair 2010

In June 2010 Manly Council held its fourth annual Sustainability Fair on Manly Corso, integrated within the Manly Food and Wine and Sustainability Festival. "Green Up Your Life" was the theme, sending out the message that sustainability can and needs to be incorporated into all aspects of people's lives. The Fair showcased sustainable lifestyle products, technologies and practices such as eco-shopping, sustainable gardening and sustainable building design. Thousands of people attended the event, making it the most successful of Manly's Sustainability Fairs to date.



Green Up Your Life! Sustainable Living Program

The *Green Up Your Life!* Sustainable Living Program is an education for sustainability initiative designed to engage, educate, empower and inspire the local community in the face of climate change and an increasing need for individuals, communities and countries to be rapidly shifting towards a sustainable way of life. The program is comprised of:

1. practical workshops (a minimum of 1 per month)
2. 'Swap to Shop' events, e.g. Clothes Swaps (quarterly)
3. documentary screenings at the local cinema on issues pertaining to sustainability (quarterly)
4. promotion of Manly Council's Sustainability Events e.g. Sustainability Fair and Fair Trade Markets

The purpose of the documentary screenings and Swap to Shop events are to engage a new, larger and more diverse crowd beyond the usual suspects and the workshops are to provide practical advice on how to take those next steps once engaged. It has proven a great success having had the participation of just under 1000 people from the community since its inception in September 2009 (not including participation in the Sustainability Fair or Fair Trade Markets).

Fair Trade

In September 2008, Manly Council officially received Fair Trade Accreditation from the Fair Trade Association of Australia and New Zealand (FTAANZ) making Manly NSW's first Fair Trade Community.

As part of Manly Council's commitment to Fair Trade, Council ran two Fair Trade Markets during the reporting year. Council's seventh Fair Trade market, a Christmas market, was held on 28 November 2009, and the eighth Manly Fair Trade Market on May 8 2010, during Fair Trade Fortnight. A range of Fair Trade vendors were showcased along with entertainment, kid's activities, Fair Trade coffee and chocolate.

Many local enterprises have moved towards fair-trade certified products, highlighting the successful continued growth of the Fair Trade Program and were presented with awards from the Mayor, Councillor Jean Hay. These local enterprises included: Arlingtons, Barefoot, Cafe La Bas, Candys, Forty Beans, Harris Farm, Ironbark, Manly Health Foods, Oxfam, The Village Grocer and Wild Bean Cafe.

Starfish Food Safety Hygiene Rating System

Council's Starfish Food Safety Hygiene Rating system was revised to incorporate sustainability targets for waste reduction and re-use, recycling practices, electricity and water conservation and sustainable purchasing. Two hundred and fifty one food businesses were audited during the reporting period and were advised on available improvement measures.



Manly Swap to Shop Event. Source: Manly Council.

The Manly Environment Centre

The Manly Environment Centre (MEC) acts as an environmental resource and research centre, an advocate and environmental educator. The shop front houses more than 30,000 publications and other resources, the largest collection of environmental education materials accessible to the community in Australia. Information is provided to people, empowering them to take action and make lifestyle choices which will create positive outcomes for themselves, the wider community (locally and globally) and the environment. The MEC hosted numerous international and national interns, and school students doing work experience and Duke of Edinburgh.

In 2009/10 the MEC held a range of events including festivals, art exhibitions open house and garden events. The MEC celebrated international days and years, annual festivals and national events like the Guringai and Manly Arts Festival, Earth Day, National Science Week, Sustainable House Day and Ocean Care Day and also organised numerous educational programs, and projects to protect and enhance the environment and to inspire and lead the community.

The MEC hosted the first Lagoon Life Festival as part of National Science Week. This festival highlighted Manly and Warringah Council's lagoon projects aimed at improving the health of the lagoon as well as celebrating the community achievements over the last 20 years.

Mosman Council

Sustainable Purchasing

During 2009/10 Council continued to investigate and research sustainable products. In May/June 2010 Council commenced the purchase of 100% recycled envelopes. The envelopes are brown with the Council Footprint logo on the front as a reminder to the community to reduce Mosman's ecological footprint. The rates notice was the first large community mailout with the new 100% recycled envelopes.

