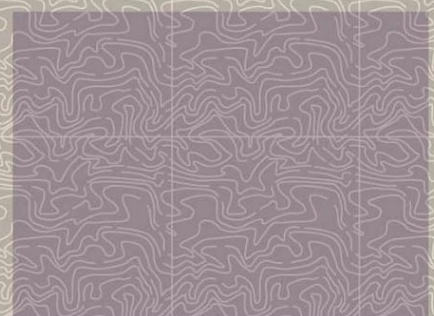
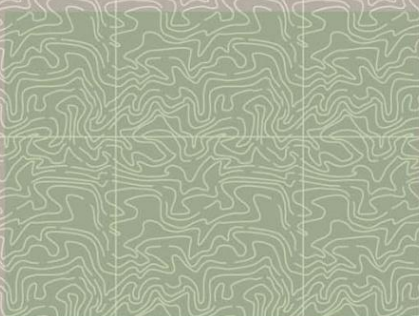
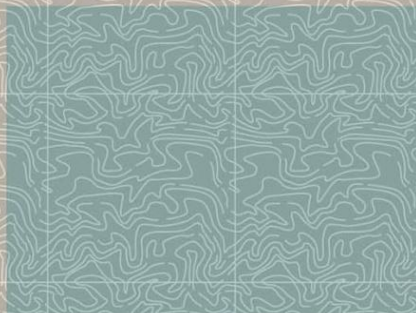
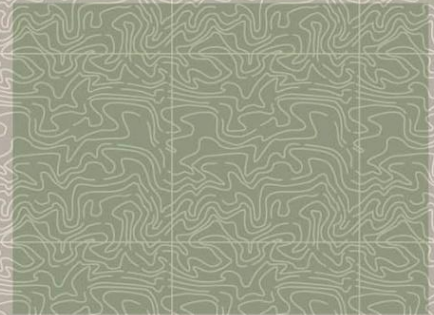
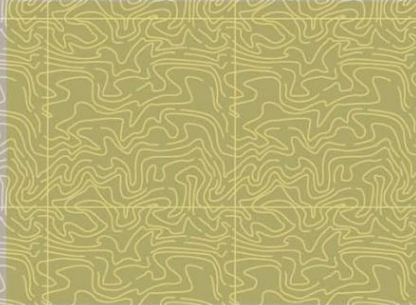


# State of the Environment REPORT 2009







## Executive Summary

A State of the Environment (SoE) Report for the Kiama Municipality is prepared for each financial year as a statutory requirement of the *Local Government Act 1993*. This report is a comprehensive report for the period 1<sup>st</sup> July 2008 – 30<sup>th</sup> June 2009.

Each chapter of the report details the condition of, and pressures on the local environment. It also outlines the current and potential future responses to the identified environmental issues. The report contains a chapter for each of the following environment themes: *Land, Water, Noise, Biodiversity, Waste, Air and Cultural Heritage*. There is also a chapter called *Sustainable Communities*, which includes Headline Sustainability Indicators, measuring progress towards sustainability, and details the actions of Council to protect and enhance environment and promote healthy lifestyles. The final chapter, *Summary of Existing and Potential Future Activities*, provides an outline of all potential strategies that are identified within each theme chapter, placed within the framework of Council's Strategic Goals.

During the 2008/2009 reporting period, Council has undertaken a number of initiatives that address issues identified within the previous SoE Reports, which are summarised below for each environmental theme.

### Land

- Council continued the review of the *Local Environmental Plan 1996*, with the aim of exhibiting the draft *Kiama Local Environment Plan 2009* early 2010.

### Water

- Council's top eleven water using facilities have shown a saving of 10,451 kL in water consumption, when compared to last years' figures. This year's total consumption for the top 11 water using facilities is a 37.7% reduction on the 2002-2003 baseline year. This is a fantastic achievement, and a testament to the positive actions that have been adopted through the *Water Savings Action Plan*.
- Council completed on-ground work on three projects within the Minnamurra Estuary - bank stabilisation work as part of the NSW Estuary Program, stormwater pollutant control and riparian management from a grant obtained through the Southern Rivers Catchment Management Authority and educational signage was installed at Trevethan Reserve Minnamurra River through a grant from the DECCW Estuary Management Program.
- Council continued the implementation of the *Water Saving Action Plan* for its operations, focusing on the high water using facilities. This included the continued employment of data loggers to detect leaks occurring at Council's top eleven water using facilities.
- As part of the Catchment Caretakers Grant, in conjunction with the Southern Rivers Catchment Management Authority, the 'Catchment Chronicles' stormwater education module was delivered to the five primary schools in the Kiama LGA by the Keep Australia Beautiful Waste Watchers team, and Kiama

High School formed a Streamwatch monitoring group. This complements the previously completed parts of the grant including installation of 31 Rapid Stormwater Filtration (RSF) units into stormwater drains in the two target areas of Surf Beach and Jamberoo, and a Continuous Deflective Separation Unit (CDS Unit) was installed in the Surf Beach Catchment.

- In the 2007/08 reporting period, for the fifth consecutive year, households in Kiama used the least water in the Sydney, Blue Mountains and Illawarra Local Government areas. The results for the 2008/09 reporting period are yet to be announced, but with similar consumption figures to the previous year, Kiama is in a good position to take out the title for the sixth year in a row.
- Ongoing educational and participation focused projects including focussing of Clean Up Australia Day 2009 on the Kiama Blowhole point and its surrounds and the Minnamurra River at Trevethan Reserve.
- Council supported the Jamberoo Valley, Kendalls Beach, Lands Edge, Werri Lagoon CVA and Gerringong and Gerroa Streamwatch Water Monitoring Networks. A new Streamwatch group was established with Kiama High School year 8 environmental studies students, through the Catchment Caretakers grant. The students will be sampling 1 site in the Surf Beach catchment.

## **Noise**

- Council continued to address noise pollution under the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations* (Noise Control) 2008.

## **Biodiversity**

- Rehabilitation projects were continued at Spring Creek Wetlands, Bonaira Native Gardens and Jerrara Dam.
- The Roadside Vegetation Management Plan is continuing to be implemented. The primary objective of the plan is to protect the good quality remnant vegetation and to identify areas for revegetation and corridor enhancement.
- Educational signage at Minnamurra wetlands was installed at Trevethan Reserve, funded by a DECCW Estuary Management Program grant.
- Local Weed Control Programs for private landholders and government agencies have continued to be given high priority with 119 property inspections being undertaken over the past 12 months within the Kiama LGA.
- All Council lands previously known to be infested with Class 2 weeds<sup>^</sup> were inspected at least twice by 30<sup>th</sup> April 2009. No Class 2 weeds were recorded on Council owned lands over the past 12 months.
- All Council lands with infestations of Class 3 weeds were inspected and treated by 30<sup>th</sup> June 2009.

- All Bitou bush on Council controlled lands was inspected and treated by 30<sup>th</sup> October 2008, all known Gorse, Serrated tussock and Giant Parramatta grass were inspected and treated twice by 30<sup>th</sup> June 2009.
- Known St. Johns Wort and African lovegrass infestations were treated by 30<sup>th</sup> November 2008.
- Vacant Crown Land funding of \$510.00 was received to undertake weed control work at Walkers Beach cliff line reserves.
- The two major water catchments, namely Crooked River and Minnamurra River, were inspected along their length to ensure no new (aquatic) weed incursions.
- As part of the Illawarra Biodiversity & Local Food Strategy for Climate Change a regional Biodiversity Strategy and the mapping of wildlife corridors will be undertaken scheduled for completion in 2010.
- The South Coast Communities Sea Spurge Control Project (SCCSSC), administered through the Southern Council's Group was implemented, aiming to establish a northern control line against the encroachment of Sea Spurge (*Euphorbia paralias*)

## **Waste**

- During the 2008/2009 reporting period 11,142.84 tonnes of waste was collected or received for disposal. Of this, 56.48% (6,292.94 tonnes) was reused or recycled. This is a decrease of 3.14% (367.39 tonnes) from the previous 2007/2008 figures. For the same reporting period the number of new domestic and rural collection services increased by 1.22% (102 new services-84 urban and 18 rural).
- From July 2008 – June 2009 a total of 2,259.76 tonnes was recovered from green waste kerbside collection; a decrease of 0.7% (16.06 tonnes) to previous year's results.
- Council supported the Annual Clean Up Australia Day focusing on Minnamurra River at Trevethan Reserve, Schools Clean Up Australia Day and 13 Council staff participated in Business Clean Up Day, cleaning up the surrounding areas of Council's Administration Building, Black Beach and Blowhole Point.
- In September 2008, Council partnered with Windang Dive and Spearfishing Association as part of Project Aware's International Diver Clean up day. A total of 0.19 tonnes of waste was collected on the day.
- Throughout 2008/09, five composting, wormfarming and Bokashi bucket workshops were conducted for residents, with a total of 115 participants attending. Council continues to offer the Bokashi bucket as another form of home composting at the subsidised rate of \$70 per starter kit. As an added incentive composting workshop attendees are now entitled to receive a free

compost bin or the Bokashi bucket starter kit at a reduced price of \$30. As of 30<sup>th</sup> June 2009, 225 Bokashi buckets have been sold.

- A survey of all residents who had purchased a Bokashi bucket starter kit was completed in October 2008. The purpose of the survey was to ascertain the success of the composting system within the residential home, and to determine if Council would continue subsidising the product. Of the 43 surveys returned, 90% of respondents would recommend the system to others.
- Council supported the Return of Unwanted Medicines campaign, Planet Ark's 'Cartridges 4 Planet Ark' and Clean Up Australia's Mobile Phone campaign. 'Cartridges 4 Planet Ark' program implemented at Council's administration building has seen a total of 113.5kg of cartridges diverted from landfill from July 2008-June 2009.
- Due to the success of the Second Hand Saturday trial event in the 2007/08 reporting period, Council has made the event a permanent fixture on the Waste and Recycling Calendar. Two events are to be held every year in conjunction with Council's bi-annual area clean up. Three Second Hand Saturday events were held in the 2008/09 reporting period. (see Chapter 6 Waste for more details).
- Continuation of the "Responsible Waste Kits" program aimed at holiday rental accommodation properties. Council liaises with local Real Estate Agents who provide lists of holiday accommodation rental properties (approx. total of 175 properties) that they manage, to keep up to date with the distribution of Responsible Waste Kits for new listings. Kits include, waste calendars, bin stickers, "No Junk Mail" stickers, key rings and magnetised recycling posters for fridges.
- Continuation of Agsafe Limited's drumMuster program at the Minnamurra Recycling Depot saw 610 drums collected in the reporting period.
- Kiama Council is involved with the regional Sustainable Illawarra Project funded through the NSW Environmental Trust. Kiama Council conducted two Op Shop tours as part of the waste activities for the project in the 2008/09 reporting period.
- Council participated in the regional car littering program "Littering from Vehicles – Summer Blitz", between December 2008 and February 2009. This was a DECCW funded program which targeted litter hot spots.
- As part of Council's Section 88 requirement, a waste audit was conducted in October 2008 on a random sample of mobile garbage bins and the kerbside urban tenements. See chapter 6 Waste for details of the audit.

## **Air**

- Council completed Milestone 3 of the Cities for Climate Protection<sup>TM</sup> Program – *The Greenhouse Local Action Plan for Kiama Municipality*. This plan sets

Emissions Reduction Goals for both Council operations and the community and was adopted by Council.

- Council has adopted a *No Burn* Policy within the Kiama Municipality. Under Part 2, Schedule 8 of the Protection of the Environment Operations (Clean Air) regulation 2002, and through authority delegated by the Department of Environment, Climate Change & Water (DECCW), Kiama Council is required to regulate outdoor burning in the Municipality. A total of 133 permits to create smoke pollution were issued during the reporting period.
- An education program was undertaken to encourage the uptake of more 4 cylinder cars by Council staff. Approximately 45% of Council's motor vehicle fleet is now comprised of 4 cylinder vehicles, and 90% of the commercial vehicles are now diesel. Council changed all trucks and plant to B20 Biodiesel, and continued to embrace the usage of E10 fuel in the Council fleet vehicles.

### **Heritage**

- The Kiama Heritage Review process was subsequently incorporated in the Kiama Local Environmental Plan Review process that commenced in 2004. The Minister for Planning has now implemented standard heritage provisions in the Standard LEP on which all new LEPs will be modelled. Council will list proposed heritage items in Schedule 5 of the draft Kiama LEP 2009 when it is exhibited for public submissions.
- Council engaged a new consultant, Truman Zaniol & Associates, to review the *Kiama Heritage Review* recommendations and recommend those items that should be included in Schedule 5 of the draft Kiama LEP 2009. The draft LEP is awaiting the approval of the Department of Planning and it is hoped that it will be exhibited for public submissions early 2010.

### **Sustainable Communities**

- Beach water quality was excellent with Jones, Bombo, Surf and Werri Beach showing 100% compliance with the relevant guidelines.
- River and Estuary Water Quality, was not monitored by Council during this reporting period.
- Waste to landfill per capita has increased slightly but this is partially due to new dwellings being established and the redevelopment of existing allotments into multi unit developments. Waste production per capita continues to be well within the sustainable zone.
- The Regional Air Quality Index (RAQI), exceeded a count of 100 on fourteen occasions, an increase of ten on the previous reporting period.
- The Black Beach Hindmarsh Park Stormwater Reuse Scheme was completed during the reporting period, as part of the NSW Environmental Trust funded Sustainable Illawarra Project. This involved the installation of a 280,000 litre

capacity underground water tank that is being used to irrigate the Black Beach and Hindmarsh Park Reserves.

- Six community projects were funded by Council's Sustainable Living Grants Program, addressing environmental, health and/or waste minimisation issues.
- Kiama Council's Environment and Health Team celebrated World Environment Day 2009, the theme of which was *Your Planet Needs you - UNite to Combat Climate Change*. The day was celebrated with a Second Hand Saturday waste avoidance event, Producer's Brunch, Council information tent, 'living books' library and community group stalls.
- Planning and implementation continued on the four Urban Sustainability Grants obtained from the NSW Environmental Trust. These grants support and promote sustainable living practices on both a united regional scale and at a local municipal level. These included the Sustainable Illawarra Project, Business Treading Lightly, the Illawarra Biodiversity and Local Food Strategy for Climate Change and Sustainable Kiama Communities Grants.
- Workshops, events, and programs relating to sustainability were conducted by the grant funded Sustainable Illawarra Project and the Sustainable Kiama Communities Project.
- A New Residents Kit was developed to provide new and prospective residents with information on services and facilities in the local area.
- The Illawarra Sustainability Roadmap project, part of the Sustainable Illawarra Grant, was completed during the reporting period. This regional project, in conjunction with Shellharbour and Wollongong Councils, targets organisational sustainability across all areas of Council's operations. The Action Plan component of the Roadmap, which develops indicators and targets was also completed during the reporting period.
- The Local Adaption Pathways Program provided regional grant funding which enabled Kiama Council to develop a Climate Change Adaptation Strategy and Action Plan. The Action Plan and Adaptation Strategy were close to being finalised at the end of the reporting period.
- The Kiama Public Health Plan was implemented and is currently under review.



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## **Chapter 1: Introduction**

### **1.1 Kiama Municipality**

The Municipality of Kiama is located on the south coast of New South Wales bordered by the Local Government Areas of Shellharbour, Shoalhaven and Wingecarribee. The area has a diverse range of physical environments, including beaches, rainforests and rural landscapes that attract a large tourist base each year. The Kiama Municipality is shown in Map 1.

The Australian Bureau of Statistics indicated that the estimated resident population figure for the Kiama Municipality at 30<sup>th</sup> June 2008, was 20,258 people. It is estimated that the population will increase to 21,384 in 2009 and 23,380 in 2021. Although there has been a constant increase in population in the area in the past, the percentage of population growth has declined over the last 20 years, with only 5.01% growth between 1996 and 2006 (Australian Bureau of Statistics, 2009).

### **1.2 Relevant Council Strategic Goals**

Kiama Municipal Council's *Management Plan 2009-2012* (Kiama Municipal Council, 2009) outlines Council's Strategic Goals, in the following six areas: Sustainable Environment; Quality Facilities, Services and Infrastructure; Community Cohesion and Wellbeing; A Vibrant and Diverse Economy; Good Governance; and Sound Financial and Resource Management. The specific goals for Sustainable Environment and Community Cohesion and Wellbeing are outlined due to their particular relevance to this report.

#### *Sustainable Environment*

Council's goal is that "*Kiama will have high quality natural, rural, town and village environments and landscapes sustained and enhanced for the present and the future*".

Kiama Municipal Council will:

- Protect, enhance, manage and monitor the area's landscapes, places of heritage significance, and natural environments;
- Control and plan development of our built environment for the wellbeing of the community;
- Manage and reduce the environmental impacts of all activities on air, water and land systems;
- Promote environmental awareness through educational programs; and
- Provide leadership by demonstrating environmental excellence in all Council activities and policies.

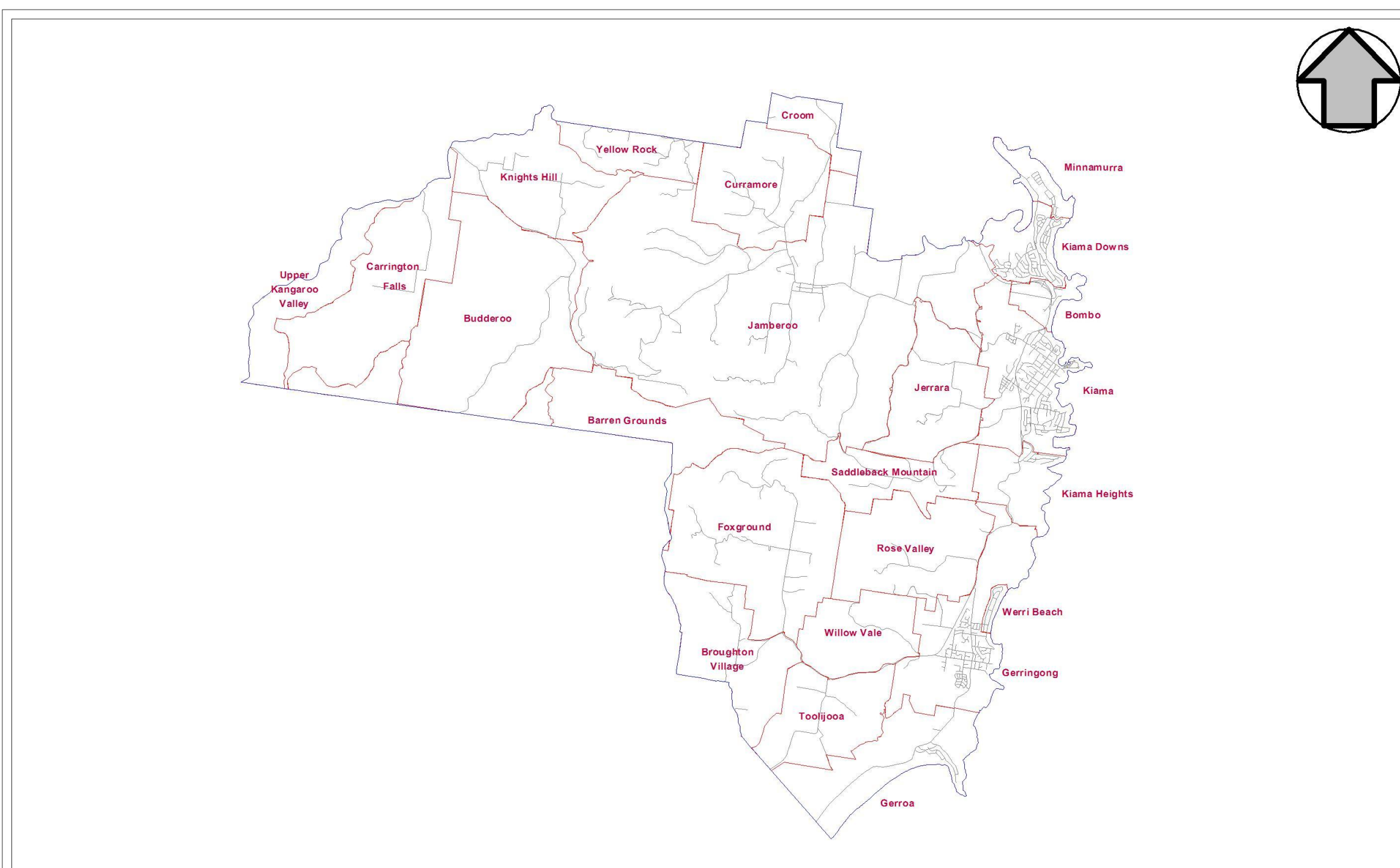


### *Community Cohesion and Wellbeing*

Council's goal is that the *“community will have an enhanced quality of life and that it will have promoted access, equity and social justice”*.

Kiama Municipal Council will:

- Contribute to the health, safety and well being of the community;
- Involve the community and relevant stakeholders to plan, develop and facilitate access to services and resources;
- Promote awareness and understanding of cultural diversity;
- Recognise and support the value of cultural heritage; and
- Value and promote creativity in the community.



**KIAMA LGA**

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Map 1: Kiama Local Government Area



### **1.3 State of the Environment Reporting**

A State of the Environment Report for the Kiama Municipality is prepared for each financial year as a statutory requirement of the *Local Government Act 1993*. The report details the condition of, and pressures on the local environment and outlines the current and potential future responses to the identified issues. A comprehensive report is prepared every four (4) years, within 12 months of the election of any new Council. Supplementary reports are prepared for the other years, to update the information provided in the previous comprehensive report. This report is a comprehensive report for the period 1<sup>st</sup> July 2008 – 30<sup>th</sup> June 2009.

The broad aims and objectives of the State of the Environment Report are to:

- Educate and inform the community, Council, Government and industry about the condition of our environment;
- Assess the progress towards achieving environmental goals and standards;
- Assess the progress towards achieving ecologically sustainable development; and
- Identify important environmental issues.

This report includes chapters which addresses each of the following environmental themes, as required by the *Local Government Act 1993*:

- Land;
- Water;
- Noise;
- Biodiversity;
- Waste;
- Air; and
- Heritage (Aboriginal and Non-Aboriginal)

Each of these theme chapters contains four (4) sections:

- State - outlines the condition of the environmental theme;
- Pressures - outlines the human and natural pressures on the environmental theme;
- Responses - includes the relevant local actions of Council, other levels of Government and the community, that address the environmental theme; and

- Potential Future Activities - identifies possible actions that Council could undertake to address the identified issues.

*Chapter 9: Sustainable Communities* includes Headline Sustainability Indicators, to measure the progress towards sustainability, and details the current strategies of Council to address sustainability within the Municipality, including both strategies to protect the environment and promote healthy communities. It also includes details on those activities and programs that cover a range of themes and are consequently not included in a single theme chapter.

*Chapter 10: Summary of Existing and Potential Future Activities.* This Chapter provides a summary of existing and future activities identified in the Management Plan 2009-2012 and potential future activities. These activities are also listed at the end of each relevant theme chapter. The potential future activities are outlined according to the relevant Council Strategic Goals to enable simple insertion into Council's Management Plan 2009-2012.

This report can be read in conjunction with previous Kiama Municipal Council *State of the Environment Reports*, the *New South Wales State of the Environment Report 2006* (Department of Environment and Conservation, 2006) and the *Australian State of the Environment Report 2006* (Environment Australia, 2006).