During 2009/10 Council also worked on sustainable specifications for inclusion in Council's procurement policy.

I Love My Planet @ Mosman Library

In the April 2010 school holidays Mosman Library went green, coming up with ways to show kids how to have fun and think about the future of the planet. The Library celebrated a Fair Trade Easter, sourcing Fair Trade chocolate eggs to hand out at Easter events, including two story time sessions, a craft activity and the annual teen Chocolate Festival. Other holiday activities included an I Love My Planet sculpture competition, where kids were challenged to make a statue of themselves using only recycled materials from around their home, a craft activity making shimmering mobiles out of recycled items, and a performance by Mic Conway in his musical Rubbish Show. It was a great success with the Children's Librarian and the Environment Team working closely to provide displays, inspiration for craft activities and prizes for the sculpture competition in the form of miniature wheelie garbage bins, and the children got on board with imaginative ideas on how to reduce, re-use and recycle.



I Love My Planet Sculptures. Source: Mosman Council.



Fair Trade Taste Testing

In accordance with Council's Sustainable Purchasing Action Plan, and Environmental Sustainability Plan, Council has been investigating the purchase of Fair Trade products such as coffee and tea for Council staff use as well as for meetings and events. To gain staff input on the preferred Fair Trade brands, the Environment Team hosted a Fair Trade morning tea on 13 May 2010, which all staff were invited to attend to taste test various brands of Fair Trade tea, coffee and chocolate. Staff were able to vote for their favourites, this data being collated and used to recommend the brands to be purchased by Council.

Keep Cup Program

Approximately 25 Council staff participated in the Keep Cup Program trial to reduce the use of disposable cups. Staff were asked to complete a detailed survey so that accurate data could be obtained on the number of disposable cups being purchased per week, benefits of disposable cups and barriers to purchasing coffee in a reusable cup. Staff that responded to the survey were provided with a Keep Cup and asked to record the number of times the Keep Cup was used each week for a total of four weeks, as well as the number of disposable cups still purchased. E-mail prompts and data on water, energy, waste, and trees saved were provided to staff each week. Over the four week period, staff reduced their use of disposable throw away coffee cups by 77%, and have maintained the usage rate of their Keep Cups since the trial ended. On average per year, by using Keep Cups staff have saved: 3,796 paper cups made from trees, 11kgs of plastic lids, 53kgs of landfill, and 3.9gigajoules of energy.

Worm Farming Workshops for Childcare Centres in Mosman

As part of the Early Childhood Environmental Education Network, many of Mosman's childcare centres have participated in a sustainability planning workshop and worm farming workshops to start reducing their food waste. Three childcare centres with 45 children each daily, have established worm farms and are reducing their food waste going in the waste bin, whilst teaching children the importance of worm farming in reducing organic waste to landfill.

Community Education Workshops

A Kimbriki Tour and Composting Workshop was held on 6 May 2010, as part of International Composting Awareness Week. Approximately 19 Mosman residents participated in the tour and workshop, learning about general ecogardening principles, developing skills to start practicing ecogardening principles at home, and reducing their food waste to landfill, through composting and worm farming, and general waste reduction.

A Balcony Garden Workshop was held on 14 March 2010, with 27 participants. The participants were able to learn about potted gardens and the possibilities for growing their own vegetable patch on their balcony or in a small space.



Balcony Garden Workshop. Source: Mosman Council.

Stormwater/Catchment Education

During 2009/10 Council staff held Stormwater Workshops in collaboration with Lands Edge Education Centre. Approximately 120 high school geography and biology students participated in the workshop which included presentations at Lands Edge Centre, and an excursion along Balmoral Foreshore to educate the students on the catchment area, where the stormwater flows through the catchment, the stormwater infrastructure and how the stormwater quality improvement devices work in capturing gross pollutants before they enter the harbour.

Council also held a brief 30 minute session with two Year 1 classes at Sacred Heart Primary School on the Water Cycle, Water Catchments and Water Conservation.