## Chapter 2: Land

### 2.1 State

#### 2.1.1 Land-Use Planning

The existing Kiama *Local Environmental Plan* (LEP) 1996 is the main instrument used by council for land-use planning and development decisions. The LEP is currently being reviewed, with the aim of exhibiting the draft Kiama LEP in 2010. The LEP provides land use zones that indicate what is permitted or restricted within certain areas of land and what conditions apply. Table 1 lists the zones and the area of land to which they apply.

Table 1: Local Environmental Plan 1996 Zones

<b>Zone</b>	<b>Area in hectares (% of total area)</b>
<b>Rural</b>	<b>8560.3 (33.2)</b>
1a Rural A	8560.3
<b>Residential</b>	<b>789.4 (3.06)</b>
2a Residential A	727.2
Residential Land subject to Sydney Water	26.4
2b Residential B	35.8
<b>Business</b>	<b>31.7 (0.12)</b>
3a General Business	23.3
3b Special Business (Heritage)	2.3
3c Neighbourhood Business	2.0
3d Business (Tourist related)	4.2
<b>Industrial</b>	<b>105.0 (0.41)</b>
4b Extractive Industrial	83.0
4c Light Industrial	22.1
<b>Special Uses</b>	<b>150.0 (0.58)</b>
5a Special Uses	53.0
5b Special Uses (railways etc.)	97.0
<b>Recreation</b>	<b>387.1(1.50)</b>
6a Existing Recreation	357.8611
6b Private Recreation	29.2
6c Proposed Recreation	0.1
<b>Rural Environmental Protection</b>	<b>10495.3 (40.7)</b>
7b Rural Environmental Protection Zone – Estuarine Wetlands	361.2
7b1 Rural Environmental Protection Zone – Wetlands Buffer	13.5
7d Rural Environmental Protection Zone – Scenic	1309.9
7e Rural Environmental Protection Zone – Hinterland	8524.1
7f Rural Environmental Protection Zone –Foreshore Protection	265.9
7l Rural Environmental Protection Zone - General	20.8
<b>National Park</b>	<b>4931.7 (19.1)</b>
8a National Parks	4931.7
<b>Roads</b>	<b>209.9 (0.81)</b>
9a Proposed Arterial Road	9.2
Arterial Road	200.7
<b>Deferred</b>	<b>97.4 (0.38)</b>
Deferred Zone	97.4
<b>Total</b>	<b>25758.1 (100)</b>

Environmental Protection Zones are designed to manage and protect environmental assets such as scenic areas, foreshores and wetlands, and these zones carry certain development restrictions.

An additional overlay as part of the LEP 1996 is the areas classified as High Conservation Value. The LEP describes the objectives of such areas and what is permissible within the HCV zone. High Conservation Value areas occur over approximately **26%** of the Municipality.

There are three National Parks/Nature Reserves within the Municipality, namely Seven Mile Beach National Park, Budderoo National Park and Barren Grounds Nature Reserve.

## **2.2 Pressures**

### **2.2.1 Development**

Figure 1 shows the number of development approvals that Council granted for residential dwellings and for commercial and industrial activities from 1999-2009.

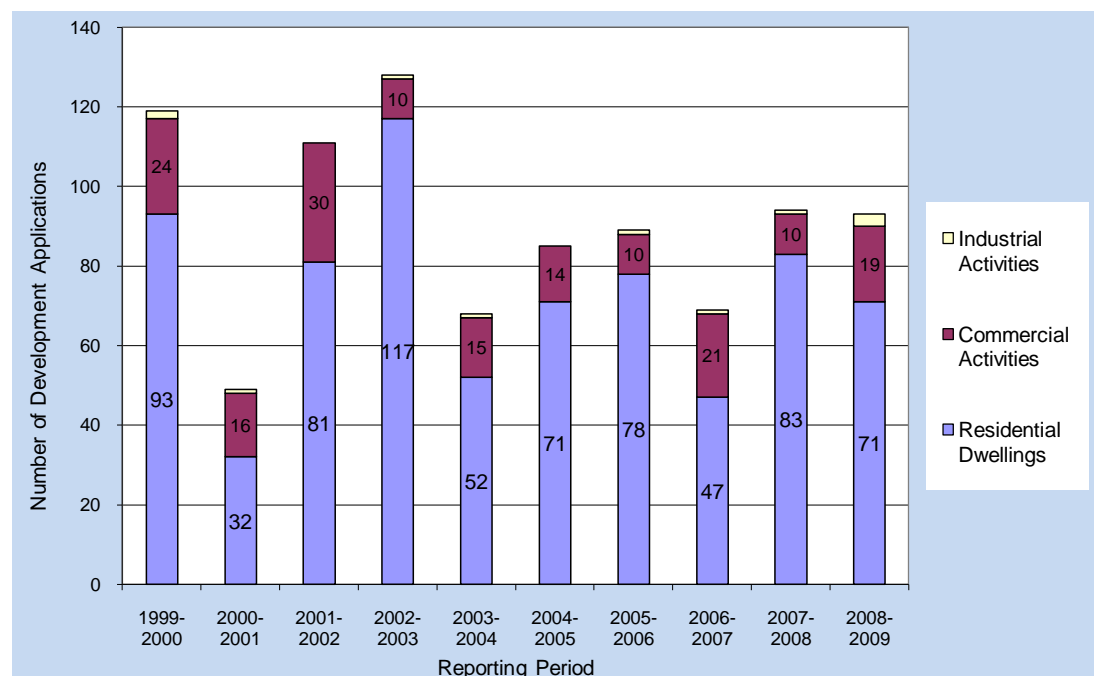
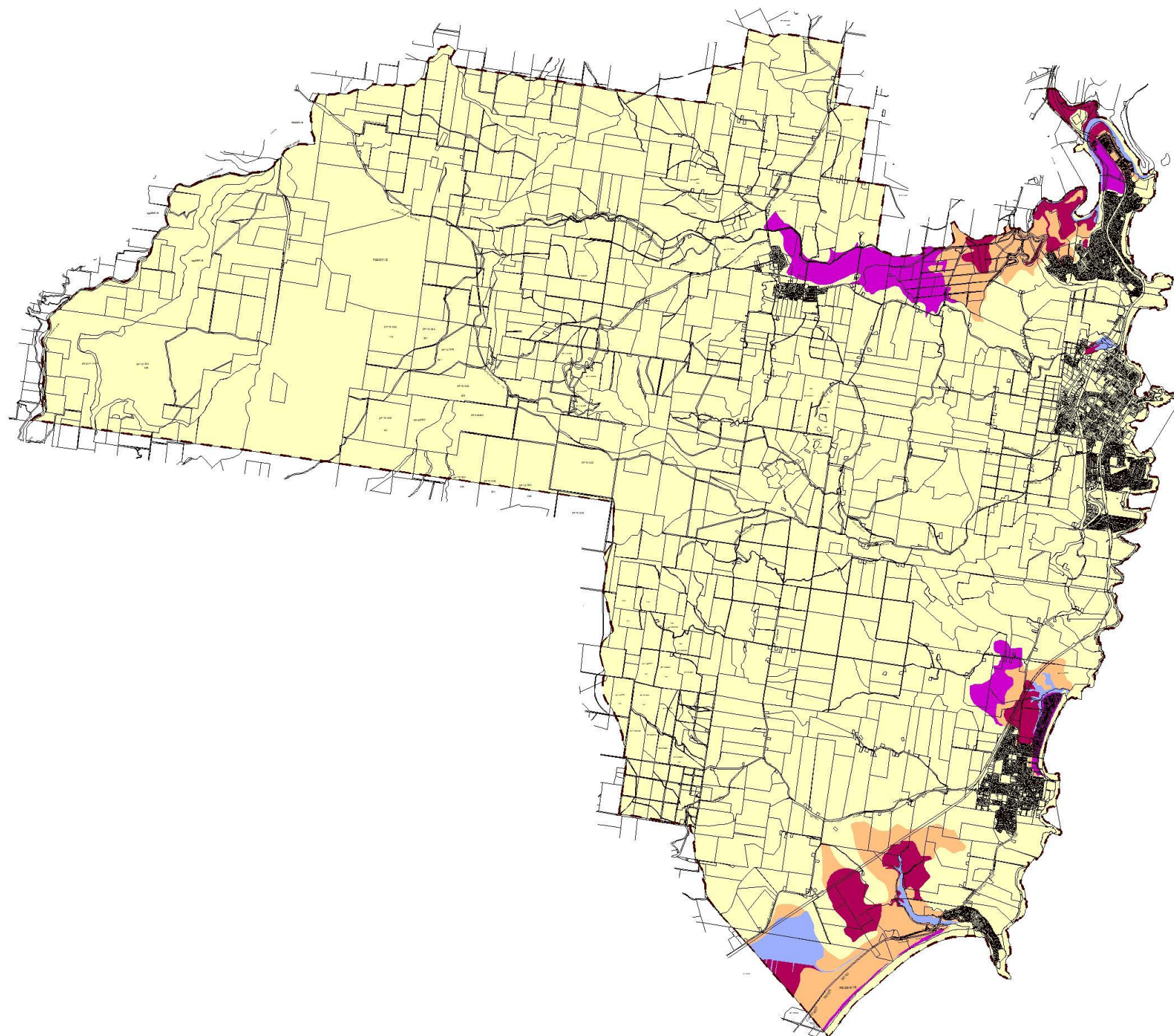


Figure 1: Development Approvals for Residential Dwellings, Commercial and Industrial Activities

### **2.2.2 Acid Sulfate Soils**

A number of locations in the Kiama Municipality have been identified and mapped by the NSW Government as potential acid sulfate soil prone area. Disturbance or exposure of acid sulfate soil can occur as a result of excavation or drainage. Such soils are a major constraint to any activity or development that involves disturbance of the soil. Potential acid sulphate soils may be found around Minnamurra River and Floodplain, Spring Creek Wetland area, Werri Lagoon and Ooaree Creek Floodplain, Crooked River and Blue Angle Creek (including wetland areas), as shown in Map 2.



Environmental Planning & Assessment Act,  
1979



**Kiama Local Environmental  
Plan 1996**  
As Amended by Amendment No. 61

Statement of relationship with other plans:

This map identifies acid sulfate soils identified in Amendment  
No 27 that also inserted clause 66 in the plan.

This map is based on information provided by D.U.A.P.

- Class 1
- Class 2
- Class 3
- Class 4
- Class 5



0 1 2 3  
Kilometres

This map is a colour representation of maps referred to in Kiama Local  
Environment Plan 1996 prepared under the Environmental Planning and  
Assessment Act, 1979 and regulations as made by the Minister on 19th  
July 1996. This map incorporates all amendments to the plan including  
amendments effected by Amendment 61.

Whilst all effort has been made to ensure the accuracy of information  
the Dept. of Lands and the Council of the Municipality of Kiama take  
no responsibility for any errors.

The document provided can not substitute for a survey report from a  
registered surveyor or a search against title to property at the Land  
Titles Office.

Base map supplied by Land & Property Information NSW & Copyright  
The Council of the Municipality of Kiama.

Custom scaled versions of this map are available from Kiama Municipal  
Council.

Amendment No 61 was published in the NSW Government Gazette  
No. 159 on 19 December 2008. This map was effective from that date.

The cadastral detail shown on the map was current as of Date 26/11/09

Map 2: Potential Acid Sulfate Soils



### **2.2.3 Contaminated Land**

When land that has previously been used for industrial, commercial or rural purposes is reclaimed for more sensitive uses, such as housing, there is the risk that the land may be contaminated. The degree to which the land has been contaminated as a result of the former activity must be determined and any necessary remediation should be carried out. A list of activities that have the potential to cause land contamination can be found in Council's *Development Control Plan No. 37 – Contaminated Land*.

Amendments to the *Contaminated Land Management Act 2008* will commence on 1<sup>st</sup> July 2009. These changes prescribe certain matters to be included in section 149 (2) planning certificates, and have revised Department of Environment, Climate Change & Water Guidelines on the duty to report contamination and significantly contaminated land, as specified under this Act.

## **2.3 Responses**

### **2.3.1 Land Use Planning Initiatives**

Work continued on the Kiama Local Environmental Plan (LEP) Review project during the year, with the aim of exhibiting the draft Kiama LEP by early 2010.

The project has been significantly delayed by planning system reforms and in particular by amendments implemented by the Minister for Planning to the Standard LEP template in January 2008. The Standard LEP affects the format and content of all new LEPs.

The draft Kiama LEP has been re-written to respond to:

- the changes required by the revised Standard LEP template; and
- submissions received from government agencies and public authorities on the preliminary draft LEP distributed for comment in October 2007.

The revised draft LEP is expected to be submitted for Council's approval in 2010. After Council's approval, the draft plan must then be approved by the Department of Planning before it is exhibited for public comment.

The draft LEP process from here involves the following steps:

- Council's approval of the draft LEP;
- The review and approval of the draft LEP by the Department of Planning;
- The issue of Section 65 Certificate by the Department of Planning to enable public exhibition;
- Exhibition of the draft LEP;
- Consideration of submissions by Council and amendments as appropriate; and



- Submittal of the draft LEP to the Department of Planning for consideration and approval by the Minister for Planning.

The timing of the exhibition of the draft LEP will be conditional upon the timing of the issue of the Section 65 Certificate.

No Development Control Plans or other planning policies were developed or adopted during the period. The strategic planning project priority was directed to the review of the Kiama LEP.

### **2.3.2 Illawarra Regional Strategy**

The Department of Planning has adopted the *Illawarra Regional Strategy*, outlining the region's new housing, employment growth, natural resources and cultural heritage over the next 25 years. The Strategy includes actions to address the natural environment, natural hazards, water, energy and waste, rural landscape and rural communities and cultural heritage.

The following outlines some example actions that Council is taking, within these priority areas.

The Natural Environment:

- conservation of *Melaleuca amillaris* (Tall Shrubland) in the Shellharbour/Kiama hard rock resource area;
- offsetting the loss of native vegetation;
- identification of significant aquatic habitat and riparian buffers to be included in LEPs;
- incorporation of water sensitive urban design principles in developments;
- incorporation of the *Strategic Assessment of Riparian Corridors* into planning; and
- zoning of *SEPP 14 Coastal Wetlands* and *SEPP 26 Littoral Rainforests* areas as environmental conservation.

Natural Hazards:

- Councils to conduct flood investigations with regard to the risks of climate change and prepare *Floodplain Management Plans*. Flood Management planning will be undertaken over a three year period commencing 2010/2011, subject to availability of grant funds; and
- LEPs to make provision for adequate setbacks in areas of coastal-erosion risk and ocean-based inundation in accordance with *Coastal Zone Management Plans*. Coastal Management planning will commence in the 2012/2013 financial year, subject to grant funding.

#### Water, Energy and Waste:

- Council to identify and zone land for wastewater treatment/recycling, energy, waste avoidance and resource recovery infrastructure;
- Council will encourage reduction in demand for potable water in new subdivisions and encourage water and energy conservation measures in new commercial and industrial developments;
- Locally generated and/or renewable energy projects will be supported; and
- Council has implemented their Waste DCP which encourages waste avoidance and resource recovery in demolition and building work.

#### Rural Landscape and Rural Communities:

- No new residential or rural residential zones will be supported on rural land unless part of an agreed structure plan or settlement strategy; and
- Location of non-compatible uses in core productive agricultural areas shall be limited.

#### Cultural Heritage:

- statutory heritage lists have been reviewed;
- The Draft LEP will include provisions to protect the cultural heritage items within towns and villages and adjoining cultural; and
- Council will review adequacy of cultural heritage studies with local Aboriginal representatives and the DECCW when preparing new LEPs for green fields residential estates.

The Strategy identifies indicative habitat corridors that could potentially be enhanced, including a Regional Corridor based on the Department of Environment and Conservation's *Illawarra Escarpment Plan* (Department of Planning, 2006).

Kiama Municipal Council recommended in a submission to the Department of Planning that this corridor should be modified to incorporate an extension of the regional habitat corridor following the escarpment through the Shellharbour and Kiama Local Government areas and extending into the Shoalhaven Local Government area. In addition, Council has recommended that a second indicative habitat corridor should also be considered along the Minnamurra River Valley and its wetland. It was suggested that a more thorough study on regional climate change impacts should be prepared for inclusion in the first 5 year review of the Illawarra Regional Strategy, using the Kiama Region's report prepared for Kiama Council by the CSIRO in 2005, as a guide (see Chapter 7: Air for more information on this report).

During the reporting period, Council has commenced preparation of an Illawarra Biodiversity Strategy, in partnership with Wollongong and Shellharbour City Council's. Development of the Biodiversity Strategy has been funded by the NSW Environmental Trust's Urban Sustainability Program, as a part of the Illawarra Biodiversity and Local Food Strategy for Climate Change Project. (For more information see section 9.2.1)

### **2.3.3 BASIX – The Building Sustainability Index**

The Building Sustainability Index (BASIX) was developed by the Department of Planning, and is a web-based planning tool for Councils and proponents of residential dwellings to assess the potential performance of their development against a set of sustainability indices, currently including energy conservation and water conservation.

Since 1<sup>st</sup> October 2005, BASIX has applied to all new dwellings, meaning that development applications for new dwellings in the Kiama Municipality require the submission of a BASIX certificate. From 1<sup>st</sup> October 2006, BASIX was also applied to residential alterations and additions valued at \$100,000 or more (from 1<sup>st</sup> July 2007, the value dropped to \$50,000) and where a swimming pool (or pool and spa) with a capacity greater than 40,000 litres is being installed (NSW Department of Planning - a). A required target must be achieved for water conservation and energy conservation. The water conservation target is 40 and the energy conservation target was previously 25, but from 1<sup>st</sup> July 2006, the energy target varied according to type and location of the dwelling. In the Kiama Municipality, it increased to 40 for detached and semi-detached buildings (and less for buildings with 3 or more stories) (NSW Department of Planning - b). These ratings can be achieved through design choices such as:

- Rainwater tanks connected to toilet, laundry and/or garden irrigation systems;
- 3A -5A rated showerheads, toilets, taps & fittings;
- Floor and ceiling insulation;
- Using compact fluorescent light globes;
- Native vegetation to landscape areas;
- Shading to windows;
- Solar, heat pump or high efficiency gas hot water systems;
- Appropriate aspect for suitable solar access;
- Alternative energy systems such as photovoltaic;
- Performance glazing to large glazed areas / poorly oriented areas;

- Ceiling fans, evaporative coolers or high efficiency air conditioning; and
- Efficient pool pumps.

In the 2008/2009 reporting period, 108 BASIX certificates were issued in the Kiama Municipality.

### 2.3.4 Acid Sulfate Soils

The Kiama LEP 1996 addresses acid sulfate soils, with a requirement that certain types of development within acid sulfate soils prone areas require development consent. A soils assessment and preparation of a management plan is also required.

There were **no** development applications within acid sulfate soil areas identified within the LEP amendment during the last six reporting periods (there was one during 2001/2002).

### 2.3.5 Erosion and Sedimentation

Council places conditions on development approvals to ensure measures are taken to minimise erosion and sedimentation. Council's Environmental Health Officers and Ranger Services Officers investigate complaints received relating to erosion and sedimentation. Clean Up Notices, Prevention Notices or Penalty Infringement Notices for water pollution offences may be issued by these officers under the *Protection of the Environment Operations Act 1997*. Table 2 shows the history of sediment control cautions issued by Kiama Council since 2001/2002.

Table 2: Kiama Council Sediment Control Cautions 2001-2009

	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2008/ 2009	2009/ 2010
Sediment Control cautions (KMC)	3	2	4	2	3	2	0	0

### 2.3.6 Contaminated Land

All land that is likely to have a significant risk of harm to the environment and human health must be registered with the NSW Department of Environment, Climate Change & Water.

All development applications and re-zonings must consider whether the land in question has been subject to a potentially contaminating activity, in accordance with *Development Control Plan No. 37 – Contaminated Land*. If after investigation, it is found that the land is contaminated, it must be remediated prior to further development.

Council also places conditions on development approvals to ensure measures are taken to minimise the likelihood of contamination from potentially contaminating activities.

Council's Environmental Health Officer and Ranger Services Officers also investigate complaints received relating potentially contaminating activities and may issue Prevention Notices or Penalty Infringement Notices under the *Protection of the Environment Operations Act 1997*.

Council has adopted and is implementing a Pesticides Notification Plan (PNP) that was prepared in accordance with the requirements of the Pesticides Amendment (Notification) Regulation 2005.

The aim of the PNP is to meet the community's general right to know about pesticide applications made to public places. The PNP allows members of the community to take action to avoid contact with pesticides, if they wish. The PNP also ensures that pesticide application at public places is undertaken in a safe, responsible manner, without harm to the community or the environment.

The Pesticides Notification Plan applies to public reserves, parks and gardens, playgrounds, sporting fields and ovals, road verges, laneways and pathways, drains and easements, golf courses (owned or controlled by Council), Caravan/Holiday Parks, cemeteries and swimming pool grounds.

### **2.3.7 Contaminated Land Management**

During the reporting period, site investigations continued for the development of a rehabilitation plan for the former Gasworks site in Shoalhaven Street, Kiama. This information was submitted to the Department of Environment, Climate Change and Water for consideration and future action.

### **2.3.8 Council Plans of Management**

During the reporting period Council completed:

- a Draft Plan of Management for the Kiama Coastal walking track;
- Union Creek Plan of Management; and
- Cemetery Management Guidelines

## **2.4 Potential Future Activities**

### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received;
- *Protection of the Environment Operations Act* implementation;
- Prepare and review Plans of Management for the following reserves: Nobles Estate- Warri Headland, Cedar Grove Estate, Turpentine Reserve, West Kiama Reserves;

- Continue the development of educational reserve sites at Spring Creek Wetlands, Jerrara Dam Arboretum, and Bonaira Native Gardens;
- Exhibit and adopt Kiama Local Environmental Plan for urban and rural lands (Department of Planning rejected the Draft Kiama LEP 2007 and required significant amendments which are being prepared);
- Monitor implementation of Kiama LEP;
- Prepare amending LEP's as resolved by Council in accordance with Department of Planning (DOP) guidelines and timelines;
- Prepare, exhibit and adopt a single *Development Control Plan* for the Local Government Area;
- Monitor implementation of area wide *Development Control Plan* (DCP) and recommend changes as appropriate to Council;
- Assess all Council works activities under Part 4 and Part 5 of the EP & A Act as required;
- Complete and adopt a rehabilitation plan on advice from DECCW (Council has completed the site investigation for the Gasworks site in Shoalhaven St, Kiama. Council is awaiting advice from the DECCW as to whether a rehabilitation plan is required);
- Implement the *Pesticide Notification Plan* (2009/2010 and 2010/2011) (H, M & L as per Plan timeframes).

#### Potential Future Activities Beyond 2009-2010

(H – High Priority, M - Medium Priority, L – Low Priority)

- Ongoing implementation of the *Pesticide Notification Plan* (H);
- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- *Protection of the Environment Operations Act* implementation (H);
- Prepare and review Plans of Management for Neighbourhood parks, Baileys Island and Willow Gully (H);
- Progressive implementation of actions identified in Plans of Management subject to funding (H);
- Monitor implementation of area wide Development Control Plans for the Kiama Municipality and recommend changes as appropriate (H);

- Assess all Council works activities under Part 4 and Part 5 of the EP and A Act as required (H);
- Progress exhibition of Kiama Local Environmental Plan 2009 (H).



## **Chapter 3: Water**

### **3.1 State**

The Kiama Municipality has a number of river and creek systems that are part of large catchments, such as the Macquarie Rivulet, Minnamurra River, Werri Lagoon, Crooked River and Shoalhaven River catchments, as well as numerous small streams draining directly to the ocean. These rivers and catchments are shown on Map 3.