Footprints Program

The Footprints Treading Lightly Program was run as a joint program between Mosman, North Sydney and Willoughby Councils. The aim of the program was to encourage behaviour change towards a more sustainable lifestyle in the 20-40 year age group. The Footprints program was launched on 9 February 2010, with the film screening of the 'Age of Stupid' at Starlight Cinema, North Sydney Oval. Community members signed up to the program at the film launch, as well as via Facebook. The program was promoted to the younger age group via Facebook, websites and twitter, as well as the local media, and at local cafes and pubs/bars. Those that signed up to the program were given a free sustainability assessment of their home and provided with a sustainability report, provided with a free energy power remote, and were able to attend a variety of workshops/events across the three LGA's. Mosman Council hosted an Ecotrivia night on 24 February 2010 at the Hotel Mosman, with the winning group scoring a worm farm and a hamper of organic/Fair Trade products.

Sustainability Workshop for Council Staff

Over one hundred of Council's staff attended a staff sustainability workshop held at the Drill Hall on 3 December 2009. The workshop was undertaken to raise staff awareness of sustainability in the workplace and how it relates to their role. The workshop began with a panel session where staff could ask sustainability questions of panellists. Panellists were staff from across different departments of Council. The second part of the workshop involved a facilitated group session, where each team were asked to respond to two questions around their role in sustainability and what they could achieve in their actual position/team, and what they could do as an individual and group to be more sustainable at work. Each group was facilitated by a member of staff from a different section of Council that had been nominated as 'champions' and trained as facilitators for the workshop. Staff have since provided the Environment Team with sustainable ideas on how to promote sustainable behaviours and make changes to council practices.

Leading Change for Sustainability Program

Mosman Council is participating in a three year grant program in partnership with the DECCW, and five other Councils, namely the City of Sydney, Ku-ring-gai, Wyong, Coffs Harbour and Orange. The program is funded by the NSW Environmental Trust and involves research, delivery and evaluation of community education and engagement projects. A reference group and communities of practice will be set up in each Council to assist in engagement across the Council. Mosman is in the process of delivering an internal sustainability education and engagement project to improve practices and processes within Council and change staff behaviours.



*Mosman Staff Sustainability Workshop.
Source: Mosman Council.*



Pittwater Council

Pittwater Sustainability Principles and Checklist

The "Pittwater Sustainability Principles & Checklist (Part A & B) – Single Dwellings, Alterations & Additions and New Homes" outlines sustainable options and principles for residential design and is intended to be a guide for home owners in regards to building and developing dwellings in a more sustainable manner. This is an aspirational document that presents simple measures to promote a move towards sustainability.

Pittwater Learning for Sustainability Plan Endorsed

Council received a grant through the Environmental Trust to develop an overarching Learning for Sustainability Plan aligned to both the NSW Environmental Education Plan and Pittwater's 2020 Strategic Plan. Pittwater's Learning for Sustainability Plan will guide resource allocation and sustainability education program development within a strategic context and with a clear focus. The Plan will help to make progress towards more sustainable ways of living.

Ongoing Support to the Sustainable Schools Program

Pittwater Council continues to support local schools in their efforts to become more sustainable. Council support includes coordination of the Northern Sydney Region Sustainable Schools Network, enabling teachers across the region to meet quarterly to share their knowledge and experience, and learn from each other. Council assists schools with resource audits in waste, water and energy and in undertaking biodiversity audits of school grounds. Council's environmental education team is closely involved with a number of innovative projects being undertaken regionally and in partnership with other organisations such as the Local Climate Change Learning Community, Cool Kids for a Cool Climate and the Local Ecostudy Project developed by Macquarie ICT Innovations Centre (MacICT) in collaboration with Field of Mars EE Centre and Macquarie University Department of Education.

Pittwater Sustainability Awards

In October 2009 Pittwater's inaugural Sustainability Awards were held. There were three categories where residents and business could demonstrate their commitment to making Pittwater sustainable. These were 'sustainability in design', 'sustainability in business' (both large and small) and 'sustainability in landscaping'. The awards were very competitive and the Award Ceremony was a great success.

Cooee! Newsletter

Pittwater Council publishes a monthly environmental e-newsletter to inform residents of current projects and upcoming events. This newsletter celebrated its one year anniversary in August 2010 and is distributed to over 250 people as well as posted in Council's libraries. Subscription is available via Council's website.