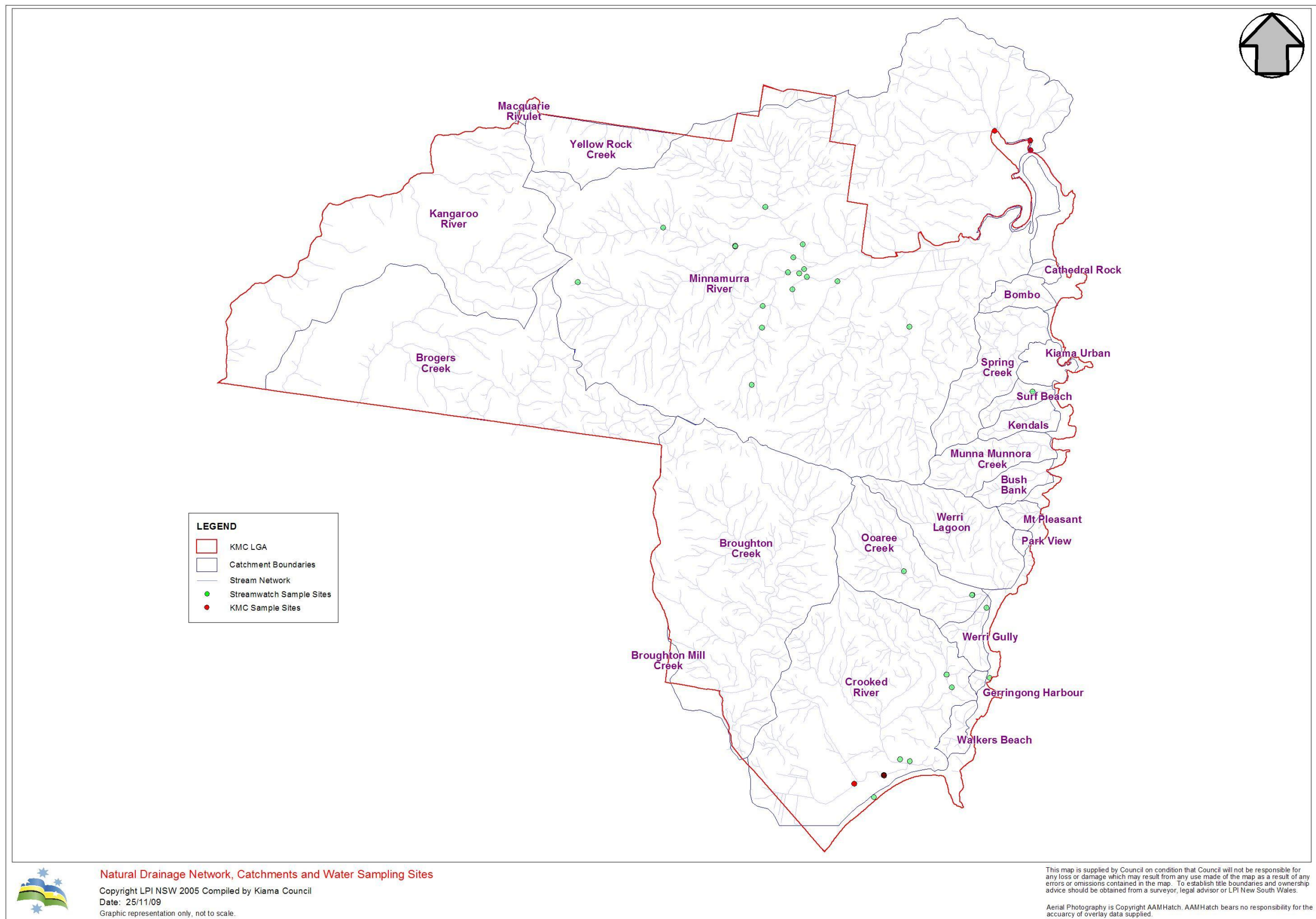
#### **3.1.1 Monitoring at Council Waste Disposal Depots**

Council undertakes quarterly groundwater and surface water monitoring in and around its Waste Disposal Depot at Minnamurra and at the site of the former Gerroa Waste Disposal Depot which is currently being remediated. This monitoring is being conducted in accordance with NSW Department of Environment, Climate Change & Water, licence requirements. The aim of this monitoring is to identify any impacts that the facilities may have on the surrounding waterways so that remediation can be undertaken if necessary.

#### **3.1.2 Sydney Water Streamwatch Water Monitoring**

Landcare Illawarra, Sydney Water Streamwatch and Council have formed a partnership to involve residents in water testing in the many catchments in the Kiama Municipality. There are over 30 participants, from 5 separate networks, including the Jamberoo Valley, Kendall's Beach, Lands Edge, Gerringong – Gerroa, and Werri Lagoon Streamwatch Water Monitoring Networks. There is also a newly formed Kiama High School Streamwatch group involving year 8 environmental study students, funded through the Catchment Caretakers grant. Testing was undertaken at 19 different sites during 2008/2009. The data collected by these groups has a summary of results presented in Table 3. The sampling sites are shown on Map 3. More information can be found at [www.streamwatch.org.au](http://www.streamwatch.org.au).





Map 3: Natural Drainage Network, Catchments and Water Sampling Sites



Table 3. Streamwatch % of results within ANZECC Water Quality Guidelines.  
0-24% **red** (very poor), 25-49% **yellow** (poor), 50-74% **green** (fair), 75-100% **blue** (good-excellent).  
(Source: Sydney Water Streamwatch, 2008)

	Testing site	Water quality parameter							Gambusia
		pH	Turb	EC	AP	Faecal coliforms			
						Drinking (0 CFU/ 100ml)	Primary (150 CFU/ 100ml)	Secondary (1000 CFU/ 100ml)	
Jamberoo Community Streamwatch Group (including Jamberoo Golf Course)	Hyams Creek, Jamberoo Golf Course at Frogs Hollow								N/A
	Hyams Creek @ Causeway								N/A
	Jamberoo Creek @ 6 <sup>th</sup> Tee								N/A
	Jamberoo Creek above town								N/A
	Minnamurra River @ Golf Course								N/A
	Stumps Creek, 16 <sup>th</sup> Hole Dam								N/A
Gerringong Gerroa Streamwatch Group	Blue Angle Creek @ Seven Mile Beach Caravan Park			N/A					N/A
	Crooked River upstream of Gerroa Shores Caravan Park			N/A					N/A
	Union Creek at Parkes Street								N/A
	Ooaree Creek @ Fern Street			N/A					N/A
	Rose Valley Creek, Rose Valley Road								N/A
	Werri Lagoon, Birrebungi Reserve			N/A					N/A
Kendalls Beach Streamwatch Group	Rocklow Creek, Princes Highway			N/A					N/A
	Rocklow Creek, upstream of Minnamurra River junction			N/A					N/A
	Bonaira Creek Lagoon, south Kendalls Beach			N/A					N/A
	Minnamurra River tributary (unnamed creek), Thornett Way wetlands			N/A					N/A
Lands Edge Coastal Interpretation Centre	Ooaree Creek, upstream of cattle crossing					N/A	N/A	N/A	N/A
Werri Lagoon CVA Streamwatch Group	Ooaree Creek, near riffle zone, Rose Valley					N/A	N/A	N/A	N/A
	Ooaree Creek, Joe Chittick's property cattle crossing					N/A	N/A	N/A	N/A

### 3.1.3 Beachwatch Monitoring

Sydney Water Corporation and the Department of Environment and Climate Change & Water undertake monitoring of beach water quality at Boyd's Jones, Bombo, Surf and Werri Beaches under the Beachwatch Program. From 1999-2009 most beaches monitored in the Kiama Municipality, have recorded 100% compliance with Beachwatch criteria, for both faecal coliforms and enterococci. The compliance for 2008/2009 is shown in Table 4.

Table 4: Compliance of Kiama Beaches for 2008–2009  
(Source: Department of Environment, Climate Change & Water, 2009)

Swimming site – WINTER 2008	Faecal coliform % compliance	Enterococci % compliance
Boyd's Jones Beach	100	100
Bombo Beach	100	100
Surf Beach, Kiama	Not sampled	Not sampled
Werri Beach	100	100

Swimming site – SUMMER 2008/2009	Faecal coliform % compliance	Enterococci % compliance
Boyd's Jones Beach	100	100
Bombo Beach	100	100
Surf Beach, Kiama	100	100
Werri Beach	100	100

Figures 2 and 3 present the range of bacteria levels at all Illawarra Beaches during summer 2008/2009. These results show that the beaches of the Kiama Municipality are among the cleanest in the Illawarra.

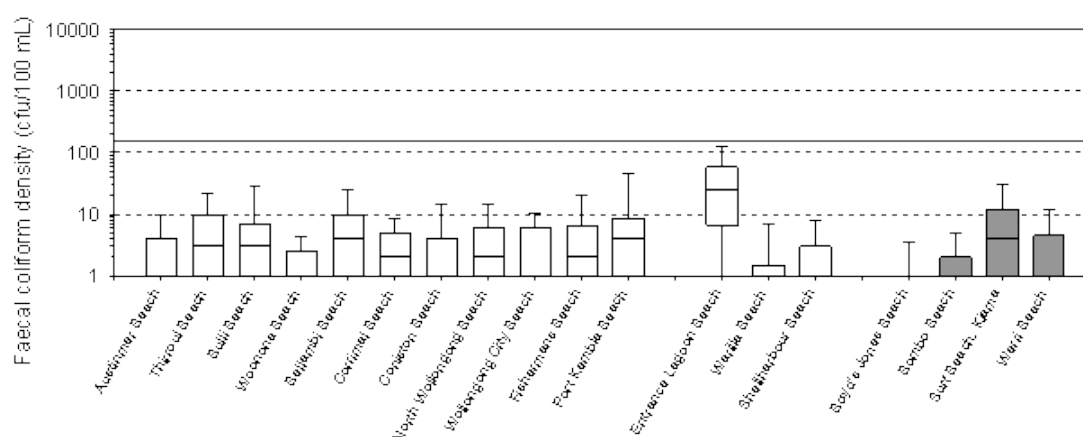


Figure 2: Range of Faecal Coliform Levels at Illawarra Beaches During Summer 2008-2009  
(Source: Department of Environment, Climate Change & Water, 2009)

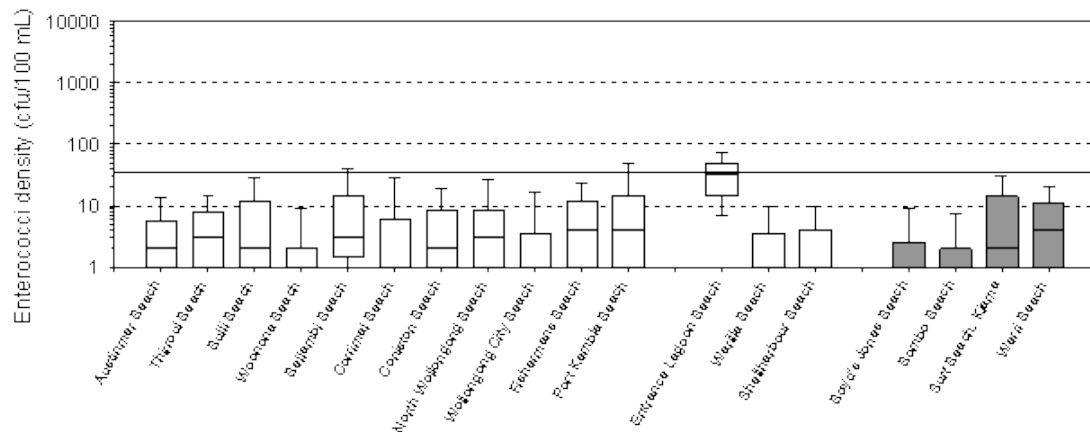


Figure 3: Range of Enterococci Levels at Illawarra Beaches During Summer 2008-2009  
(Source: Department of Environment, Climate Change & Water, 2009)

### 3.1.4 Water Consumption

Due to the drought conditions over the past few years, Sydney Water Corporation introduced Level 1 mandatory water restrictions in October 2003, Level 2 mandatory restrictions in June 2004 and Level 3 mandatory restrictions in June 2005. Dam water storage levels in the Sydney Water Catchment have decreased from 66.6% at the previous reporting period (end of June 2008), to 61.4% at the end of this reporting period in June 2009 (see Table 5). Following on from the easing of Level 3 mandatory restrictions to allow vehicle and house washing with a hose fitted with a trigger nozzle from June 19<sup>th</sup>, 2008 (Sydney Water Corporation, 2009 b), further Water Wise rules were announced on 21<sup>st</sup> June 2009 as dam storage levels had been around 60% for over 12 months. The new Water Wise rules require that:

- All hoses must now have a trigger nozzles;
- Watering is allowed before 10am and after 4pm;
- No hosing of hard surfaces such as paths and driveways, washing vehicles is allowed; and
- Fire hoses must only be used for fire fighting activities only

Table 5: Dam Water Storage Levels  
(Source: Sydney Catchment Authority 2009)

Date	Dam Water Storage Levels
November 2002 (Voluntary water restrictions introduced)	67.4%
October 2003 (Level 1 mandatory water restrictions introduced)	59.0%
End of June 2004 (Level 2 mandatory restrictions introduced 1 June)	47.9%
End of June 2005 (Level 3 mandatory restrictions introduced 1 June)	38.3%
End of June 2006	41.8%
End of June 2007	53.1%
End of June 2008	66.6%
End of June 2009	61.4%



Water consumption in the Kiama Municipality by property type is shown in Table 6. The average annual water consumption for houses in the Kiama Municipality for 2008/2009 was 157,000 litres, and 90,000 litres for units and flats. This is in comparison to the 2008/2009 Sydney wide average annual water consumption figures of 215,000 litres for houses and 151,000 litres for units and flats. (Sydney Water Corporation c, 2009)

Water consumption for Council's operations for the period 1986-2009 is shown in Figure 4. The amount of water consumed by the top 11 water using facilities is shown in Table 7. These facilities consumed almost 70% of the total volume of water in the baseline year of 2002/2003 (determined for the Water Saving Action Plans) and have specific action plans to address this water use in the adopted Water Saving Action Plans (see Section 3.3.9 for more information).

Table 6: Water Consumption by Property Type in the Kiama Municipality  
(Source: Sydney Water Corporation c, 2009)

Property Type	Total Consumption (kilolitres)	Average (kilolitres)
Commercial	284,678	1099
Houses	1,048,777	157
Units/Flats	136,779	90
Industrial	6,791	261
Other	113,571	705
<b>Total</b>	<b>1,590,596</b>	

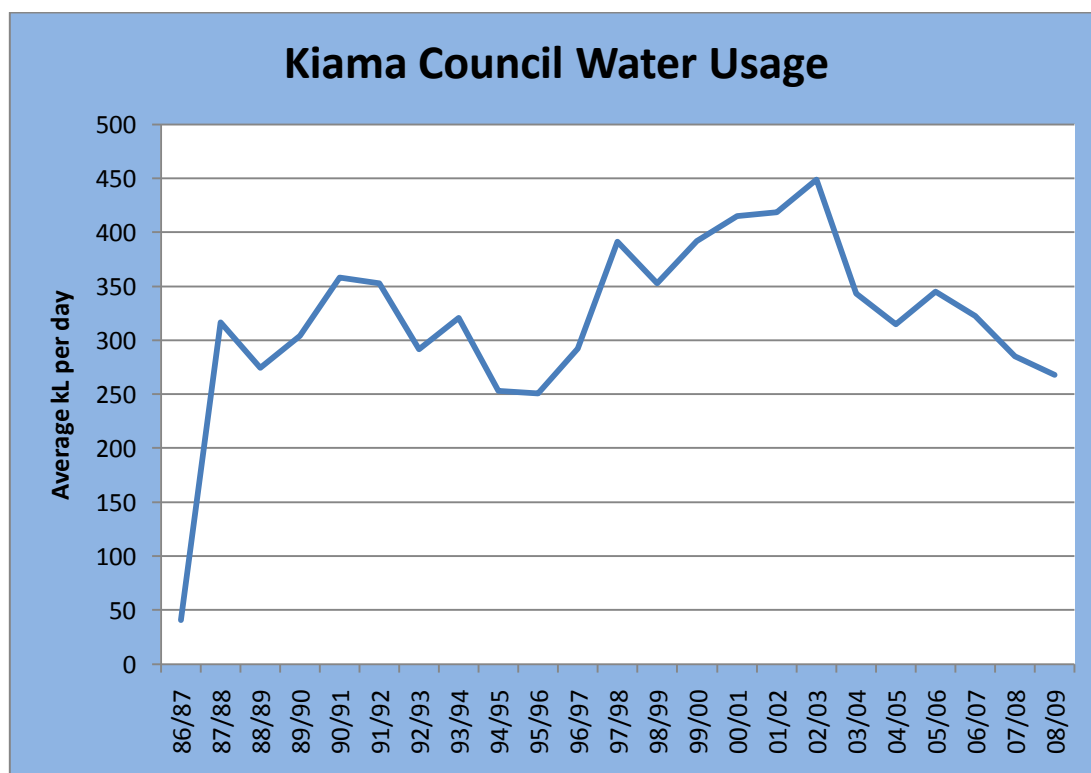


Figure 4: Total water consumption for Kiama Municipal Council 1986-2009  
(Source: Sydney Water Corporation c, 2009)

Table 7: Top Water Using Council Properties 2008-2009

Source: Water Saving Action Plans (Kiama Municipal Council, 2006 and Planet Footprint June 2009)

Rank	Site	Water Consumption (kL/yr)	
		2002-2003	2008-2009
1	Seven Mile Beach Holiday Park	22,468	11,912
2	Werri Beach Holiday Park	15,856	9527
3	Blue Haven Retirement Village (Nursing home and hostel)	11,158	8042
4	Kiama Leisure Centre	11,121	7097
5	Surf Beach Holiday Park	11,092	9380
6	Kiama Sports Complex	8,815	542
7	Kiama Harbour Holiday Cabins	8,231	5723
8	Blue Haven Retirement Village	8,028	12867
9	Kendall's Holiday Park	7,911	10493
10	Kiama Showground	7,088	2512
11	Kiama Council Works Depot	3,938	2977
<b>Total</b>		<b>115,706</b>	<b>72,072</b>

The ongoing water savings for these properties is testament to the Water Savings Action Plan that Council has been implementing. A saving of 10,451kL for the 2008/2009 year in comparison to the 2007/2008 year reflects the value of this initiative. The measures undertaken this reporting period include:

- Fixing of leaks detected by data loggers, that have been installed on the water meters of these properties;

It should be noted, that the increase in water consumption at the Kendall's Beach Holiday Park, can be attributed to an increase in the number of cabins, which have now replaced areas that were previously campsites. The increase in water consumption for the Blue Haven Retirement Village from the baseline data can be attributed to the completion of Stage 5 of the development, which also incorporates rainwater reuse for toilet flushing.

The continued involvement of Blue Haven Retirement Village and Council's Holiday Parks with the NSW Environmental Trust funded Business Treading Lightly program is aiding in working towards Gumnut environmental accreditation and the continued prioritising and implementation of water saving actions.

### **3.2 Pressures**

Water quality can be affected by drought conditions, stormwater runoff from roads and residential, industrial, commercial and agricultural activities, as well sewerage overflows and on-site sewerage systems.

#### **3.2.1 Stormwater Runoff**

The urban stormwater system has been constructed to carry rainwater that falls on hard surfaces in urban areas to the local waterway. Similarly, rain falling in rural areas will naturally drain to the local waterway. This runoff can carry a range of pollutants, which impact on local water quality and aquatic life.

All different types of land uses within the Municipality can have an impact upon water quality through stormwater runoff. These include:

- Residential land uses - stormwater runoff from residential properties and within recreational areas such as parks and playing fields can include litter, detergents from activities such as washing the car, garden fertilisers, paints, sediment and dog faeces;
- Industrial and commercial activities - runoff from car parking areas, forecourts of premises and within loading docks can include litter, oils from vehicles, detergents and chemical spills;
- Construction activities - runoff from building sites may contain soil and sediments as well as building products such as concrete slurry and material fragments;
- Agricultural activities - runoff may contain sediments, animal faeces, fertiliser and chemicals used in agricultural activities;
- Roads – runoff may contain litter, oils and sediments, and there is the potential for chemical or fuel spills.

### 3.2.2 Sewerage Treatment Plants

Provision of sewerage is the responsibility of Sydney Water Corporation. There are two Sewage Treatment Plants (STPs) in the Kiama Municipality, at Bombo and Gerroa (details shown in Table 8).

The Jamberoo Sewage Scheme is now complete and properties have begun to connect to the scheme. Construction of this scheme has involved property works including the installation of collection tanks, construction of the township's reticulation system, construction of a sewage pumping station in Jerrara Road, construction of the eight kilometre transfer main linking the system to the Bombo STP and construction of a bio-solids tanks and mechanical works at the Bombo STP.

Table 8: Sewerage Treatment Plants in the Kiama Municipality  
(Source: Barr G, 2009; Kidd G, 2009)

<b>Treatment plant</b>	<b>Treatment level</b>	<b>Discharge (ML/day)</b>	<b>Equivalent estimated population</b>	<b>Discharge location</b>
Gerringong-Gerroa	Tertiary (additional Phosphorus removal & ozonation, microfiltration, activated carbon & disinfection)	0.99	11,000	Reused for on-site agricultural irrigation. Excess is discharged to sand dune systems, once sand dunes reach capacity excess is discharged to Crooked River.
Bombo	Secondary & denitrification & disinfection	3.64	13,300	Shoreline -Headland north of Bombo Beach.

Sydney Water is encouraging remaining property owners who have not already connected, to connect to the sewerage system as quickly as possible to realise the environmental and public health benefits of the scheme. To date, approximately 98 per cent of property owners have connected to the scheme.

Sewerage overflows, and bypasses of one or more process units, in the sewerage system can occur during wet weather, caused by flows that exceed the capacity of the system. Overflows result in untreated or partially treated effluent being discharged into waterways or the ocean. The extent of their effect depends on the volume and frequency of the overflows.

Dry weather overflows may also occur, usually due to blockages and/or damage to the sewerage infrastructure by tree roots or debris, pump failure at a pumping station or power failure at a treatment plant (Sydney Water Corporation - a).

Sydney Water Corporation is required to notify Council when any dry or wet weather overflows or bypasses occurs leading to the discharge of untreated or partially treated effluent. There were six wet weather overflows at the Bombo STP compared to four for the previous reporting period (see Table 9). It was noted that none of the reported overflows reached waters (Barr G, pers comms 2009). Council has not been notified of any overflows in the new Gerringong-Gerroa Sewerage Scheme since it commenced in 2002.

Table 9: Sewage Overflows/Bypasses in the Bombo Sewage Treatment Plant Catchment Area (Barr, G, pers comm, 2009.)

Year	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Wet Weather Overflows	8	4	2	10	6	9	4	6
Dry Weather Overflows	-	3	9	3	5	5	0	0
<b>Total</b>	<b>8</b>	<b>7</b>	<b>11</b>	<b>12</b>	<b>11</b>	<b>14</b>	<b>4</b>	<b>6</b>

### 3.2.3 On-site Sewage Management Systems

There is the potential for effluent to enter the waterways from the on-site sewage management systems (OSSMS) that are still operating within the Municipality. These systems are used to treat and dispose of 'black water' (toilet waste) and/or 'grey water' (water from showers, sinks and washing machines) in areas where a sewage service is not available.

There are approximately 857 systems currently operating in the Municipality. When systems are not maintained or operated correctly, this can result in untreated effluent entering drains and waterways. Council has been implementing a program of OSSMS inspections (see below in Section 3.3.7) to determine if each system is operating correctly and identify any possible risks to human health and the environment.

## 3.3 Responses

### 3.3.1 Development Control for Water Quality and Water Conservation

Development control conditions are placed on development approvals for industrial and commercial activities to ensure water pollution is minimised or prevented and to promote stormwater reuse. From 1<sup>st</sup> July 2005 the Building Sustainability Index (BASIX) came into effect in the Kiama Municipality. BASIX is a web-based planning tool for Councils and proponents of residential dwellings to assess the potential performance of their development against a set of sustainability indices, including

water conservation and stormwater. For water, a BASIX rating of 40 for water conservation applies, potentially reducing potable water consumption by 40%. During the reporting period 108 BASIX certificates were issued. More information about BASIX can be found in Chapter 2: Land.

### 3.3.2 Enforcement

Council's Environmental Health Officers and Ranger Services Officers investigate complaints received by Council relating to water pollution, and the Department of Environment, Climate Change & Water investigates complaints regarding water pollution from scheduled premises and activities. Clean Up Notices, Prevention Notices or Penalty Infringement Notices for water pollution offences may be issued by these officers under the *Protection of the Environment Operations Act 1997*. The number of complaints received is shown in Table 10. The number of complaints recorded during the last reporting period was slightly higher than last year.

Table 10: Complaints relating to Water Pollution (Council and the DECCW, 2009)

Type of Complaint	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Water pollution complaints to DECCW	9	6	7	10	11	16	6	7	5
Spill complaints to DECCW	-	2	-	1	4	1	3	2	
Water Pollution Complaints to Council	5	4	23	18	43	28	4	10	20
Total Water Pollution Complaints	14	12	30	29	58	45	13	19	25

### 3.3.3 Stormwater Management Plan

Kiama Municipal Council reviewed its *Stormwater Management Plan* (SMP) in 2003 in accordance with the requirements of Section 12 of the *Protection of the Environment Administration Act 1991*. The SMP has the following purposes:

- To satisfy the requirements of Kiama Council under Section 12 of the *Protection of the Environment Administration Act 1991*;
- To establish a framework to guide current and future stormwater management planning in the Kiama Local Government Area;
- To collate and concisely present the most relevant information that will aid informed stormwater management for the Kiama Local Government Area; and
- To suggest actions that will minimise environmental impacts from stormwater runoff.

There are a range of strategies contained within the reviewed SMP, within seven sections (for the full list of actions, please refer to SMP – Kiama Municipal Council, 2003a):

- Mitigation of future stormwater impacts;
- Mitigation of stormwater impacts from current developments: Minnamurra/Kiama Downs Stormwater Catchment;
- Mitigation of stormwater impacts from current developments: Kiama Stormwater Catchment;
- Mitigation of stormwater impacts from current developments: Gerringong-Werri Stormwater Catchment;
- Mitigation of stormwater impacts from current developments: Jamberoo Stormwater Catchment;
- Mitigation of stormwater impacts from current developments: Gerroa stormwater catchment; and
- Mitigation of stormwater impacts from current developments: all catchments.

The major achievements are shown below. For a full list of strategies implemented, please refer to previous SoE Reports

- Installation of 171 pollution control pits in the stormwater drainage pits in various townships to capture litter and siltation. The pollution control pits have been installed in the following locations:
  - 6 in Minnamurra / Kiama Downs;
  - 88 in Kiama township;
  - 41 in Gerringong;
  - 17 in Gerroa; and
  - 19 in Jamberoo
- A large gross pollution trap was installed at Coronation Park, Kiama, to improve the stormwater quality entering Surf Beach. This program was funded through the Catchment Caretakers Grant;
- The Catchment Chronicles storm water education program was delivered by the Keep Australia Beautiful Council to the five primary schools in the Kiama Municipality;
- Installation of 58 cigarette butt containers to encourage the proper disposal of cigarette butts in the commercial area of Kiama township;

- Installation of dispensers and provision of compostable “doggie bags”, to encourage the proper removal and disposal of dog faeces. Approximately 48,000 bags were distributed during the reporting period; and
- Mechanical street sweeping is undertaken in all urban areas of the Kiama Municipality on a quarterly basis, with the commercial town centres of Kiama being swept daily and the Gerringong and Jamberoo townships swept twice per week. Approximately 280 tonnes of litter was collected by street sweeping services in the reporting period.

### **3.3.4 Crooked River Estuary Management Plan**

The *Crooked River Estuary Management Plan* (CREMP) was prepared in 2003. The Plan provides a comprehensive and integrated set of strategies to restore, protect and conserve the natural resources of Crooked River estuary and to ensure its use is ecologically sustainable in the long term.

The issues were grouped into management areas within the Estuary Management Plan, for which certain objectives were determined. The management areas are outlined below (for the full list of actions, please refer to CREMP – Kiama Municipal Council, 2003b):

- Water Quality;
- Nature Conservation;
- Sedimentation;
- Entrance Conditions and Flooding;
- Foreshore Access;
- Public Infrastructure; and
- Cultural Heritage.

The major achievements are shown below. For a full list of strategies implemented, please refer to previous SoE Reports.

- A *Water Sensitive Urban Design Policy* was adopted and implemented to incorporate water sensitive urban design for new urban areas (see Section 3.3.8 for more information);
- Streamwatch Community Monitoring was promoted and supported (see Section 3.1.2 for more information);
- Landcare projects conducted by volunteers were supported, including Streamwatch monitoring, feral animal eradication project, and Conservation Volunteers Australia projects (see Sections 3.1.2 and 5.3.8 for more information); and

- As part of the LEP review, riparian corridor management is being included and the inclusion of the Crooked River Estuary as a 'sensitive' environment is being considered, along with other areas throughout the Municipality.

### **3.3.5 Minnamurra River Estuary Management Plan**

The *Minnamurra River Estuary Management Plan* (MREMP) aims to achieve a coordinated approach to management, implementation and monitoring so as to preserve, enhance and develop in a sustainable manner the ecological, scenic, agricultural, mineral resource, tourism and recreational values of the estuary.

The plan includes seven main management issues which are outlined below (for the full list of actions, please refer to MREMP – Panayotou, 2003):

- Riverbank erosion and sedimentation;
- Water quality;
- Conservation;
- Road transport corridors;
- Entrance Stability;
- Land use management; and
- Recreation.

The major achievements are shown below. For a full list of strategies implemented, please refer to previous SoE Reports.

*Bank Stabilisation Project* - Council was successful in obtaining a grant from the NSW Estuary Management Program from the Department of Environment, Climate Change & Water, and \$20,000 from the Southern Rivers Catchment Management Authority to undertake further bank stabilisation works adjacent to the Charles Avenue Reserve, which has been identified as a high priority project in the Estuary Management Plan. Council has also contributed \$20,000 of its own funds towards this work. The project was a continuation of previous works in the area and involved stabilising the toe of the bank using large rocks, reshaping the bank and planting with low growing native plants. The stabilisation works are now completed in that part of the estuary.

*Stormwater pollutant control and riparian management in the Minnamurra Estuary* - Council was successful in obtaining a \$19,830 from the Southern Rivers Catchment Management Authority's Coastal Protection Program - Estuary and Coastal Lakes Incentives. This estuary project was completed in 2007-2008 and involved:

- Placement of 6 enviropods at stormwater drains along Charles Avenue Minnamurra to trap pollutants including sediment;



- Weed management, planting and protection of mangroves and riparian species on South East shore at Riverside Drive, Minnamurra and southern headland at James Oates Reserve, Charles Avenue; and
- Stormwater education targeting builders and developers and residents in lower Minnamurra catchment.

*Stormwater Pollutant and Riparian Management in the Minnamurra Estuary (Stage 2 Grant)* – Council was successful in obtaining a second grant of \$11,800 from the Southern Rivers Catchment Management Authority's Coastal Protection Program - Estuary and Coastal Lakes Incentives. This estuary project was completed during the reporting period and addresses the following:

- Protection of the mangroves and riparian species in the vicinity of Trevethan Reserve and the Minnamurra boat ramp, Riverside Drive, Minnamurra.
- A clean up of the mangrove area around Trevethan Reserve, Riverside Drive, Minnamurra, as part of Cleanup Australia Day 2009;
- Community education and involvement, via a local newsletter and the continued efforts of the community based environment group;
- Weeding and replanting of mangroves at the Minnamurra boat ramp at Trevethan Reserve, Riverside Drive, Minnamurra;
- Installation of bollards at the Minnamurra boat ramp at Trevethan Reserve, Riverside Drive, Minnamurra, to restrict vehicle access into mangrove area

*Minnamurra River Estuary Educational Signage Grant* – Kiama Council was successful in obtaining \$4,800 in DECCW funding, through the Estuary Management Program, to develop and install educational signage at the Trevethan Reserve boat ramp, explaining the significance of the salt marsh and mangrove ecosystems. This signage was installed during the reporting period and can be seen below.



Educational signage installed at Trevethan Reserve, Minnamurra River

Previously,

*Geomorphology of the Minnamurra River Estuary* - This project was undertaken by University of Wollongong PhD student Kate Panayotou, due to a need for sediment quality and quantity data was identified as part of the *Minnamurra River Estuary Management Study and Plan*. The overall findings were:

- As estuaries evolve there is a reduction in accommodation space and channels become confined and intertidal environments become more extensive;
- The reason why the estuary has acceptable trace metal concentrations is that the estuary has good tidal flushing;
- Dominant force in the estuary has changed from wave processes to tidal and fluvial processes;
- Estuary entrance is still influenced by all three processes and undergoes cyclical change of gradual pattern of accretion and erosion. However, the estuary mouth is highly unlikely to close as it is protected by Minnamurra Headland and Stack Island and influenced by processes dominant enough to maintain entrance opening;
- Patterns and rates of sedimentation over 8000 years provided context for contemporary changes and management;
- Sedimentation rates are higher now but 90% of the estuary is infilled therefore approximately 90% of sediment load is bypassing and not depositing in the estuary; and
- Despite drought conditions the Minnamurra River estuary has remained open lending support to fact that wave-dominated estuaries can change into river-dominated status.

As part of the LEP review, the revision of the ‘environmental protection’ and ‘high conservation area’ zoning classifications using vegetation mapping is being investigated.

### **3.3.6 Catchment Caretakers Grant**

This project brings together structural and educational strategies to address water quality in two areas of the Kiama Municipality; Jamberoo Township and the Surf Beach Catchment, Kiama. The reason for selecting these catchments is that they have not yet been targeted in previous Catchment Caretakers (stormwater pollution) programs and have been identified for action within Council’s Stormwater Management Plan Review 2003.

Jamberoo Township previously had no stormwater treatment devices, with runoff draining to the Minnamurra River. The Surf Beach Catchment is one of the main catchment areas in the centre of Kiama, and is a popular recreation area for both visitors and residents. There were no stormwater treatment devices in operation within

the catchment and so the runoff from the catchment is discharged to the beach with no treatment.

Council implements several projects relating to water quality, such as water quality monitoring through Streamwatch, riparian restoration, butt littering, plastic bags campaigns, and annual litter clean ups. This project aligns with the work already being done, by installing structural pollution control devices in some pollution hotspot areas based on water quality data.

The project has seen the installation of 31 Rapid Stormwater Filtration (RSF) units in stormwater drains in the two target areas (14 in Surf Beach and 17 in Jamberoo). These units have been installed in other areas of the Municipality as part of previous Catchment Caretakers projects with much success. In addition, a Continuous Deflective Separation Unit (CDS Unit) was installed in the Surf Beach Catchment to treat runoff from part of the northern subcatchment. These actions were undertaken during the previous reporting period.

During the current reporting period there was a stormwater education program undertaken in the five primary schools in the Kiama Municipality. The Keep Australia Beautiful 'Waste Watchers' team delivered the Catchment Chronicles educational module to a number of classes at each primary school. This program provided participating children with important knowledge and examples of the interconnectivity of our catchments and the effects that human activities can have on our waterways.

The project also established a new Kiama High School Streamwatch water monitoring group during the reporting period. The group will be responsible for monitoring a creek in the Surf Beach catchment as a part of the wider Streamwatch program underway in the Kiama Municipality. These actions and the previous achievements of the grant are complemented by ongoing litter clean ups, educational displays at Council events and during holiday periods.



Keep Australia Beautiful Waste Watchers Team delivering the 'Catchment Chronicles'

Suitable treatment of runoff from the remainder of the northern catchment is presently being investigated and will be subject to future funding.

### **3.3.7 On-site Sewage Management System Program**

The management of domestic waste water and sewage is important for the health of the community and for the natural environment. All on-site sewage management systems that operate in the Municipality have been risk classified based on their proximity to water ways, soil types and flood risk.

Council inspects each risk category accordingly to ensure they are operating effectively and have no adverse impacts on human health or the environment.

Council adopted an *On-Site Sewage Management Strategy* in October 2004. The purpose of this Strategy is to:

- Protect and enhance the quality of public health and the long term environment of the Kiama Municipality by pursuing best practice in on-site sewage management;
- Encourage and support land holders in adopting a sustainable approach through best practice on-site sewage management and recycling of waste water; and
- To establish and notify of a monitoring regime aimed at auditing all systems, refining the risk assessment scheme, and a systems enhancement program (Kiama Municipal Council, 2004b).

During the 2008/2009 reporting period, 263 On Site Sewage Management Systems were inspected. Of these, 252 were satisfactory, whilst 20 required remediation.

### **3.3.8 Water Sensitive Urban Design Policy**

Water Sensitive Urban Design aims to incorporate principles such as stormwater source control, stormwater and wastewater re-use, potable water demand reduction and the utilisation of natural flow paths and drainage measures with pervious surfaces.

Council has developed a *Water Sensitive Urban Design Policy* for urban and rural development to ensure that building design and development incorporates effective water and soil management measures to implement such principles. It includes good stormwater management principles and encourages rainwater harvesting and reuse to reduce reliance on potable water supply. This policy was adopted by Council in July 2005 and provides an important linkage to the *Development Control Plan No. 32 – Kiama Development Code* and the *Stormwater Management Plan*.

### **3.3.9 Water Saving Action Plans**

As a requirement of the New South Wales Government's *Metropolitan Water Plan - Meeting the Challenges - Securing Sydney's Water Future*, which was released in October 2004, all Councils are required to prepare a *Water Saving Action Plan* for their operations, focusing on the high water using facilities.

During the 2006/2007 reporting period, Council's plan was adopted by the NSW Department of Energy, Utilities and Sustainability for approval.

The Plan includes separate *Water Saving Action Plan* for the current 11 sites that have the highest water usage:

- Seven Mile Beach Holiday Park;
- Werri Beach Holiday Park;
- Blue Haven Nursing Home and Hostel;
- Kiama Leisure Centre;
- Surf Beach Holiday Park;
- Kiama Sports Complex;
- Kiama Harbour Cabins;
- Blue Haven Retirement Village;
- Kendalls Beach Holiday Park;
- Kiama Showground; and
- Kiama Works Depot.

There is also a section that outlines strategies that can be investigated and/or applied across the whole of Council's operations and facilities, including both structural and educational strategies.

A Water Conservation Reduction Target of 40% reduction by 2010 has been set, based on baseline consumption of the financial year 2002/2003. A Water Conservation Working Party has been established involving relevant staff to oversee the implementation and monitoring of the Action Plans. During the reporting period, the following actions were implemented or commenced:

- Ongoing metering of the highest usage sites to detect leakages;
- Installation of water tanks to harvest rainwater and supply Hindmarsh Park amenities block

### **3.3.10 Sydney Water Corporation's WaterFix Program**

Sydney Water Corporation launched the Residential Retrofit Program in 2000, offering householders the opportunity to have a qualified plumber install water-efficient fittings and fixtures in their homes and repair minor leaks. In 2006, the program was re-launched under a new name, WaterFix, offering an enhanced range of water efficient products for new participants.

Program evaluations have shown that participating households save an average of 20,900 litres of water per year. Table 11 shows the number of participants in these programs since they commenced. The table also shows the number of participants in Sydney Water Corporation's other water saving programs: Do It Yourself kits, rainwater tank rebates, washing machine rebates and the newly launched toilet replacement service.

Table 11: Number of Households Participating in Sydney Water Corporation Programs  
(Source: Sydney Water Corporation c, 2009)

<b>Program</b>	<b>2000-2001</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>	<b>2004-2005</b>	<b>2005-2006</b>	<b>2006-2007</b>	<b>2007-2008</b>	<b>2008-2009</b>	<b>Total to date</b>
DIY Kits	0	0			452	119	132	50	7	758
RainWater Tank Rebate	0	0	8	29	147	280	240	143	74	921
Washing Machine Rebate	0	0	2	34		39	246	288	183	791
WaterFix	115	547	21	284	39	278	260	87	25	2780
Love Your Garden	-	-	-	-	-	-	51	36	73	160
Toilet replacement service	-	-	-	-	-	-	-	-	55	55
<b>Total</b>	<b>115</b>	<b>547</b>	<b>31</b>	<b>347</b>	<b>638</b>	<b>716</b>	<b>929</b>	<b>604</b>	<b>417</b>	<b>5,468</b>

### **3.4 Potential Future Activities**

#### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (including review of the Stormwater Management Plan, Minnamurra stormwater pollutant control and riparian management project, water quality monitoring);
- *Protection of the Environment Operations Act* implementation;
- Implement street sweeping and stormwater pit cleaning schedule in line with Stormwater Management Plan;
- Pursue DECCW to prepare a plan for the stabilization and rehabilitation of the Minnamurra River channel upstream of Swamp Road, and obtain funding for projects identified in the Estuary Management Plan;
- Implement program to ensure premises are connected to the sewer in the Gerringong, Gerroa and Jamberoo Townships.(H)
- Implement projects as identified in the Water Savings Action Plan.
- Promote community participation in water quality monitoring & environmental monitoring

#### **Potential Future Activities Beyond 2009-2010**

(H – High Priority, M - Medium Priority, L – Low Priority)

- Ongoing implementation of the *Water Savings Action Plan* (H, M & L as per Plan timeframes);
- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- *Protection of the Environment Operations Act* implementation (H);
- *Minnamurra River Estuary Management Plan* – Implement rehabilitation plan for the River upstream of Swamp Road. (H);
- Continue to implement a Clean Waters Program, including involvement of community volunteers, and addressing stormwater education and water quality issues, building on the Minnamurra Estuary Project (H);
- Seek funding assistance for priority water conservation projects (H);
- Seek funding for stage 3 of the *Stormwater pollutant control and riparian management in the Minnamurra Estuary Project* (M);

## Chapter 4: Noise

Noise may be generally defined as unwanted or offensive sound, which can cause annoyance and affect sleep patterns and can therefore have an impact on our health. The *Protection of the Environment Operations Act 1997* defines offensive noise as:

“Noise, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstance is above a specified level or is considered (or is likely) to be harmful or interfere unreasonably with the comfort of a person who is outside the premises.”

The gradual increase in background noise caused by the cumulative effect of increasing number of noise sources and/or increasing density of development can also be a concern.

### 4.1 State

Council monitors noise pollution in the local environment through the documentation of the nature and type of noise complaints received. These complaints are shown below in Table 12 and Figure 5.

The most common environmental issue that Council and the Department of Environment, Climate Change & Water are contacted about is noise. The main noise pollution issue that Council is contacted about is barking dogs.

Table 12: Complaints relating to Noise Pollution  
(Rail Infrastructure Corporation, Council and the DECCW)

Type of Complaint	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009
Industrial Noise Complaints to the DECCW	2	11	9	15	19	13	8	0	1
Rail Noise Complaints to RailCorp	1	0	0	-	3	0		10	***
Industrial Noise Complaints to Council	3	3		5	0	0	0	0	0
Commercial Noise Complaints to Council	-	1		6	7	7	5	2	
Residential Noise Complaints to Council	9	10	17*	3	23	11	8	11	14
Construction Noise Complaints to Council **	-	-		6	5	2	3	1	4
Council Plant Vehicle Noise to Council **	-	-		6	3	1	4	0	1
Animal Noise complaints to Council	63	45	37	27	32	31	49	65	45
<b>Total Noise Complaints</b>	<b>78</b>	<b>70</b>	<b>63</b>	<b>68</b>	<b>92</b>	<b>65</b>	<b>77</b>	<b>89</b>	<b>65</b>

\*The breakdown of complaints to Council (ie industrial, commercial, residential) was not available for this reporting period.

\*\* This category of complaints was not recorded separately in earlier reporting periods.

\*\*\* Not able to source figures for reporting period at time of publication



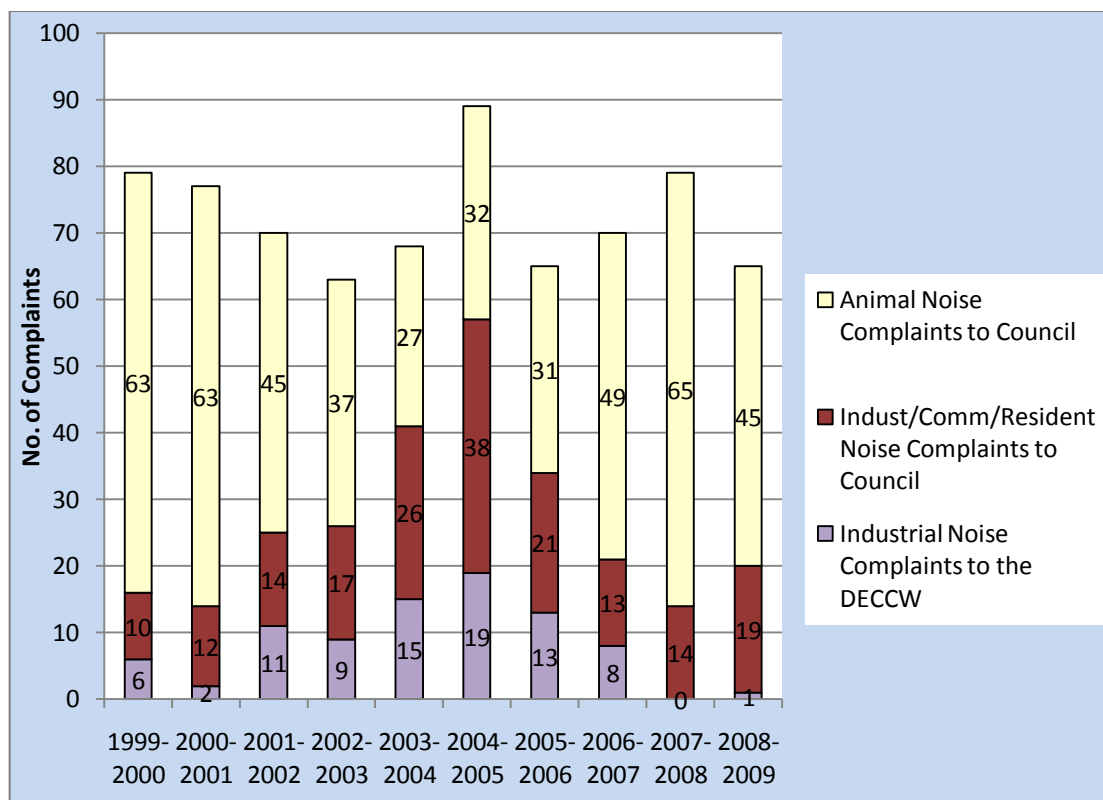


Figure 5: Noise Complaints within the Kiama Municipality

## 4.2 Pressures

### 4.2.1 Road and Rail Noise

Road noise is likely to increase as traffic levels increase and the amount residential development near to main roads and railways grows. Currently, residential areas in Minnamurra, Gainsborough, Kiama Downs, Kiama, South Kiama, Gerringong and Gerroa are close to main roads and parts of the residential areas of Minnamurra, Kiama Downs, Kiama, South Kiama and Gerringong are near to the railway line.