Coastal Environment Centre

The CEC is a regional facility that provides a variety of sustainability education across NSW, inspiring students, parents and the community to protect the environment and live more sustainably. It is a demonstration site for solar power, energy & water efficiency, green waste and biodiversity. The CEC provides weekly tours, workshops, eco-events and educational resources on sustainability issues as well as being open for Sustainable House Day.



Sustainable Schools Program. Source: Pittwater Council

Warringah Council

Living Green Festival

World Environment Day 2010 was a week long celebration with Warringah Council's Living Green Festival. The doors to the Warringah Aquatic Centre opened up for a behind the scenes tour of the fantastic water recycling facilities, Kimbriki provided several hands on workshops in the newly renovated Eco Garden and a bus load of residents took a mystery second hand shopping tour. Adam Spencer presented a unique take on sustainability to a maximum capacity audience as part of the Hilltop to Headland series and residents took part in a spotlighting tour at Narrabeen Lagoon. The festival concluded with the SustainABILITY Markets at Dee Why Beach.

Who Cares About Warringah?

Warringah Council has undertaken an 'Environmental Perceptions Survey', in order to measure the attitudes and behaviours of Warringah residents in terms of environmental issues of concern. A professional market research company was contracted to conduct a telephone survey of the region and responses from 600 residents were sought, which is a statistical representation of the Warringah community. The survey results were compared with overall NSW results from DECCW "Who Cares about the Environment in 2009?" survey. The Environmental Perceptions Survey will help build a framework for a targeted approach to education in relation to sustainability and environmental management issues in the local area.

Hilltop to Headland Sustainability Series

The 2010 Hilltop to Headland series was a phenomenal success with an audience of almost 1000 people attending environmental lectures from top celebrities including Tim Flannery, Jamie Durie, Tanya Ha, Ian Kiernan and Adam Spencer, and a further 1000 downloading the online podcasts to date. Set against the beautiful backdrop of Fisherman's Beach at Long Reef Golf Club, the evenings of entertainment were not only informative but also inspiring. Survey results showed that 99% of audience members found the lectures to be easy to understand and enjoyable and 95% stated that their knowledge of the issues and solutions addressed in the lectures was either slightly or greatly improved.

Fairtrade Awareness

Warringah participated in the 2010 Fair Trade Fortnight by holding two staff awareness sessions at the Civic Centre and the Budgerie Building at Cromer. Over 150 staff sampled a range of Fair Trade coffee, teas, nuts and chocolate as well as receiving information on the benefits of using Fair Trade products. Fair Trade tea and coffee is provided at a number of staff kitchens and meeting rooms and Council is seeking to extend the use of Fair Trade products to other facilities.

Sustainability Champions Program

The Sustainability Champions program, developed in conjunction with Pittwater Council, is designed to increase the capacity of residents to engage in sustainable behaviours that protect and manage the Narrabeen Lagoon catchment area and also build their capacity to 'champion' the sustainability message in the community at a grass-roots level. Round one was implemented between March and June 2010 and was comprised of three free community workshops on waste reduction, energy savings and biodiversity protection. Sixty residents participated in the program and an evaluation showed that 81% of respondents agreed or strongly agreed that their knowledge about energy,



SustainABILITY Markets. Source: Warringah Council



biodiversity or waste has increased since partaking in the workshop. Similarly 76% reported that they felt more comfortable sharing their knowledge with family, friends and the greater community.

Warringah's First Community Garden

Construction has begun on the new Innes Road Park in Manly Vale which will house a leading edge playground and Warringah Council's very first community garden. The official opening of the Manly Vale Park is planned for spring 2010.

The park will be an exciting new community space aimed at bringing children, families and neighbours together to enjoy and learn to live more sustainably. In addition to a playground, is a community garden with a meeting shelter, aptly named 'The Hub', where community workshops will take place on composting, mulching, worm farms, permaculture and plant propagation. The garden will provide a food forest with edible shrubs and trees, community compost bins and a mixture of individual and shared plots. Applications for membership of the community garden are now open.