While there was a noise impact during the construction of the North Kiama Bypass, the road is complete and it will result in noise reduction within the Minnamurra, Gainsborough and Kiama Downs areas.

RailCorp is undertaking three Pollution Reduction Programs, all of which relate to noise. Details of these programs are contained in RailCorp's Environment Protection Licence 12208, which is available at:

<http://www.environment.nsw.gov.au/prpoeo/licences/L12208.pdf>

### 4.2.2 Industrial and Commercial Noise

Kiama Municipality does not have a large area devoted to industrial activities, however where residential areas adjoin industrial areas, there is the potential for impacts from noise of operations. Business, or commercial, areas constitute only a small portion of Kiama Municipality, but can be a source of offensive noise, mainly from air conditioning and deliveries during early hours.

### 4.2.3 Residential Noise

As shown in Table 11 and Figure 5, noise from residential sources is the most common noise complaint in the Kiama Municipality, including barking dogs (the most common), music, garbage and recycling services, building construction and lawn mowing and gardening activities. With a growing population, increased development and new residential block sizes generally being smaller than the traditional block, it is expected that the amount of noise complaints in residential areas may also grow.

## 4.3 Responses

### 4.3.1 Development Control

Development control conditions are placed on development approvals for industrial and commercial activities to ensure noise pollution is minimised or prevented. For industrial premises the *NSW Industrial Noise Policy* applies, providing guidelines for large industrial developments, including guidance on measuring and assessing noise from small commercial and industrial premises regulated by councils. The *NSW Environmental Criteria for Road Traffic Noise* includes criteria for assessing road traffic noise from road developments (Department of Environment and Conservation, 2004).

### 4.3.2 Enforcement

Council's Environmental Health Officers and Rangers investigate complaints received by Council relating to noise pollution, and the Department of Environment, Climate Change & Water investigates complaints regarding noise pollution from scheduled premises, under the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Noise Control) Regulation 2000*. The Police also have jurisdiction over noise pollution and can address complaints relating to residential noise sources such as car sound systems, car and house alarms and noisy neighbours.

In June and July 2007, the Department of Environment, Climate Change & Water (DECCW) sought community comment on the proposed *Protection of the Environment Operations (Noise Control) Regulation 2007*. The aim of the review was to update the Regulation and provide simple, straightforward and enforceable noise controls that match community expectations.

The new Regulation commenced on 1<sup>st</sup> March 2008 and controls noise from motor vehicles and marine vessels and sets community standards on acceptable noise intrusion in homes from appliances such as intruder alarms, music amplifiers, air conditioners and powered garden tools. A few provisions commence later to give the community time to make any necessary changes. (See <http://www.environment.nsw.gov.au/resources/noise/0870infoarticles.pdf> )

Nuisance Dog Orders can be issued under the *Companion Animals Act 1998* when the noise is the result of a dog, requiring the owner to prevent the behaviour causing the noise problem. There were no Nuisance Dog Orders for barking dogs issued within the reporting period.

Within residential areas, restrictions on some domestic noise sources exist, such as power tools, swimming pool pumps, musical instruments, amplified sound equipment, domestic air conditioners and vehicles. These noise sources have restricted hours of operation and even outside the restricted hours, additional restrictions can be placed on their use if they cause offensive noise (see Table 13). There are also restrictions on car and house alarms. Information on these restrictions can be found on the DECCW website at: <http://www.environment.nsw.gov.au/resources/noise/0870infoarticles.pdf>

Table 13: Hours of Restricted Use of Certain Equipment  
(adapted from Tables 4 and 6, Department of Environment, Climate Change & Water, 2008).

Type of noise	Times during which restrictions apply
Power tools and swimming/spa pool pumps (POEO (Noise Control) Regulation, clause 50)	Before 8.00 am or after 8.00 pm on Sundays and public holidays Before 7.00 am or after 8.00 pm on any other day
Musical instruments and electrically-amplified sound equipment (POEO (Noise Control) Regulation, clause 51)	Between 10.00pm and 8.00 am Sunday to Thursday 12.00pm to 8.00am on Friday, Saturday and any other night followed by a public holiday
Air conditioners and heat pump hot water systems (POEO (Noise Control) Regulation, clause 52)	Before 8.00 am or after 10.00 pm on weekends or public holidays Before 7.00 am or after 10.00 pm on any other day
Motor vehicle used on residential premises (except when entering or leaving) (POEO (Noise Control) Regulation, cl. 15) Refrigeration unit fitted to a motor vehicle (POEO (Noise Control) Regulation, cl. 16)	Before 8.00 am or after 8.00 pm on any Saturday, Sunday or public holiday Before 7.00 am or after 8.00 pm on any other day

#### **4.4 Potential Future Activities**

##### Existing Future Activities in the Management Plan 2009-2012

- *Protection of the Environment Operations Act* implementation.

##### Potential Future Activities Beyond 2009-2010

(H – High Priority, M - Medium Priority, L – Low Priority)

- *Protection of the Environment Operations Act* implementation (H).

## Chapter 5: Biodiversity

Biodiversity is the variety of all life forms – the different plants, animals and micro-organisms, the genes they contain and the ecosystems of which they form a part.

### **5.1 State**

#### **5.1.1 Ecosystem Diversity - Ecological Communities**

Vegetation mapping of the Kiama Local Government Area was undertaken by Kevin Mills and Associates during 2003/2004. The maps have since been digitised and included in Council's Geographic Information System. Accompanying the mapping was the report *The Natural Vegetation in the Municipality of Kiama New South Wales* (Kevin Mills and Associates, 2006a). The vegetation communities are shown in Map 4.

Under the NSW *Threatened Species Conservation Act 1995*, Kiama Local Government Area is identified as containing the Endangered Ecological Communities listed in Table 14, which is adapted from the vegetation report (Kevin Mills and Associates, 2006a). These communities are shown in Map 5. Map 6 shows the Core Conservation Areas identified by Kevin Mills in the vegetation report.

Littoral Rainforest is also protected under *State Environmental Planning Policy (SEPP) No. 26 – Littoral Rainforests*, which identifies and makes provision for the protection of littoral (coastal) rainforest in New South Wales. SEPP No. 26 identifies patches of littoral rainforest near the Crooked River, Gerroa. Two stands, nos. 175J and 175K, occur between the Seven Mile Beach Road and Blue Angle Creek. Three small adjacent stands, no. 175A, are identified on the headland above Shelly Beach, north of Gerroa. However, the community behind Seven Mile Beach is actually much more extensive than mapped in SEPP No. 26 (Kevin Mills and Associates, 2006a).

*State Environmental Planning Policy No 14 - Coastal Wetlands* identifies and makes provision for the protection of coastal wetlands in New South Wales. Wetlands along the Minnamurra River, Spring Creek in Kiama and Ooaree Creek in Rose Valley, are identified in the Policy, but none are identified on the Crooked River, even though the river contains wetlands (Kevin Mills and Associates, 2006a).

#### **5.1.2 Species Diversity - Flora**

According to the Atlas of NSW Wildlife (Department of Environment, Climate Change & Water – a), there are 674 known native flora species within the Kiama Local Government Area. The Atlas of NSW Wildlife indicates that ten plant species recorded within the Kiama Local Government Area are listed as threatened species in Schedules 1 and 2 of the NSW *Threatened Species Conservation Act 1995* (TSC Act 1995), as shown in Table 15. These plant species are also listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

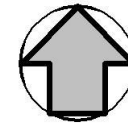
Table 14: Endangered Ecological Communities in the Kiama Municipality  
(Kevin Mills and Associates, 2006)

Endangered Ecological Community	Kiama Vegetation Map Equivalent	Site Example in Kiama
<b>Rainforests</b>		
Robertson Rainforest	1.7 Sassafras Warm/Cool Temperate Rainforest (DOR-WRF)	Knights Hill area
Illawarra Sub-Tropical Rainforest	1.1 Complex Subtropical Rainforest (COM-SRF)	Extensive on escarpment slopes
Littoral Rainforest	1.2 Complex Littoral Rainforest (COM-LRF) 1.6 Simple Littoral Rainforest (SIM-LRF)	Seven Mile Beach Area
<b>Eucalypt Forest/Woodlands</b>		
Illawarra Lowland Grassy Woodlands	2.7 Red Gum – Blue Gum Forest (TER-SAC) 2.8 Red Gum – Stringybark Forest (TER-EUG)	Hills northeast Jamberoo
Robertson Basalt Tall Open Forest	2.11 Brown Barrel Tall Forest (FAS-CYP)	Knights Hill area
Bangalay Sand Forest	2.9 Bangalay – Banksia Forest (BOT-BAN)	Seven Mile Beach, Minnamurra River area
<b>Shrublands</b>		
<i>Melaleuca armillaris</i> Tall Shrubland	5.1 Paperbark Tall Shrubland (MEL-ARM)	Hill tops around Jamberoo
<b>Wetlands (Fresh and Saline)</b>		
Freshwater Wetlands on Coastal Floodplains	6.4 Spike-rush Sedgeland (ELE-SOG) 7.3 Phragmites Reedland (PHR-RDL)	North of Gerringong, Spring Creek
Coastal Saltmarsh	7.4 Saltmarsh (SAR-SUA) 7.5 Saltwater Juncus Rushland (JUN-SAL)	Around Minnamurra River, Crooked River, Werri Lagoon
Swamp Sclerophyll Forest on Coastal Floodplains	2.9 Bangalay – Banksia Forest (BOT-BAN) (possibly in part) 6.1 Swamp Mahogany – Paperbark Forest (ROB-MEL)	Crooked River Area
Swamp Oak Floodplain Forest	4.2 Swamp Oak Forest (CAS-GLA)	Minnamurra River, Crooked River, Werri Lagoon
<b>Grasslands</b>		
<i>Themeda</i> grassland on seacliffs and coastal headlands	8.2 Kangaroo Grass Grassland (THM-GRL)	Minnamurra Point and Black Head (Gerroa)

Table 15: Threatened Flora Species

Common Name	Species Scientific Name	Legal Status TSC Act 1995	Legal Status EPBC Act 1999
White Flowered Wax Plant	<i>Cynanchum elegans</i>	Endangered	Endangered
Illawarra Irene	<i>Irenepharsus trypherus</i>	Endangered	Endangered
Waterfall greenhood	<i>Pterostylis pulchella</i>	Vulnerable	Vulnerable
Carrington Falls Grevillea	<i>Grevillea rivularis</i>	Endangered	Endangered
	<i>Grevillea parviflora</i>	Vulnerable	Vulnerable
Illawarra Zieria	<i>Zieria granulata</i>	Endangered	Endangered
Pink Rice-flower	<i>Pimelea spicata</i>	Endangered	Endangered
Illawarra Socketwood	<i>Daphnandra sp.C</i>	Endangered	Endangered
Carrington Falls Pomaderris	<i>Pomaderris walshii</i>	Critically Endangered	Critically Endangered
	<i>Solanum celatum</i>	Endangered	





# LEGEND

Wattle Forest	Miscellaneous Forest
Coast Wattle Shrubland	Phragmites Reedland
Mangrove Forest	Blackbutt - Banksia Tall Forest
Mangrove Shrubland	Blackbutt Tall Forest
Coast Banksia Forest	White Box - Brown Barrel Tall Forest
Bangalay - Banksia Forest	White Box - Yellow Stringybark Tall Forest
River Oak Tall Forest	Swamp Mahogany - Paperbark Forest
Swamp Oak Forest	Blue Gum - White Box Tall Forest
Coachwood Warm Temperate Rainforest	Blue Gum - Turpentine Forest
Complex Littoral Rainforest	Saltmarsh
Complex Subtropical Rainforest	Silvertop Ash - Peppermint Forest/Woodland
Sassafras Warm/Cool Temperate Rainforest	Spinifex Grassland
Brown Barrel Tall Forest	Sandstone Sedgeland/Headland/Shrubland (Upland swamp)
Saltwater Juncus Rushland	Red Gum - Stringybark Forest
Lantana Shrubland	Red Gum - Blue Gum Forest
Coast Teatree Shrubland	
Paperbark Tall Shrubland	



## Vegetation Communities

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Date: 26/11/09

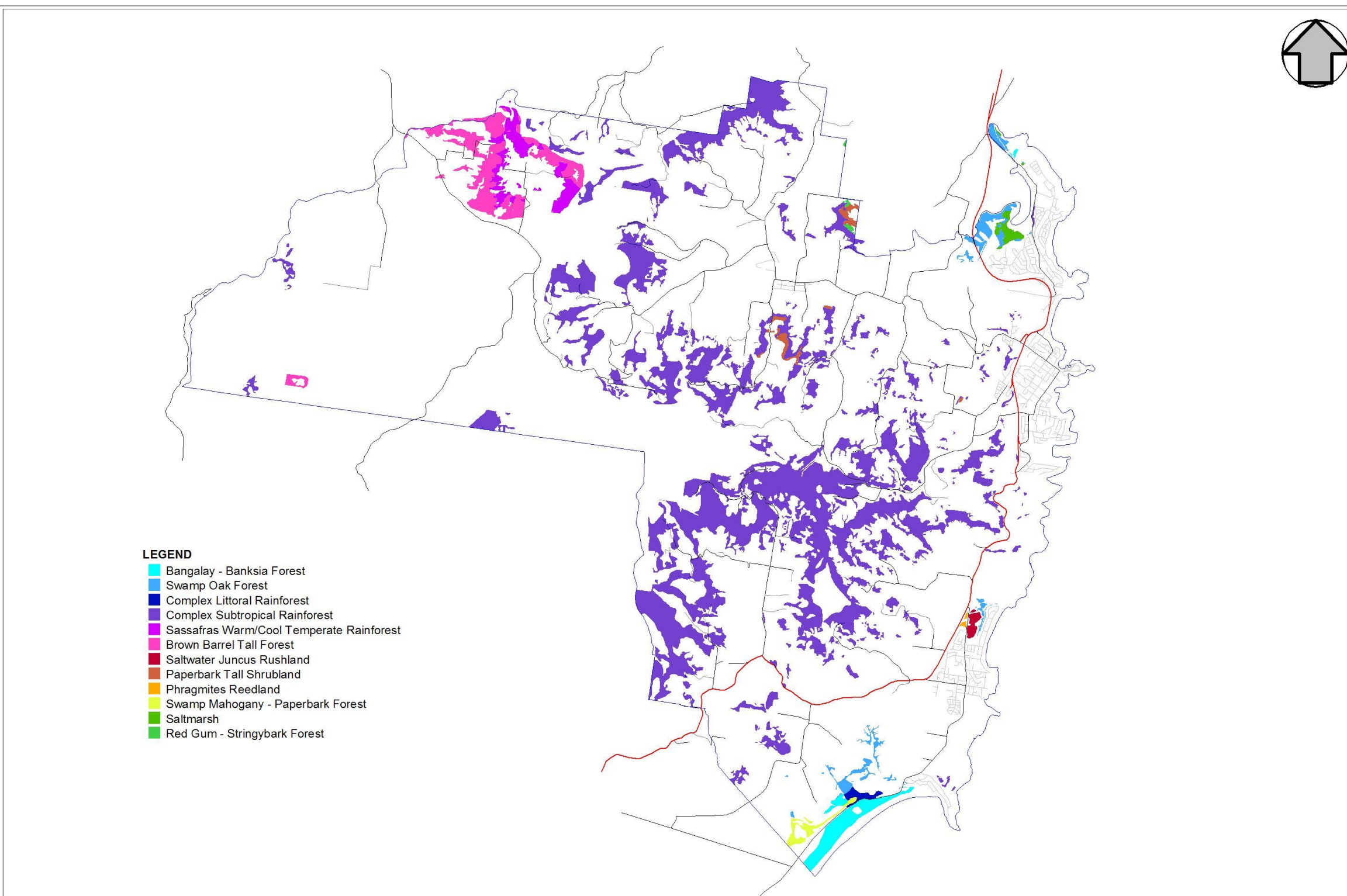
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Map 4. Vegetation Communities





**Endangered Ecological Communities**  
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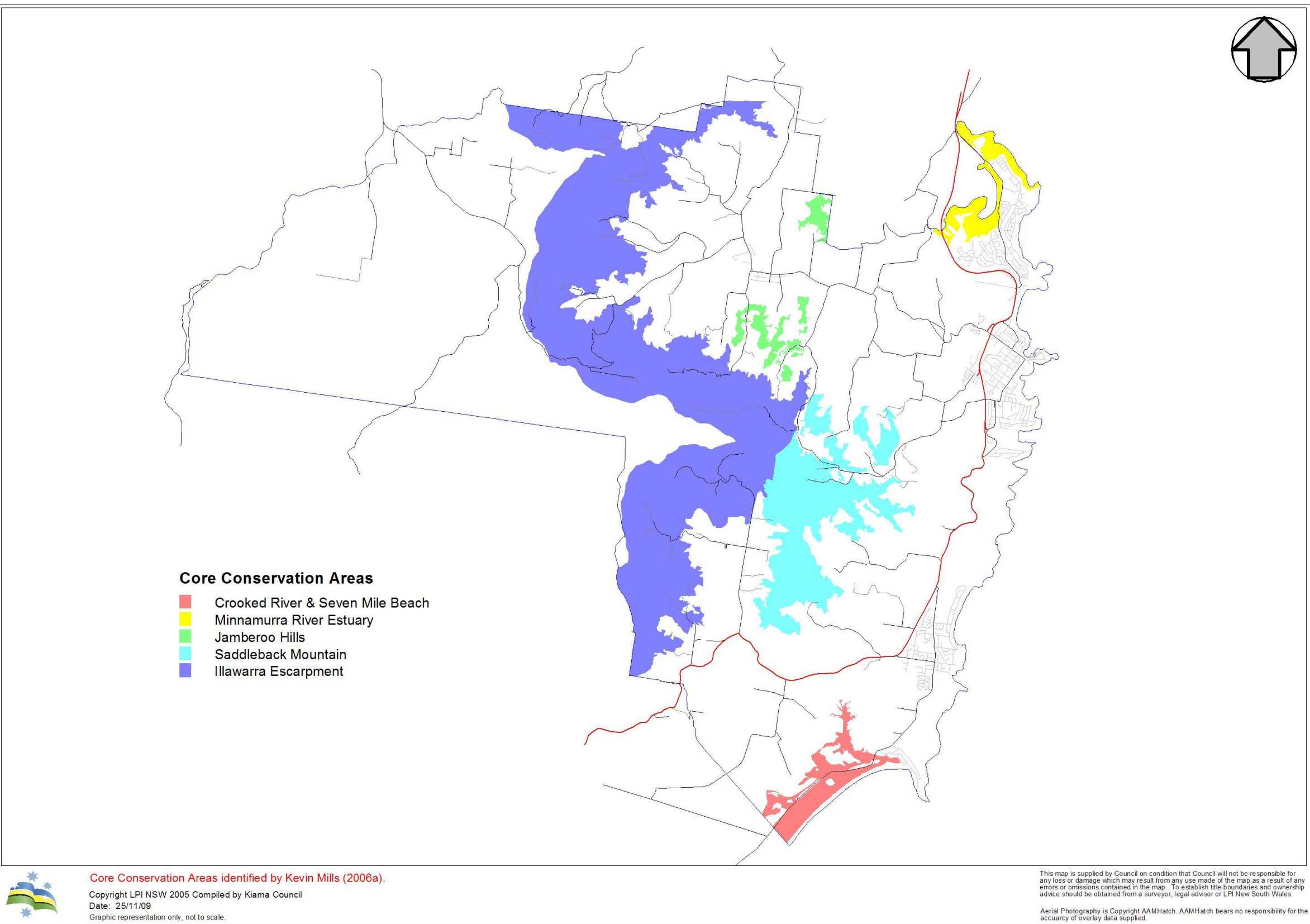
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Map 5: Endangered Ecological Communities







Map 6: Core Conservation Areas Identified by Kevin Mills (2006)



### 5.1.3 Species Diversity - Fauna

According to the report *The Fauna of Kiama: Municipality of Kiama, South Coast, New South Wales* (Kevin Mills and Associates, 2006b), which compiled lists of fauna from a variety of sources, there are 496 species occurring in the Municipality, including mammals, birds, frogs, reptiles and freshwater and estuarine fish.

The Atlas of NSW Wildlife indicates that 40 animal species recorded within the Kiama Local Government Area are listed as threatened species in Schedules 1 and 2 of the NSW *Threatened Species Conservation Act 1995* (TSC Act 1995). Some of these animal species are also listed as threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). An additional 23 threatened species have been listed by Kevin Mills and Associates Pty Limited (2006b) which at the time of the study had not been identified in the Atlas as occurring in the Municipality. These additional species include threatened fish (listed under the *Fish Management Act 1994*), some marine mammals and oceanic birds, and species that have only been recorded a small number of times. All of these species are shown in Table 16.

Table 16: Threatened Fauna Species

Common Name	Species Scientific Name	Legal Status TSC Act 1995	Legal Status EPBC Act 1999	Source
<b>Threatened Mammals</b>				
Australo-African Fur-seal	<i>Arctocephalus pusillus</i>	Vulnerable		# ^
Eastern Bent-wing Bat	<i>Miniopterus schreibersii</i>	Vulnerable	Conservation Dependent	# ^
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable		# ^
Eastern Freetail Bat	<i>Mormopterus norfolkensis</i>	Vulnerable		^
Eastern Pygmy Possum	<i>Cercartetus nanus</i>	Vulnerable		# ^
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	Vulnerable		# ^
Grey Headed Flying Fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable	# ^
Humpback Whale	<i>Megaptera novaeangliae</i>	Vulnerable	Listed migratory species	# ^
Koala	<i>Phascolarctos cinereus</i>	Vulnerable		^
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	Vulnerable	Vulnerable	# ^
Large-footed Myotis	<i>Myotis adversus</i>	Vulnerable		#
Long-nosed Potoroo	<i>Potorous tridactylus</i>	Vulnerable	Vulnerable	# ^
Southern Brown Bandicoot	<i>Isodon obesulus</i>	Endangered	Endangered	# ^
Southern Right Whale	<i>Eubalaena australis</i>	Vulnerable		#
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	Vulnerable	Endangered	# ^
Yellow-bellied Glider	<i>Petaurus australis</i>	Vulnerable		# ^
Yellow-bellied Sheath-tail Bat	<i>Saccolaimus flaviventris</i>	Vulnerable		#
<b>Threatened Amphibians</b>				
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	Vulnerable	Vulnerable	# ^
Green and Golden Bell Frog	<i>Litoria aurea</i>	Endangered	Vulnerable	# ^
Littlejohn's Tree Frog	<i>Litoria littlejohni</i>	Vulnerable	Vulnerable	# ^
Red-crowned Toadlet	<i>Pseudophryne australis</i>	Vulnerable		# ^
<b>Threatened Fish</b>				
Grey Nurse Shark	<i>Carcharias taurus</i>	Endangered*	Critically Endangered	#
Great White Shark	<i>Carcharodon carcharias</i>	Vulnerable	Vulnerable	#

^ Listed in the NSW Atlas of NSW Wildlife (DECCW)

# Listed in Kevin Mills and Associates (2006b)

\* Status under the NSW *Fish Management Act 1994* (DPI)

Table 16: Threatened Fauna Species (continued)

Common Name	Species Scientific Name	Legal Status TSC Act 1995	Legal Status EPBC Act 1999	Source
<b>Threatened Terrestrial Birds</b>				
Australasian Bittern	<i>Botaurus poiciloptilus</i>	Vulnerable		# ^
Barking Owl	<i>Ninox connivens</i>	Vulnerable		# ^
Black Bittern	<i>Ixobrychus flavicollis</i>	Vulnerable		# ^
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	Endangered		# ^
Bush Stone Curlew	<i>Burhinus grallarius</i>	Endangered	Endangered	^
Eastern Bristlebird	<i>Dasyornis brachypterus</i>	Endangered	Endangered	# ^
Gang Gang Cockatoo	<i>Callocephalon fimbriatum</i>	Vulnerable		^
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable		# ^
Ground Parrot	<i>Pezoporus wallicus</i>	Vulnerable		# ^
Masked Owl	<i>Tyto novaehollandiae</i>	Vulnerable		#
Olive Whistler	<i>Pachycephala olivacea</i>	Vulnerable		# ^
Osprey	<i>Pandion haliaetus</i>	Vulnerable	Listed migratory species	#
Pied Oystercatcher	<i>Haematopus longirostris</i>	Vulnerable		# ^
Powerful Owl	<i>Ninox strenua</i>	Vulnerable		# ^
Regent Honeyeater	<i>Xanthomyza phrygia</i>	Endangered	Endangered	#
Rose-crowned fruit-Dove	<i>Ptilinopus regina</i>	Vulnerable		#
Sooty Owl	<i>Tyto tenebricosa</i>	Vulnerable		# ^
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	Vulnerable		# ^
Square-tailed Kite	<i>Lophoictinia isura</i>	Vulnerable		# ^
Swift Parrot	<i>Lathamus discolor</i>	Endangered	Endangered	# ^
Superb Fruit-Dove	<i>Ptilinopus superbus</i>	Vulnerable		#
Turquoise Parrot	<i>Neophema pulchella</i>	Vulnerable		# ^
<b>Threatened Oceanic Birds</b>				
Black-browed Albatross	<i>Thalassarche melanophrys</i>	Vulnerable	Vulnerable	# ^
Black-winged Petrel	<i>Pterodroma nigripennis</i>	Vulnerable		#
Flesh-footed Shearwater	<i>Puffinus carneipes</i>	Vulnerable		#
Gould's Petrel	<i>Pterodroma leucoptera</i>	Vulnerable	Endangered	#
Grey Ternlet	<i>Procelsterna cerulea</i>	Vulnerable		#
Kermadec Petrel	<i>Pterodroma neglecta</i>	Vulnerable	Vulnerable	#
Little Shearwater	<i>Puffinus assimilis</i>	Vulnerable		#
Northern Giant-Petrel	<i>Macronectes halli</i>	Vulnerable	Vulnerable	#
Providence Petrel	<i>Pterodroma solandri</i>	Vulnerable		#
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	Vulnerable		#
Sooty Albatross	<i>Phoebastria fusca</i>	Vulnerable	Vulnerable	#
Sooty Tern	<i>Sterna fuscata</i>	Vulnerable		#
Southern Giant-Petrel	<i>Macronectes giganteus</i>	Vulnerable	Endangered	#
Shy Albatross	<i>Thalassarche cauta</i>	Vulnerable	Vulnerable	#
White-bellied Storm-Petrel	<i>Fregetta grallaria</i>	Vulnerable	Vulnerable	#
Wandering Albatross	<i>Diomedea exulans</i>	Endangered	Vulnerable	# ^
White Tern	<i>Gygis alba</i>	Vulnerable		#

^ Listed in the NSW Atlas of NSW Wildlife (DECCW)

# Listed in Kevin Mills and Associates Pty Limited (2006b)

\* Status under the NSW Fish Management Act 1994 (DPI)

#### 5.1.4 Wetlands

According to the report *The Natural Vegetation in the Municipality of Kiama New South Wales*, the Minnamurra River contains the saline wetland communities of Mangrove Forest, Mangrove Shrubland, Saltmarsh and Saltwater Juncus Rushland. Crooked River contains Swamp Mahogany-Paperbark Forest and Saltmarsh. Werri Lagoon contains Phragmites Reedland and Saltwater Juncus Rushland. The freshwater wetlands of Spike-rush Sedgeland, Fresh Juncus Rushland and Cambungi

Reedland are found around farm dams and sometimes across low-lying floodplains (Kevin Mills and Associates Pty Limited, 2006a).

The Kevin Mills and Associates reports (2006), '*The Natural Vegetation of the Municipality of Kiama, New South Wales*', and '*The Fauna of Kiama: Municipality of Kiama, South Coast, New South Wales Final Report*', are both available on the Kiama Municipal Council website.

## **5.2 Pressures**

The main threats for both flora and fauna are habitat loss and fragmentation due to vegetation clearing, predation by feral and domestic animals, inappropriate fire regimes, overgrazing of habitat areas by stock, disturbance of stream banks, pollution and weed invasions.

### **5.2.1 Key Threatening Processes**

The NSW *Threatened Species Conservation Act 1995* defines a threatening process as “a process that threatened, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities”, and lists Key Threatening Processes in Schedule 3 of the legislation. The NSW *Fisheries Management Act 1994* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* also list key threatening processes. These processes are listed in Table 17, with those processes that have been newly listed during the reporting period identified with an asterisk (Department of Environment, Climate Change & Water - b, Department of Primary Industries – a, and Department of Environment, Water, Heritage & Arts).

Table 17: Key Threatening Processes

Listed Under the NSW *Threatened Species Conservation Act 1995*, the NSW *Fisheries Management Act 1994* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Key Threatening Process	Legislation
Alteration of habitat following subsidence due to longwall mining	TSC Act
Alteration to the natural flow regimes of rivers, streams and their floodplains and wetlands	TSC Act
Anthropogenic Climate Change	TSC Act
Bush Rock Removal (as defined and described in the final determination of the Scientific Committee to list the threatening process)	TSC Act
Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the threatening process)	TSC Act
Competition and grazing by the feral European Rabbit <i>Oryctolagus cuniculus</i> (L.)	TSC Act
Competition and habitat degradation by Feral Goats, <i>Capra hircus</i> Linnaeus 1958	TSC Act
Competition from feral honeybees <i>Apis mellifera</i> L.	TSC Act
Death or injury to marine species following capture in shark control programs on ocean beaches	TSC Act
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments	TSC Act
Invasion and establishment of exotic vines and scramblers	TSC Act
Forest Eucalypt dieback associated with over abundant psyllids and bell miners	TSC Act
Herbivory and environmental degradation caused by feral deer	TSC Act
High frequency fire resulting in the disruption of life cycle processes in plants and animal and loss of vegetation structure and composition	TSC Act
Importation of Red Imported Fire Ants <i>Solenopsis invicta</i>	TSC Act
Infection by Psittacine Ciroviral (beak and feather) Disease affecting endangered psittacine species and populations	TSC Act
Infection of native plants by <i>Phytophthora cinnamomi</i>	TSC Act
Infection of frogs by amphibian chytrid fungus causing the disease chytridiomycosis	TSC Act
Invasion and establishment of the Cane Toad	TSC Act
Invasion of native plant communities by exotic perennial grasses	TSC Act
Invasion, establishment and spread of Lantana ( <i>Lantana camara</i> L. sens. Lat)	TSC Act
Invasion and establishment of Scotch Broom ( <i>Cytisus scoparius</i> )	TSC Act
Invasion of native plant communities by <i>Chrysanthemoides monilifera</i> (Bitou Bush and boneseed)	TSC Act
Invasion of the yellow crazy ant	TSC Act
Introduction of the Large Earth Bumblebee, <i>Bombus terrestris</i> (L.)	TSC Act
Loss and/or degradation of sites used for hill-topping (mating) by butterflies	TSC Act
Loss of Hollow-bearing Trees	TSC Act
Predation by European Red Fox <i>Vulpes Vulpes</i> (Linnaeus, 1758)	TSC Act
Predation by <i>Gambusia holbrooki</i> Gerard, 1859 (Plague Minnow or Mosquito Fish)	TSC Act
Predation by the Feral Cat, <i>Felis catus</i> (Linnaeus, 1758)	TSC Act
Predation by the ship rat <i>Rattus rattus</i> on Lord Howe Island	TSC Act
Predation, habitat degradation, competition and disease transmission by Feral Pigs ( <i>Sus scrofa</i> )	TSC Act
Predation and hybridisation of feral dogs ( <i>Canus lupus familiaris</i> )	TSC Act
Removal of dead wood and dead trees	TSC Act
Degradation of native riparian vegetation along NSW river courses	FM Act
Hook and line fishing in areas important for the survival of threatened fish species	FM Act
Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams	FM Act
Introduction of fish to waters within a river catchment outside their natural range	FM Act
Introduction of non-indigenous fish and marine vegetation to coastal waters of NSW	FM Act
Removal of large woody debris from NSW rivers and streams	FM Act

\* processes newly listed during 2008-2009

### 5.2.2 Weeds

Under the NSW *Noxious Weeds Act 1993*, weeds can be declared noxious. Many plants can be classed as weeds, however, only those plants that have a detrimental effect or cause serious economic loss to agriculture or the environment, and providing

there is a reasonable and enforceable means of control, are considered as candidates for declaration as noxious weeds. There are currently 86 weeds declared noxious in the Illawarra District Noxious Weeds Authority (IDNWA) control area, which includes Kiama, Shellharbour and Wollongong Local Government Areas (Department of Primary Industries - b). These are shown in Table 18. According to the *Noxious Weeds Act 1993*, noxious weeds are classified using the following classes:

- Class 1: noxious weeds are plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent;
- Class 2: noxious weeds are plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent;
- Class 3: noxious weeds are plants that pose a serious threat to primary production or the environment of an area to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area;
- Class 4: noxious weeds are plants that pose a threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area; and
- Class 5: noxious weeds are plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.

A noxious weed that is classified as a Class 1, 2 or 5 noxious weed is referred to as a 'notifiable' weed'.

During the reporting period, the Illawarra District Noxious Weeds Authority, representing the local government area of Kiama, has continued to develop and implement an active noxious weed control program throughout the Kiama Municipal Council area, including:

- Nine (9) Regional Management Plans were endorsed - Serrated Tussock, St John's Wort, Lantana, Aquatic Noxious Weeds, African Lovegrass, Bitou Bush/Boneseed, Giant Parramatta Grass, Gorse and Blackberry. All plans were supported by funding from Kiama Council, with the NSW Department of Primary Industry and Investment providing matching funds for six(6) plans with the exception of St. John's Wort, Giant Parramatta Grass and Blackberry;
- Local Weed Control Programs for private landholders and government agencies have continued to be given high priority with 119 property inspections being undertaken over the past 12 months within the Kiama LGA;
- 2 Nurseries and aquaria outlets were also inspected over the reporting period;



- The two (2) major water catchments, namely Crooked River and Minnamurra River were also inspected along their length to ensure no new (aquatic) weed incursions;
- Improved co-operation between stakeholders is being addressed through representation on four (4) regional committees;
- Education and publicity activities have continued to be given high priority through ongoing utilisation of the media and participation in community events. One (1) display was held over the last 12 months with three (3) media releases issued. 1,000 copies of the “Weeds of the South Coast” booklet were also produced and distributed;
- Operational programs have continued to be maintained, expanding as time and resources permit, thereby complementing the inspectorial program and allowing the Authority to continue to lead by example;
- All Council lands previously known to be infested with Class 2 weeds<sup>^</sup> were inspected at least twice by 30<sup>th</sup> April 2009. No Class 2 weeds were recorded on Council owned lands over the past 12 months;
- All Council lands with infestations of Class 3 weeds were inspected and treated for one or more noxious weed by 30<sup>th</sup> June 2009. A further 46% of public reserves were inspected, however no noxious weeds were identified. Three (3) non rural roads were also treated for noxious weed infestations;
- 5ha of inaccessible Bitou Bush at Walker’s Beach cliff line was controlled by aerial spraying;
- Specifically, all Bitou Bush on Council controlled lands was inspected and treated by 30<sup>th</sup> October 2008. All known Gorse, Serrated Tussock, and Giant Parramatta Grass infestations were inspected and treated twice by 30 June 2009. Known St John’s Wort and African Lovegrass infestations were controlled by 30<sup>th</sup> November 2008; and
- Vacant Crown Land funding of \$510.00 was received to undertake aerial spraying weed control works at Walkers’ Beach Gerringong.

^ Class 2 weeds include Salvinia and Alligator Weed.

^^ Class 3 weeds include Giant Parramatta Grass, Gorse, Groundsel Bush, St Johns Wort, Mysore Thorn and Water Hyacinth.

Table 18: Noxious Weeds in the Illawarra District Noxious Weeds Authority Control Area.

Common name	Scientific name	All of NSW Declaration	Category
African boxthorn	<i>Lycium ferocissimum</i>		4
African feathergrass	<i>Pennisetum macrourum</i>	A	5
African love grass	<i>Eragrostis curvula</i>		4
African turnipweed	<i>Sisymbrium runcinatum</i>	A	5
African turnipweed	<i>Sisymbrium thellungii</i>	A	5
Alligator weed	<i>Alternanthera philoxeroides</i>		2
Anchored water hyacinth	<i>Eichhornia azurea</i>	A	1
Annual ragweed	<i>Ambrosia artemisiifolia</i>	A	5
Arrowhead	<i>Sagittaria montevidensis</i>	A	5
Artichoke thistle	<i>Cynara cardunculus</i>	A	5
Athel tree	<i>Tamarix aphylla</i>	A	5
Bear Skin Fescue	<i>Festuca gautieri</i>	A	5
Bitou bush	<i>Chrysanthemoides monilifera subspecies rotunda</i>		4
Black knapweed	<i>Centaurea nigra</i>	A	1
Blackberry	<i>Rubus fruticosus (aggregare. species)</i>	A	4
Boneseed	<i>Chrysanthemoides monilifera subspecies monilifera</i>		4
Bridal creeper	<i>Asparagus asparagoides</i>	A	5
Broomrapes	<i>Orobanche spp.</i>	A	1
Burr ragweed	<i>Ambrosia confertiflora</i>	A	5
Cabomba	<i>Cabomba caroliniana</i>	A	5
Cayenne snakeweed	<i>Stachytarpheta cayennensis</i>	A	5
Chilean needle grass	<i>Nassella neesiana</i>		4
Chinese violet	<i>Asystasia gangetica subspecies micrantha</i>	A	1
Clockweed	<i>Gaura lindheimeri</i>	A	5
Clockweed	<i>Gaura parviflora</i>	A	5
Corn sowthistle	<i>Sonchus arvensis</i>	A	5
Dodder	<i>Cuscuta species (except native Species C. Australia, C. tasmanica and . Victoriana)</i>		5
East Indian hygrophila	<i>Hygrophila polysperma</i>	A	1
English broom	<i>Cytisus scoparius</i>		See Scotch broom
Espartillo	<i>Achnatherum brachychaetum</i>	A	5
Eurasian water milfoil	<i>Myriophyllum spicatum</i>	A	1
Fine-bristled burr grass	<i>Cenchrus brownii</i>	A	5
Fountain grass	<i>Pennisetum setaceum</i>	A	5
Gallon's curse	<i>Cenchrus biflorus</i>	A	5
Giant Parramatta grass	<i>Sporobolus fertilis</i>		3
Glaucous starthistle	<i>Carthamus glaucus</i>	A	5
Golden thistle	<i>Scolymus hispanicus</i>	A	5
Gorse	<i>Ulex europaeus</i>		3
Groundsel bush	<i>Baccharis halimifolia</i>		3
Harrisia cactus	<i>Harrisia spp.</i>	A	4
Hawkweed	<i>Hieracium spp.</i>	A	1
Horsetail	<i>Equisetum spp.</i>	A	1
Hymenachne	<i>Hymenachne amplexicaulis</i>	A	1
Karoo thorn	<i>Acacia karroo</i>	A	1
Kochia	<i>Kochia scoparia</i>	A	1
Lagarosiphon	<i>Lagarosiphon major</i>	A	1
Lantana	<i>Lantana species</i>		4

Common name	Scientific name	All of NSW Declaration	Category
Lantana	<i>Lantana species</i>	A	5
Long-leaf willow primrose	<i>Ludwigia longifolia</i>	A	5
Mexican feather grass	<i>Nassella tenuissima</i>	A	1
Mexican poppy	<i>Argemone mexicana</i>	A	5
Miconia	<i>Miconia spp.</i>	A	1
Mimosa	<i>Mimosa pigra</i>	A	1
Mossman River grass	<i>Cenchrus echinatus</i>	A	5
Mysore thorn	<i>Caesalpinia decapetala</i>		3
Onion grass	<i>Romulea species</i> (includes all <i>Romulea</i> species and varieties except <i>R. rosea</i> var. <i>australis</i> )	A	5
Oxalis	<i>Oxalis species and varieties</i> (includes all <i>Oxalis</i> species and varieties except the native species <i>O. chnoodes</i> , <i>O. exilis</i> , <i>O. perennans</i> , <i>O. radicata</i> , <i>O. rubens</i> , and <i>O. thompsoniae</i> )	A	5
Pampas grass	<i>Cortaderia spp.</i>		4
Parthenium weed	<i>Parthenium hysterophorus</i>	A	1
Pond apple	<i>Annona glabra</i>	A	1
Prickly acacia	<i>Acacia nilotica</i>	A	1
Prickly pear	<i>Cylindropuntia species</i>	A	4
Prickly pear	<i>Opuntia species except O. ficus-indica</i>	A	4
Red rice	<i>Oryza rufipogon</i>	A	5
Rhus tree	<i>Toxicodendron succedaneum</i>	A	4
Rubbervine	<i>Cryptostegia grandiflora</i>	A	1
Sagittaria	<i>Sagittaria platyphylla</i>	A	5
Salvinia	<i>Salvinia molesta</i>		2
Sand oat	<i>Avena strigosa</i>	A	5
Scotch broom	<i>Cytisus scoparius</i>		4
Senegal tea plant	<i>Gymnocoronis spilanthoides</i>	A	1
Serrated tussock	<i>Nassella trichotoma</i>		4
Siam weed	<i>Chromolaena odorata</i>	A	1
Smooth-stemmed turnip	<i>Brassica barrelieri subspecies oxyrrhina</i>	A	5
Soldier thistle	<i>Picnomon acarna</i>	A	5
Spotted knapweed	<i>Centaurea maculosa</i>	A	1
St John's wort	<i>Hypericum perforatum</i>		3
Texas blueweed	<i>Helianthus ciliaris</i>	A	5
Water caltrop	<i>Trapa species</i>	A	1
Water hyacinth	<i>Eichhornia crassipes</i>		3
Water lettuce	<i>Pistia stratiotes</i>	A	1
Water soldier	<i>Stratiotes aloides</i>	A	1
Willows	<i>Salix spp.</i> (includes all <i>Salix</i> species except <i>S. babylonica</i> , <i>S. x reichardtii</i> , <i>S. x calodendron</i> )		5
Witchweed	<i>Striga species</i> (includes all <i>Striga</i> species except native species and <i>Striga parviflora</i> )	A	1
Yellow burrhead	<i>Limncharis flava</i>	A	1
Yellow nutgrass	<i>Cyperus esculentus</i>	A	5

Class 1: State Prohibited Weeds;

Class 2: Regionally Prohibited Weeds;

Class 3: Regionally Controlled Weeds;

Class 4: Locally Controlled Weeds;

Class 5: Restricted Plants.

A: All of New South Wales Declaration

### 5.2.3 Bushfire

Bushfire is also a significant threat to biodiversity. According to the Kiama/Shellharbour District Rural Fire Service, there were 15 vegetation fires in the Kiama and Shellharbour areas within the reporting period, which was more than the

12 last reporting period but is still considerably less than previous years (17 in 2005/2006, 24 in 2004/2005, 62 in 2003/2004, 46 in 2002/2003, 154 in 2001/2002) (Bushby, D. 2009).

#### 5.2.4 Tree Lopping or Removal

Removal of trees, or major portions of trees, can have major impacts on biodiversity. Tree lopping is prohibited under Council's *Tree Preservation Order*. This Order states that no tree, specified by the Order, shall be ring-barked, cut-down, topped or lopped, injured or removed without prior Council approval and is dependent on its size and/or land zone under the *Local Environmental Plan 1996*. However, Council will approve for a tree to be lopped or removed if there is a concern for safety.

During the reporting period, there were 345 permits issued to remove or prune trees. This was less than last year's 383 permits, and significantly less than the 520 issued in 2005/2006, and the 560 issued in 2004/2005.

Some developments that involve native vegetation clearing, or vegetation clearing near waterways, require approval from the Southern Rivers CMA, or DECCW. Table 19 shows the history of developments that have required approval for clearing from the DECCW. There was 1 clearing approval by the Southern Rivers CMA during the reporting period and no clearing approvals issued by DECCW.

Table 19: Approvals for Vegetation Clearing by DECCW

	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009
DECCW approvals for vegetation clearing	5	22	28	14	4	6	2	0

### 5.3 Responses

#### 5.3.1 Development Control

Council's existing LEP 1996 provides for specific measures to control the impact of human activities upon local biodiversity within designated High Conservation Value Areas and land within Rural Environmental Zones 7b (Estuarine Wetlands), 7b1 (Wetland Buffer), 7d (Scenic), 7e (Hinterland), 7f (Foreshore Protection) and 7i (General). The LEP is currently being reviewed and is looking at more innovative planning controls to help protect the natural and built environment.

The NSW *Threatened Species Conservation Act 1995* provides for the protection of threatened species and their habitats, including threatened species of plants and animals and endangered 'populations' and 'ecological communities'.

The Schedules to the Act list the threatened species, populations and ecological communities and key threatening processes, as determined by a special Scientific Committee (see above in the Section 5.1: State for the threatened species and communities listed under this Act in the Kiama Local Government Area).

This legislation was reviewed in 2004 with the amendment aiming to establish better frameworks and processes so that landholders, developers, farmers, community groups and government agencies can more effectively contribute to protecting the State's biodiversity.

The *Threatened Species Conservation Amendment Act 2004* puts greater emphasis on land-use planning which focuses on the protection and restoration of native vegetation and threatened species habitat and can allow Council LEPs to be certified under the Biodiversity Certification Program. Certification may be granted for part of a local environmental plan (LEP) or individual species within the LEP, depending on the quality of the available data (Department of Environment, Climate Change & Water – c)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* focuses on 'matters of environmental significance' and puts in place an environmental assessment and approvals process (Australian and New Zealand Environment and Conservation Council, 2001). Matters of environmental significance include threatened animal and plant species and ecological communities, which are listed by the Commonwealth Minister for the Environment, Heritage & Arts on the advice of a specialist committee (Department of Environment, Water, Heritage & Arts).

Proposed developments in the Kiama Municipality that are likely to have a significant impact on matters of national environmental significance must be referred by the proponent to the Department of Environment, Water, Heritage & Arts, for Commonwealth approval in addition to a development approval by Council. Council is also obliged to refer an action that itself proposes to take if it is likely to have a significant impact on matters of national environmental significance (Department of Environment, Water, Heritage & Arts).

### **5.3.2 Threatened Species Recovery Plans**

Council is a member of the Illawarra Regional Threatened Flora Recovery Team which is convened by the NSW Department of Environment, Climate Change & Water. The Regional Recovery Team is developing and reviewing Recovery Plans for six threatened flora species within the Illawarra Region: Pink Rice-flower (*Pimelea spicata*), Illawarra Granulata (*Zieria granulata*), White Flowered Wax Plant (*Cynanchum elegans*), Illawarra Greenhood Orchid (*Pterostylis gibbosa*), Illawarra Socketwood (*Daphnandra Sp C*), and Illawarra Irene (*Irenepharsus trypherus*).