Manly Vale Community Garden. Source: Warringah Council

Community Based Education and Involvement

Warringah Council has undertaken progress towards a best practice framework for Community Based Education and Involvement by holding learning and development courses in Community Based Social Marketing by Dr Doug McKenzie-Mohr and Thematic Interpretation by Professor Sam Ham. These are both internationally recognised methodologies for creating sustainable behaviour change across communities. Community Based Social Marketing is implemented by firstly building capacity within an organisation and then to foster and build capacity in the community for sustainable behaviour change. Thematic Interpretation teaches us that people forget isolated facts. However, if people feel capable and motivated to process and elaborate on the information presented, they are more likely to internalise themes and messages, such as 'through interpretation, understanding; through understanding, appreciation; through appreciation, protection'. This project will empower community members, schools and local business owners to take responsibility and ownership of specific project actions - in particular how to adopt sustainable behaviour in their communities.

Eco News

Warringah Council publishes a quarterly environmental e-newsletter filled with Council events and activities to protect and celebrate Warringah's local environment. Eco News has just celebrated its second birthday and is received by almost 1000 local residents. Subscription is available via Council's website.

9 Future Directions

The NSW Local Government Amendment (Planning and Reporting) Bill 2009 was assented on 1 October 2009.

As a result of the new legislation a more integrated and holistic planning and reporting framework has been established for councils in NSW. This framework includes a:

- Ten year Community Strategic Plan (visionary document)
- Four year Delivery Program (sets out measures to achieve goals in Community Strategic Plan)
- Annual Operational Plan and Budget (outlines actions to achieve the Delivery Program and Community Strategic Plan).



Kimbriki – Be the Change. Source: Mosman Council.

The implementation of the new planning and reporting requirements will be phased in over three years from 2010 to 2012. Mosman, Warringah and Pittwater Councils are among the first group of councils to implement these changes in 2010, with Manly Council to implement the new system in 2011.

Councils are aiming to integrate sustainability reporting into the new planning system, and therefore this Report will be the last Regional SHOROC SoE Report in this format. From 2010/11 the SHOROC member Councils will integrate SoE reporting into their own individual annual reporting process and community strategic plan review, with regional sustainability reporting being undertaken by Councils and SHOROC based on the Shaping Our Future Strategy and the 'health of the region' indicators.

10 REFERENCES

Aboriginal Heritage Office www.aboriginalheritage.org

Australian Bureau of Statistics, population data www.abs.gov.au

AGL (2007-2008). Total Council Energy Use (kWh) www.agl.com.au/AGLNew/default.htm

Australia International Council of Monuments and Sites (ICOMOS), (1999). The Burra Charter: the Australian ICOMOS Charter for place of Cultural Significance.

Beachwatch Water Quality Data www.environment.nsw.gov.au/beach

Commonwealth of Australia (1996). The National Strategy for the Conservation of Australia's Biological Diversity, Canberra: DEST.

Commonwealth Department of Energy, Water, Heritage and the Arts (DEWHA), (2008) www.environment.gov.au/settlements/transport/fuelguide/environment.html

Department of Environment and Climate Change (2008). Species, populations and ecological communities database www.threatenedspecies.environment.nsw.gov.au

Department of Environment and Water Resources, (2006-2007). National Pollutant Inventory www.npi.gov.au

Energy Australia (2007-2008). Total Council Energy Use (kWh) www.energy.com.au/energy/ea.nsf/Content/NSW+Home

Forecast Id www.forecast.id.com.au

Local Government Act (1993) www.austlii.edu.au/au/legis/nsw/consol_act/lga1993182

National Health and Medical Research Council guidelines for Managing Risks in Recreational Waters (2008), www.environment.nsw.gov.au

Noxious Weeds Act (1993) www.austlii.edu.au/au/legis/nsw/consol_act/nwa1993182

NSW Road and Traffic Authority (2010). NSW Local Government Area Vehicle Registrations, www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/registration/

Shore Regional Organisation of Councils (SHOROC) www.shoroc.nsw.gov.au

Sydney Coastal Councils Group www.sydneycoastalcouncils.com.au