Previously, the NSW Department of Environment, Climate Change & Water prepared and implemented Recovery Plans for listed threatened species, populations and ecological communities, and Threat Abatement Plans for key threatening processes. As the number of listed species, communities and processes increases, it was instead decided to prepare a *Priorities Action Statement* (PAS). The PAS combines strategic reform with specialist recovery and threat abatement actions.

Under each strategy, actions are listed which aim to recover each threatened species and abate each threat. These are further categorised into high, medium and low priority actions (The Department of Environment and Conservation, 2006). The PAS can be searched online by type of species, threatening process or by geographic areas

at [http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/pas\\_lga.aspx](http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/pas_lga.aspx). There are 21 recovery strategies and 5 threat abatement strategies listed in the draft PAS that refer to threatened species within the Kiama Local Government Area, including 285 priority actions (Department of Environment, Climate Change & Water – d).

### **5.3.3 *Native Vegetation Act 2003***

The *Native Vegetation Act 2003* aims to end broad scale clearing, to protect the health of our land, rivers and wildlife. The Act gives power to local Catchment Management Authorities to make decisions about how to best manage native vegetation. The system is based on voluntary agreements between landholders and Catchment Management Authorities called Property Vegetation Plans (PVPs).

The new system includes the use of a computer modelling program called the *PVP Developer*. The PVP Developer weighs up the positive and negative aspects of different management plans and activities, allowing farmers to make practical decisions based on the best scientific information available. Experts from the local Catchment Management Authority use this tool and their professional judgement when assessing clearing proposals. Farmers are then eligible for funds to help with conservation initiatives such as revegetation plans, salinity strategies and soil erosion control (NSW Government, 2005).

### **5.3.4 Supply of Trees**

During the reporting period Council issued approximately 500 plants.

### **5.3.5 Roadside Vegetation Management Plan**

With funding received from the Roads and Traffic Authority Roadside Environment Committee via the Southern Rivers Catchment Management Authority, Council prepared a Roadside Vegetation Management Plan. The primary objective of the plan is to protect the good quality remnant vegetation and to identify areas for revegetation and corridor enhancement.

Development of the plan required vegetation surveys and an assessment of the existing roadside vegetation to determine areas of low, medium and high quality conservation value and also threatened species. The assessment was done generally in accordance with the guidelines produced by the NSW Roadside Environment Committee. The management plan developed from the surveys and guidelines will then determine the future management of the roadside vegetation. Training of all staff was undertaken, with maps and a summary of the document issued to specific staff.

### **5.3.6 South Coast Communities Sea Spurge Control (SCCSSC) Project**

The South Coast Communities Sea Spurge Control project is being funded by the Australian Government's Caring for our Country Program, and is being administered by the Southern Councils Group.

The SCCSSC project is aiming to establish a containment line for Sea Spurge (*Euphorbia paralias*) as it moves northward along the NSW coast. Local indigenous communities, coastal volunteer groups, local, state and federal government agencies will all work cooperatively to establish a containment line beyond which all infestations will be eliminated and implement control measures to bring remaining infestations to manageable levels. With two years of support for coordination of work crews, it is anticipated that infestations on all NSW South Coast beaches could be reduced to levels that could be managed by local volunteers and agencies.

Currently there is one infestation of sea spurge identified on Kiama LGA beaches, which was controlled during the reporting period. Follow up monitoring in the 2009/10 reporting period will again assess the previous known infestation sites and scan for new infestations.

### **5.3.7 Council Rehabilitation Projects**

Council has continued to implement rehabilitation projects within parks, reserves and beaches within the Municipality. During the reporting period, bush regeneration and removal of noxious weeds was undertaken at:

- Spring Creek Wetlands: Continued removal of major infestation of Madeira vine around Jamberoo Road pond and replanting of native species plus on-going planting to increase biodiversity elsewhere in reserve;
- Jerrara dam: Lantana clearing and replanting with native species. implementation of the Recovery plan for *Zieria granulata* & *Daphnandra micrantha*, on-going planting to increase biodiversity elsewhere in reserve;
- Creation of a new reserve between Kiama and Gerringong, for the Kiama coastal walking track. During the 2008-2009 reporting period on-ground works commenced to fence off the 6km of coastline to protect coastal vegetation and provide safe access for the public to the shoreline; and
- Council has begun the process of investigating and designing bank stabilisation works of the Minnamurra River along a 300 metres of Riverside Drive. Work is being funded by the RTA as part of the handover of the former Princes Highway

### **5.3.8 Other Rehabilitation Projects in the Kiama Municipality**

#### **Community Rehabilitation Projects**

Many community groups have undertaken a range of rehabilitation projects throughout the Municipality. These active environmental groups, include Bombo Headland Landcare, Bombo Outlook Landcare, Byrne's Run Landcare, Foxground Landcare, Gerroa Environment Protection Society, Jamberoo Mountain Landcare, Jamberoo Valley / Minnamurra River Landcare, Minnamurra Environment Group, Seven Mile Beach Dunecare, Spring Creek Environment Group, Upper Minnamurra Rivercare, Wallaby Hill Landcare, Wallace Creek Landcare and Werri Beach Dunecare.

## **Landcare Illawarra project in Kiama 2008-2009**

### **Feral Animal Control**

Upper Foxground and lower Foxground have continued to have two pest animal control programs per year. The group has received funding from the small farms network through the Southern Council's Group and the rest of the program is funded through private landholder contributions. (Mathie, B, pers comm, 2009) This program is a continuation of the Landcare Illawarra Feral Animal Control Program described below.

Landcare Illawarra has been working on a Feral Animal Control Program with funding from the National Landcare Program. The program has covered a large portion of the Municipality including Foxground, Toolijooa, Broughton Village, Gerroa, Gerringong and surrounds. The aim of the program was to implement humane and effective methods of controlling feral animals, including trapping, shooting and baiting.

From the period of May 2005 to the end of October 2006, 136 landholders were involved in a Pest Animal Control Program that covered 3126 hectares. During this period 171 fox, 7 deer, 19 goats and 1 feral cat were culled. Some 45 landholders conducted a further cull using recreational hunters, which covered another 2894 hectares. This saw the eradication of 148 foxes, 2 deer, 38 goats and 10 feral cats. There were 37 landholders that did not participate, leaving an area of 848 hectares which was not managed for pest control. (Mathie, B. pers comm.2007)

Following up from this program during the 2007-2008 reporting period, fourteen landholders in the Lower Foxground area took part in two nights of fox control, where 16 foxes were culled. In upper Foxground, a program of feral animal control targeting mainly foxes, but also deer and goats, was also undertaken.

### **Gerringong Gerroa Community Engagement Project**

Landcare Illawarra has developed a project that encourages resources, including labour, to be shared through a local Landcare network. The Gerringong Gerroa Community Engagement Project includes partners Landcare Illawarra, Southern Rivers Catchment Management Authority, Berry Primary School, Kiama Primary and High Schools, Boolarng-Nangamai Aboriginal Studio, Gerringong Garden Club, Kiama Community Services Association and Ratepayers Association, Werri Beach Dunecare, Gerringong Lions Club, Gerringong Community Streamwatch Conservation Volunteers Australia, and Kiama Council. These partners share resources between themselves and with individuals for many environmental projects. The group meets bi-monthly at Boolarng Nangamai Aboriginal Arts & Culture Studio in Gerringong.

The contact for this group is Megan Rowlett on 4229 7526. (Rowlett M, 2009)



### Caring for our Community Coastcare project

Four local Landcare groups (Bombo Headland Landcare Group, Werri Beach Dunecare, Gainsborough Chase Minnamurra Wetland Landcare Group and Little Blowhole Landcare Group), were successful in obtaining \$45,000 worth of funding to work together to regenerate coastal vegetation and habitats in the Kiama LGA. The groups aim to work together to share knowledge and engage the wider community to increase the outcomes of their Landcare activities. Collaboration of these four groups on this project will see the pooling of resources, boosting their capacity to carry out environmental works and providing motivation to all involved.

The Caring for our Community Coastcare project has so far achieved:

- Site visits by Aboriginal sites officers from the Illawarra Aboriginal Lands Council;
- Monitoring, Evaluation, Recording and Improvement (MERI) workshop run through the Southern Rivers CMA engaging the wider Landcare and Bushcare community to encourage groups to keep accurate and consistent records about their groups activities. A draft monitoring journal was produced and will soon be available from Landcare Illawarra;
- Baseline data was recorded at each of the four Landcare sites including photo points and GPS coordinates; and
- Little Blowhole Landcare group engaged Boolarng Nangamai Aboriginal Arts and Cultural studio to paint a mural on site and will run a series of cultural education sessions in the coming year involving local schools in the Kiama LGA and a wider digital audience

(Rowlett M.,2009)

### Bombo Headland Landcare Group

The Bombo Headland Landcare Group continues to make considerable contributions to the environment and amenity of the Kiama area. For the past 16 years the group has averaged 1,000 trees, shrubs and ground covers per year on their site, partnering and mentoring other groups including Kiama High School and Green Corps.

### Werri Beach Dunecare Group

Werri Beach Dunecare volunteers continue to tackle weed infestations and dune restoration works in partnership with Conservation Volunteers Australia. Basic coastal vegetation being restored includes *Banksia integrifolia*, *Correa alba*, *Leptospermum laevigatum*, *Westringia fruticosa* and weeds controlled include asparagus fern, Kikuyu, Madeira vine, glory lily, green cestrum and morning glory.

### Gainsborough Chase Wetlands Landcare Group

The Gainsborough Chase wetlands Landcare Group works on a site owned by the Baptist Church and contains Endangered Ecological Communities and SEPP 14 wetlands. The group partners with Conservation Volunteers Australia to work on weed control, revegetation and restoration at the site.

### Little Blowhole Landcare Group

The Little Blowhole Landcare Group continue to work on a gully adjacent to the Little Blowhole. To date the group has completed revegetation works, erosion stabilisation and are working on an interpretive walk through their site.

### Foxground Landcare Group – Madeira Vine Eradication

The Foxground Landcare Group has had the eradication of Madeira vine in their sights for the past couple of years. With funding obtained from the Environmental Trust Grants extending into 2008/09, they have continued their agenda of making Foxground, a Madeira vine free zone. (Mathie B., pers comm 2009). The group also received a Kiama Council Sustainable Living grant to aid in the Madeira vine eradication in the 2008/09 reporting period.

The group has tackled forty six infestations in Foxground, thirty eight on private property and eight on Council roadside verges. Three major sites (fifteen infestations at those sites) are major infestations and are an ongoing concern for the group, who continue to tackle the problem with the support of local landholders. The group removed 60 bags of tubers and vine material from the major seeding site on Broughton Creek, and continual follow up and monitoring will ensure the spread of Madeira Vine in the Broughton Creek will be limited.

Other major seeding sites have been identified and the group is continuing to work with landholders to control the sites. The Landcare group has tirelessly and methodically tackled the Madeira vine problem in the Foxground area using manual removal techniques and burning of material. Of the 46 sites, 31 sites are under complete control or totally eradicated. (Mathie, B. pers comm.2009)

Foxground Landcare group continued to work on fourteen Landcare member properties the one day per month. The group focuses on weed control, tree planting and restoring degraded habitat. Members have received funding from the Bush incentives grants through the Southern Rivers CMA. The NSW DPI and Southern Rivers CMA fish barrier project also saw the remediation of a site on Broughton Creek to restore the creek channel to allow passage of native fish species. (Mathie, B. pers comm.2009)

Funding has also been obtained through the Threatened Species Network Community Grant, from the Worldwide Fund for Nature, Australia, to undertake research on quoll activity in five different locations in Foxground. Three infrared remote cameras have been used to monitor sites around Foxground with no confirmed sightings of quolls to date. (Mathie, B. pers comm.2009)

## **New Landcare Groups formed in 2008-2009**

### **Seven Mile Beach Restoration Landcare Group**

Seven Mile Beach Reserve is a Crown reserve managed by Kiama Council in Trust for the NSW Department of Lands and is located just north of Seven Mile Beach National Park near Gerroa.

In partnership with Southern Rivers CMA, Gerringong Lions Club, Kiama Municipal Council, Gerringong Environment Protection Society and the NSW Department of Lands, State and Commonwealth funding is being investigated for restoring the area.

### **Cedar Ridge Landcare**

The majority of the ridge at Cedar Ridge, Kiama, is under a Voluntary Conservation Agreement and sits adjacent to land managed by NSW National Parks and Wildlife Service, which is also under a Conservation Agreement.

The property is bordered by the old heritage stone walls and is enriched with history and evidence of early settlement in the region. The small but very active Landcare group is working on a weekly basis to remove thickets of lantana and Madeira vine, coral trees and wild tobacco bushes. A small creek running through the property has also been weeded and revegetated and regeneration of many native rainforest species encouraged.



Photo: Reuben Brown gives interested onlookers and insight into the indigenous cultural history and wetlands of the Minnamurra River at the Conservation Volunteers Australia, Wetland field day (Rowlatt M., 2009)

### Conservation Volunteers Australia - Revive Our Wetlands Program

At this critical time of drought, dwindling water resources and increasing awareness of the impact of climate change, the role of wetlands to our environment has never been more important. Revive our Wetlands is the largest national wetlands revival program in Australia, developed by Conservation Volunteers Australia and BHP Billiton. Here in the Kiama Municipality, Revive our Wetlands has undertaken significant conservation work at Werri Lagoon.

Werri Lagoon at the northern end of Werri Beach, Gerringong, comprises an extensive lowland swamp and estuarine lagoon covering an area of 46 hectares. The catchment of the lagoon is mainly farmland, with some urban areas around the southern side. Werri Lagoon is protected under SEPP 14 (wetlands of State significance) and includes an area of Coastal Saltmarsh adjoining the Western boundary of the lagoon which has been declared as an endangered ecological community under the Threatened Species Conservation Act 1995 (NSW).

Working in partnership with the Southern Rivers Catchment Management Authority, the Werri Beach Dunecare Group, Kiama Municipal Council, local farmers and residents, in 2008/2009 Revive our Wetlands has facilitated 216 volunteers working in the Werri Lagoon catchment on 3 days per month. The work undertaken in the 2008/2009 period included planting of over 2,265 native plants (which have had a 80% survival rate) along the banks of Ooaree Creek, Streamwatch water quality monitoring, removal of over 10,600m of invasive weeds, seed collection and photo point monitoring. (Rowlett M, 2009)

Minnamurra Wetlands is a SEPP 14 classified wetland under the Environmental Planning and Assessment Act 1979. The site includes Salt Marsh, Swamp Oak Floodplain and Illawarra Subtropical Rainforest communities, all of which are listed as Endangered Ecological Communities.

Revive our wetlands has worked on this site since 2008, in partnership with the Southern Rivers Catchment Management Authority and the Kiama Baptist Church. Revive our wetlands work at the site 3 days a month, and in 2008-2009 saw 169 volunteers visit the site; removing over 3,370metres of weeds and planting 482 native plants (which have had a 95% success rate). The team also salvaged 25 native plants from the area targeted for weeding, all of which were successfully re-established at the site.

As a part of the ongoing communication and awareness of wetlands and their significance a wetlands education field day was held in October 2008 at the Minnamurra site. Sixty five (65) Illawarra residents turned out to learn about the importance of wetlands as well as hear from Aboriginal elder Reuben Brown about the indigenous heritage of the area. (Rowlett M, 2009).

### National Landcare Program and Caring for our Country Program 2008/2009

In partnership with the Small Farms Network and the Southern Rivers CMA, Landcare Illawarra has undertaken a number of projects with private landholders in the Kiama Municipality, with the emphasis on sustainable management of agricultural

land. The project funded eight projects in the Kiama Municipality with the following outcomes:

- Stock exclusion from waterways and provision of off-stream watering points;
- Weed control;
- Erosion control; and
- Riparian revegetation.

#### **5.4 Potential Future Activities**

##### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (including Threatened Species Recovery Plan actions);
- Tree Preservation - Assess applications for tree removal or pruning in accordance with Council's *Tree Preservation Order*;
- Provide funding for the operation of the IDNWA;
- Control noxious weeds through the implementation of the IDNWA Programs;
- Ensure the ongoing implementation of the *Roadside Vegetation Management Plan*.
- Continue the development of educational reserve sites at: Spring Creek Wetlands, Jerrara Dam Arboretum and Bonaira Native Gardens;
- Implement the Illawarra Biodiversity and Local Food Strategy for Climate Change

##### **Potential Future Activities Beyond 2009-2010**

(H – High Priority, M - Medium Priority, L – Low Priority)

- Ongoing implementation of the *Roadside Vegetation Management Plan*. (H, M & L as per Plan timeframes);
- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- Tree Preservation - Assess applications for tree removal or pruning in accordance with Council's *Tree Preservation Order* (H);
- Provide funding for the operation of the IDNWA (H);
- Control noxious weeds through the implementation of the IDNWA Programs (H);

- Review and implement the relevant recovery strategies listed in the Department of Environment, Climate Change & Water's draft *Priority Action Statement* that refer to threatened species and threatening processes on Community Land (H);
- Continue the development of educational reserve sites at: Spring Creek Wetlands, Jerrara Dam Arboretum, and Bonaira Native Gardens (M);
- Progressive implementation of actions identified in Plans of Management subject to funding;
- Support and participate in Landcare Illawarra, Conservation Volunteers Australia and Southern River Catchment Management Authority projects within the Kiama Municipality, including opportunities for educational programs on biodiversity issues (M);
- Conduct workshops for Community Groups and interested residents on appropriate topics such as backyard biodiversity, propagation and indigenous sites (L).

## **Chapter 6: Waste**

### **6.1 State**

Kiama Municipal Council operates the Minnamurra Waste Disposal and Recycling Centre. The facility includes a Materials Recovery Facility for the sorting of recyclable materials from the domestic recycling collection service and a Revolve Recycling Centre incorporating green waste mulching and compost processing, scrap metal, waste paper, oils and glass recycling. In April 2008, Council closed its Materials Recovery Facility and all recycling is now transported to WSN (Waste Service NSW) in Chullora, Sydney for sorting and recycling.

A Closure Plan has been completed and implemented along with a quality assurance plan, submitted to the Department of Environment, Climate Change & Water for approval.

Ongoing maintenance has continued at the Gerroa Waste Disposal Depot including weeding, mowing, watering and planting.

A ten year Waste Strategic Plan for Waste Facilities and Services is being developed for the Kiama Municipality to identify future waste, recycling collection services and disposal options.

### **6.2 Pressures**

#### **6.2.1 Pressures from Waste Generation**

The volume, and type of waste generated by the community places pressure on both available landfill space, and processing facilities. Both population growth and the behaviour contribute to this ongoing pressure. There is therefore a need to reduce the amount of waste going to landfill, through waste avoidance and recycling and reuse facilities.

The estimated total waste (green waste, putrescibles and recycling) generated during the reporting period was 11,142.84 tonnes, of which 6,292.94 tonnes, or 56.48%, was recycled. (See Figure 6 for comparison with previous years).

This figure is a decrease of 3.06% compared with the 2007/2008 figures.

During the 2008/2009 reporting period, the total waste disposed of at the Shellharbour City Council facility was 4,849.90 tonnes made up of the following:

• Urban/Rural garbage collection service	3,496.50
• Streets/Parks/Reserves/Commercial waste	1,110.00
• Litter/Waste collection from Footpaths/Parks/Reserves	37.60
• Urban Kerbside Clean Up Waste	205.80

During the reporting period, 6,292.94 tonnes of materials was recycled at the Minnamurra Waste and Recycling Facility, consisting of the following types and tonnages:

• Commercial Recycling	390.09
• Drop Off Centre Recycling	36.20
• Kerbside Recycling	2,224.00
• Rural Recycling	116.05
• Steel	170.57
• Green Waste Drop Off	1,014.66
• Green Waste Kerbside Collection	2,259.76
• Kerbside Clean up Steel	81.61
• Street Sweeper waste	280.00

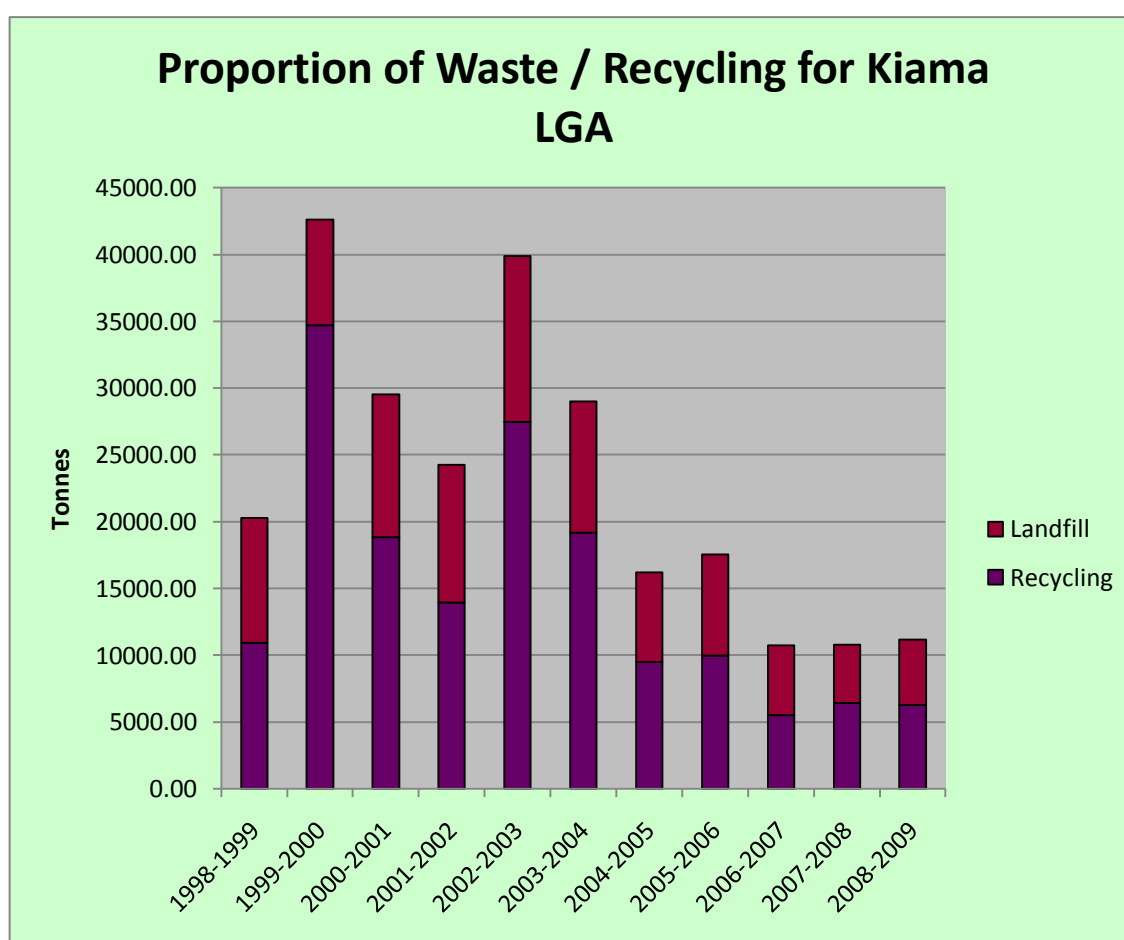


Figure 6: Waste Recycled/Reused and Disposed to landfill 1998 to 2009

## 6.2.2 Pressures from Waste Management

The Minnamurra, and the former Gerroa, Waste and Recycling Depots are located within sensitive areas close to wetlands and beaches and there are potential impacts such as ground water contamination, odour, greenhouse gas emissions, weeds, noise and feral animals as a result of the operation of the facilities. The closure and rehabilitation of these facilities have now been completed with ongoing maintenance to both sites continuing.



### **6.2.3 Illegal Waste Disposal**

Illegal dumping of waste such as building and demolition waste, green waste, household items, household rubbish, abandoned cars, and general litter has an impact on both visual amenity and the natural environment. Environmental impacts include reduced water quality, threats to biodiversity through weed and pest invasion, and the risk of soil contamination.

During the reporting period, Council investigated thirty six littering and illegal dumping complaints.

## **6.3 Responses**

### **6.3.1 Development Control**

The *Development Control Plan (DCP) No 25 – Planning for Less Waste* was adopted by Council in March 2004. The DCP focuses on the building and demolition industries and aims to reduce the demand for waste disposal facilities in Kiama Municipality. The objectives of the plan are:

- To maximise reuse and recycling of building and construction materials and minimise disposal of materials;
- To encourage selective and/or complete deconstruction of buildings rather than outright demolition;
- To facility improved project planning and management with the aim of delivering efficient use of resources, efficient building techniques and minimisation of waste; and
- To foster the principles of Ecologically Sustainable Development.

Development applications must include a Waste Minimisation and Management Plan, and a Waste Compliance Certificate is required to be submitted as a condition of consent outlining quantities of materials reused, recycled or disposed.

During the reporting period, statistics were recorded regarding building and construction waste from the 95 finalised development applications that were required to submit Waste Minimisation and Management Plans. The total estimate tonnage of waste disposed of, recycled or reused on or off the construction sites was 2,302.828 tonnes. Of this 1,110.243 tonnes (48.21%) was reused or recycled and 1,192.585 tonnes (51.79%) was disposed to landfill including asbestos.

This represents a decrease of 14.43% in the amount of materials recycled when compared to the previous reporting period. These figures only cover developments over \$5,000 and do not include exempt development (see Table 20).

Table 20: Tonnes Reused, Recycled or Disposed to Landfill - Building and Construction Waste

<b>Material Type and Fate</b>	<b>Total Tonnage</b>
On-site Reused Timber	9.65
On-site Reused Bricks	9.61
On-site Reused Fill	160.002
On-site Reused Green Waste	5.4
Off-site Recycled Timber	5.591
Off-site Recycled Bricks	146.96
Off-site Recycled Concrete	98.11
Off-site Recycled Fill	512.33
Off-site Recycled Green Waste	7.78
Off-site Recycled Metals	3.51
Off-site Recycled Plaster Board	9.745
Off-site Recycled Other	141.555
Disposed to Landfill	1173.595
Disposed Contaminated Material - "Asbestos"	18.99
<b>TOTAL ON-SITE REUSED</b>	<b>184.662</b>
<b>TOTAL OFF-SITE RECYCLED</b>	<b>925.581</b>
<b>TOTAL DISPOSED</b>	<b>1192.585</b>

### 6.3.2 Benefits of Recycling

The total amount of recyclables collected by Council from the urban and rural residential sector for 2008/2009 was 2,340.05 tonnes. This represents a decrease of 0.07% on the 2007/2008 figure of 2,340.87 tonnes.

A further 390.09 tonnes of recyclable materials were recycled from commercial premises (579.24 tonnes 07/08) and 288.38 tonnes including drop off recycling (36.2 tonnes), scrap steel (170.57 tonnes) and kerbside steel cleanup (81.61) was recycled at the Minnamurra Waste and Recycling Centre.

A total of 3,274.42 tonnes of green waste was diverted from landfill. 2,259.76 tonnes of green waste was collected from the fortnightly urban kerbside service and a further 1,014.66 tonnes was received at the Minnamurra Green Waste Recycling Centre.

When the total recycled tonnage figure is entered into the Department of Environment, Climate Change & Water's, *Environmental Benefits of Recycling Calculator* (Department of Environment, Climate Change & Water, - e), it shows that this amount of recycling has the following benefits with regard to landfill space, greenhouse gases and energy and water savings .

For the 6,415.41 tonnes of total waste recycled, this equates to:

- 17,342 m<sup>3</sup> of landfill space saved;
- 3,160 tonnes CO<sub>2</sub> equivalent total greenhouse benefits;
- 759 cars being removed from the road;
- 104,804 gigajoules of energy savings;
- 485.2 households' annual electricity requirements; and

- 104,233 megalitres of water savings (41.7 Olympic swimming pools or 1,895 backyard swimming pools).

For 3,274.42 tonnes of green waste diverted from landfill, using the National Greenhouse Accounts factor of 1.3 tonnes equivalent CO<sub>2</sub> per tonne of green waste, this equates to:

- 4,256.75 tonnes of CO<sub>2</sub> equivalents

### 6.3.3 New Waste Projects

#### Project Aware

International Cleanup Day is part of Project AWARE, a non-profit organisation encouraging divers to clean up aquatic areas around the world. In September 2008, 30 Volunteers from Windang Dive and Spearfishing cleaned the Blowhole and Kiama Harbour areas and removed any waste.

This is the first time Kiama Council has participated in this event and the first time an underwater cleanup has been done in the Kiama blowhole. A total of 0.19 tonnes of waste was collected on the day.



Project Aware clean up of Kiama Harbour

#### Sustainable Illawarra - Op Shop Bus Tour

Sustainable Illawarra is a regional, grant funded project providing three Illawarra councils (Wollongong, Shellharbour and Kiama) an opportunity to investigate and establish a more strategic approach to sustainability programs and initiatives delivered to our community. The councils believe that combining their resources and knowledge on sustainability projects will ensure a more consistent message is being delivered to the region's communities.

As a result all three councils put their heads together to apply for a regional grant funded by the NSW State Government's Environmental Trust. The funding is part of the Department of Environment, Climate Change & Water's Urban Sustainability Program.

Working parties were formed with representatives from each of the three participating councils based on the following themes: Waste and Better Buying, Water and Energy, Biodiversity and Food.

One of the events to be delivered out of the Waste and Better Buying funding was an Op Shop Bus Tour. During 2008/2009, tours were conducted in November 08 and May 09 and were free of charge to residents of Kiama, Shellharbour and Wollongong, with pick up points in Kiama and Albion Park. The tour stopped at the following stores located in the Illawarra:

- Salvation Army Store, Warilla
- Salvation Army Store, Unanderra
- Big Heart, Dapto
- St Vincent de Paul's, Dapto
- RSPCA Support Shop, Dapto
- Uniting Church, Dapto
- Lifeline, Wollongong
- The Smith Family, Wollongong
- Lifeline, Kiama



A total of 90 residents attended both of these tours. Each participant completed an evaluation survey and believed the inclusion of a professional fashion stylist on board was a great opportunity to be educated on what styles and colours to look for based on individual body shapes.

### Littering from Vehicles – Summer Blitz Program

Kiama, Shellharbour, Shoalhaven, Wingecarribee and Wollongong Councils were provided with \$30,000 funding from the Department of Environment, Climate Change & Water to conduct a campaign to persuade travellers in the region not to throw rubbish from their vehicles. The campaign was conducted during the summer holidays (December 2008 – February 2009).

9L PP 150x110

As part of this program, each Council:

- identified two litter “hot spots”. Kiama chose Coronation Park and Kiama Blowhole Car Park to conduct a pre and post litter survey;
- set up and supplied car litter bags and a free giveaway at all petrol stations, Tourist Information Centres and “Driver/Reviver stations within their LGA (*Kiama Council only provided car litter bags to the four Council owned and operated tourist holiday parks*);



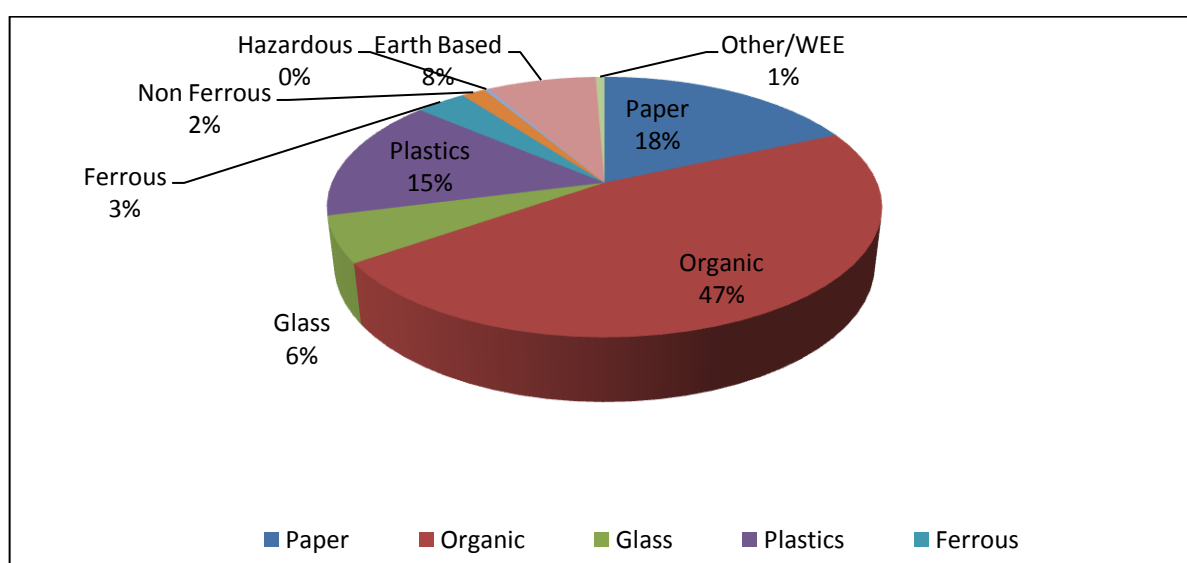
- Council rangers supported the program throughout January with the authority to issue \$200 fines for littering from vehicles;
- Distributed promotional material (bin stickers and posters)

As a region, radio advertisements were placed with all local radio stations promoting the program and emphasizing the fines associated with littering.

Kiama Council was the only council to issue a Penalty Infringement Notice during the program period.

### Waste Service Performance Improvement Program

The Department of Environment, Climate Change & Water developed this program to assist councils in the regulated area to invest in improvements in waste avoidance, resource recovery, waste management and improvements in environmental sustainability. To be eligible for the 2008/2009 payment, Councils needed to conduct a waste audit on a random sample of materials placed in mobile garbage bins (MGB's) at the kerbside by urban tenements within the municipality and to report on the findings. Kiama Municipal Council's waste audit was conducted by the Waste Business Unit in October 2008. The audit showed 47% of materials in the garbage bin comprised of organics i.e. Items that can be composted. Waste and recycling audits are required to be conducted and reported on a yearly basis.



Kiama Council's Waste Audit Results November 2008  
Garbage bin

## **Lifeline “Big Book” Fair**

In September 2009, Council partnered with Lifeline South Coast, by supporting Lifeline’s “Big Book Fair”. Lifeline South Coast contributes to a 24-hour telephone counselling service which caters for people on the coastal region from Helensburgh to the Victorian border.

Council set up collection boxes in various Council facilities over a two week period whereby a total of 622 books were collected. Council will continue assisting with this program each year.

## **Centrepont Arcade Revamp of Existing Waste and Recycling Facilities**

In August, 2008, Council was approached by Dougmal Real Estate (property managers) to assist with improving the existing waste and recycling facilities at Centrepont Arcade, located in the Kiama CBD. Centrepont Arcade comprises of 26 shops. After consultation with Dougmal and Kiama Council’s Waste Business Unit staff, the aim to provide a more efficient way of sorting waste and recyclables was achieved by:

- Converting old wool sacks for paper and cardboard collection to 4 x 1100 litre MGB’s;
- an education program for each of the tenants. This involved approaching each tenant to discuss the revamped facilities, provision of educational material on what is and isn’t recyclable;
- personal ashtrays to minimise the amount of butt litter located around the bin enclosures;
- signage on waste and recycling bins; and
- installing a gate on the bin enclosure

Waste Services personnel monitor this area to ensure it is being used correctly by the tenants and to date, the system has achieved an increase in the amount of recyclables collected and the area is kept tidier.



Centrepont Arcade showing the bin enclosure (right) before the 1,100 litre MGB’s (shown on the left) were implemented



## Lamp Recycling Program

With the phase out of incandescent light globes, there was need to consider the increased volume of compact fluorescent light globes (CFL's) entering the waste stream. There have been a number of stories relating to the mercury content of CFL light globes, and the predicted effects of the increased volume of CFL light globes going to landfill, so Kiama Council chose to be proactive in its approach to dealing with this issue.

As part of Kiama Council's, Sustainable Kiama Communities project and Council's continuing commitment to reduce waste going to landfill, Council partnered with Lamp Recyclers to offer a lamp recycling service which was trialled over a four month period at the Minnamurra Recycling Depot. The official launch of the program, Thursday, 13<sup>th</sup> November, coincided with National Recycling Week, November 10<sup>th</sup>-16<sup>th</sup>, 2008.

To receive up to six free energy efficient light globes, thanks to the support of Cosmo Lighting, residents needed to drop into the official launch of the lamp recycling program with their old incandescent, CFL and fluorescent tubes.

Following the official launch and free light globe offer, the drop off service was available at the Minnamurra Waste Depot for Kiama LGA residents to recycle their burnt out incandescent, CFL and fluorescent tubes. In March, 2009, the program was assessed and deemed a worthwhile recycling program that it is now ongoing. In addition to our collection site at the Minnamurra Recycling Depot, Council has installed a collection box for its contract electricians when they service the fluorescent lights within Council buildings.

A total of 20kg of fluorescent tubes and 7.5kg of mixed lamps has been collected from November 2008 – June 2009.



Residents drop off their CFLs at the launch of the Lamp Recycling Program

### **6.3.4 Ongoing Waste Projects**

#### **Clean Up Australia Day 2009**

The annual Clean Up Australia Day was held on Sunday 1<sup>st</sup> March 2009. The event attracted approximately 1,000 participants with 17 sites registered. Overall, 1.00 tonne of rubbish was collected, which was a 6% decrease from the previous year's figures. This indicates that the Kiama Municipality is a cleaner place to live.

For Clean Up Australia Day 2009, Kiama Council focussed on the Minnamurra River with 25 divers, once again, from Windang Dive and Spearfishing volunteering their time to clean out the river. The divers reported the river to be in excellent condition with items such as beer bottles, aluminium cans, plastic bags and a push bike comprising most of the 0.19 tonnes of rubbish collected. Other volunteers on the day included the Minnamurra Estuary Restoration Group who came down to do some weeding and to unveil the educational signage on saltmarsh and mangroves, funded under a grant Kiama Council received from DECCW.



Divers helping with the annual Clean up Australia Day event at Minnamurra River 2009

Business Clean Up Day was held on Tuesday, 24<sup>th</sup> February, 2009 and it was the fourth year Kiama Municipal Council elected to form a group to become involved in this event. The area nominated for clean up was behind the Council Administration Building, surrounding streets, Blowhole point and Black Beach.

The 13 staff members who volunteered for the event collected a total of 15 bags (220kgs) over a total area of approximately 1.5km. Items collected included food packaging, plastic bags and cans.





Kiama Council business Clean up Day 2009

Schools Clean Up Australia Day was held on Friday 29<sup>th</sup> February, 2008 with all primary schools participating in cleaning up areas directly surrounding the schools premises.

The Clean up Australia Program is promoted on the Kiama Council website.

### **Holiday Accommodation “Responsible Waste Kits”**

This project was initiated in December 2005 and is reviewed every six months in liaison with real estate agents located within the Kiama municipality.

It was identified there were several waste issues associated with holiday accommodation properties within the Kiama municipality. Predominately, the issues were:

- there was insufficient garbage bin capacity for peak holiday periods;
- full bins were not being placed out for collection on designated collection days; and
- bins were not returned to property when emptied.

The ongoing program aims to:

- Increase visitors awareness about the need to recycle;
- Encourage visitors to effectively recycle using the system correctly;
- Put the onus back onto the property owner to ensure correct size bin for the property to cover peak holiday periods; and
- Inform the real estate agents of their responsibility in managing the bins for these properties.

In consultation with the local real estate agents, a comprehensive “Responsible Waste Kit” was developed for each of the holiday accommodation properties consisting of a Waste and Recycling Calendar (magnetised), a “What to Recycle?” A3 poster (magnetised), Recycle Bin Sticker to be placed on the top of the lid of the yellow recycling bin, and a “No Junk Mail” sticker, to be placed on the property’s letter box to prevent unwanted junk mail spilling onto the property. The reduction of junk mail also gives the appearance that the property is occupied. Also included was “Kiamasphere” Key Tag which can be attached to the property’s keys as reminder to tenants to – Avoid, Reduce, Reuse and Recycle!

### **Mobile Phone Recycling Program**

For the past 6 years, Kiama Council has been involved in the recycling of mobile phones through the Clean Up Australia and the Aussie Recycling Program. Easy to use satchels are available for residents at Council’s Administration Building front counter with every phone collected donating \$3 to the Clean Up Australia Day foundation.

This program is promoted on the Kiama Council’s website.

### **Return of Unwanted Medicines Campaign**

Since 1998, the Return Unwanted Medicines (RUM) Project has provided for the collection and disposal of unwanted and out-of-date medicines from consumers across Australia.

The RUM Project is funded by the Commonwealth Department of Health & Ageing.

It is supported by many pharmaceutical and consumer bodies including the Pharmacy Guild of Australia, the Pharmaceutical Society of Australia, Council on the Ageing (COTA), and Environmental Health Australia. Consumers can return medicines to any pharmacy at any time.

Over 400 Tonnes of unwanted and out of date medicines are collected every year Australia wide.

Kiama Council supports this program and promotes it on the Council website.

### **“Cartridges 4 Planet Ark” Campaign**

“Cartridges 4 Planet Ark” program was implemented in the Council Administration Building back in 2003. Throughout 2008/2009, Council has achieved a total of 113.05kg diverted from landfill.



## **Composting, Worm Farming and Bokashi Bucket Workshops**

Throughout 2008/2009 Council conducted five, 3 hour workshops for its residents with a total of 115 participants attending overall. Each participant was entitled to receive either a free compost bin or a Bokashi Bucket Starter Kit at a reduced rate redeemable via voucher. The workshops also offered the opportunity to “update” residents on what is and isn’t recyclable.



Kiama residents attending a composting workshop

These workshops are promoted through a bi-monthly newsletter produced by the Environment and Health Team which provides information on upcoming workshops and events. As of 30<sup>th</sup> June 2009, 225 Bokashi buckets had been sold in the Kiama Municipality.

## **Second Hand Saturday**

"Second hand Saturday" is a giant community garage sale that has been developed and implemented by Kiama Council to coincide with the bi-annual area clean up.

The purpose of the event is not only good for community spirit, it also assists in reducing the amount of cleanup material going to landfill, by promoting reuse of items, which is beneficial to our environment.

Throughout 2008/2009, Council has conducted three events. In July, 2008, the Kiama Netball Association was invited to host the event held at the Kiama Netball Courts. A total of 60 sites registered for the day, approximately 1,500 attended and the event raised close to \$1,000 for the hosts obtained from gate takings and barbeque sales. In March, 2009, the event was held at “School Flat”, Black Beach, Kiama which has now been determined as the permanent site for future events. This event was hosted by the Kiama Lions Club and raised in excess of \$2,500 with 91 sites registered and approximately 2,500 attending.

To celebrate World Environment Day, Second Hand Saturday was held in June 2009 in conjunction with the Kiama Produce Markets. This event attracted only 37 sites,

but raised over \$1,000 for the host, Kiama Rotary and still attracted over 2,000 people.

This project achieves objectives under Council's Management Plan 2009-2012 for a Sustainable Environment, to manage and reduce the environmental impacts of all activities on air, water and land systems, as well as forming part of the Kiama Public Health Plan under Strengthening Community, Community Connection 1.3 and 1.4, Information Provision 2.3 and under Health of the Environment, Waste Management 17.2.



Second Hand Saturday at School Flat, Kiama

### **drumMuster**

This national program allows for the collection and recycling of empty, cleaned non-returnable crop production and on-farm animal health containers. Kiama Council signed up to this program back in 2007 making it the 704<sup>th</sup> collection site. During the 2009 year, a total of 610 drums were collected.

### **DECCW's Household Chemical Clean Out Collection**

Council supported the promotion of this event which was held at Albion Park on 10<sup>th</sup> August, 2008 by organizing a flyer insert in the Kiama Advertiser in the 6<sup>th</sup> August, 2008 edition.

### **2009-2011 Waste and Recycling Urban Calendars**

In May 2009, Council printed and distributed waste and recycling calendars to all its urban residents. The calendar covers a two year period from July 2009 to June 2011 and features the Second Hand Saturday icon.

## **Compostable Doggie Bags for Off Leash Areas**

To address the problem of dog faeces in parks, reserves and along walk ways, Council has installed dispensers with complimentary doggie bags at each of their off leash areas. To align ourselves with our aim to reduce the use of plastic, Council uses an Australian Certified compostable doggie bag in all of the dispensers. The provision of the bags has proven very successful, with “champions” being identified to stock supplies of bags to ensure dispensers are kept full at all times.



Kiama Council Dog Tidy bag dispenser

## **6.4 Potential Future Activities**

### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (including Clean Up Australia Day participation);
- Maintain closure plan site works at Minnamurra and Gerroa waste depots;
- Monitor and report environmental conditions at Gerroa and Minnamurra tips
- Participate in the Business Treading Lightly Grant project Years 2 and 3;
- Assist with the implementation of the Illawarra Regional Sustainability Roadmap;
- Implementation of Sustainable Kiama Communities Project (waste minimisation, composting, worm farming, Lamp Recycling etc;
- Develop and implement policies and projects to reduce waste, increase recycling and reuse of materials from residential, rural and commercial premises;
- Develop and implement policies and projects to reduce, recycle and minimise waste from Council facilities and activities including (*Sustainable Events and Council Facilities Hire Policy* for waste and recycling);

- Provide efficient and environmentally effective domestic garbage, recycling, green waste and annual clean up services;
- Participate in regional management network waste minimization and recycling projects;
- Undertake annual DECCW waste, recycling and green waste services audit and reporting.

#### Potential Future Activities Beyond 2009-2010

(H – High Priority, M - Medium Priority, L – Low Priority)

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- Participate in regional expressions of interest and tender for regional residual and organics alternative waste treatment facility (H);
- Monitor both Gerroa and Minnamurra Tip sites in accordance with closure plan requirements (H);
- Review commercial garbage and recycling services to ensure operators have sufficient waste services in place (H);
- Develop *Sustainable Events and Council Facilities Hire*, for waste and recycling *Policy*, (M);
- Develop and implement public place recycling facilities at sporting grounds and key parks and reserves (H);
- Implement Second Hand Saturday Recycling and Reuse Events in line with bi-annual kerbside clean up service (H);
- Investigate the feasibility of a Composting Facility to be located at the Minnamurra Site, including food waste collection, hydroponic growth area, community food garden and education facility (M);
- Review Resident Clean Up Collection Program, including consideration of alternatives such as a tipping voucher system (M);
- Revision of the *Planning for less Waste DCP* guidelines (M);
- Development of compost production and plant propagation area for Community Garden (H); and
- Implementation of Council Holiday Parks source separation policy and recycling program (M).



## Chapter 7: Air

Air pollution is the presence of chemicals in the atmosphere in quantities and duration that are harmful to human health and the environment, including the climate. The air quality of the Kiama Municipality can be affected by local, regional and global sources and is therefore an issue that crosses local Council boundaries.

### **7.1 State**

#### **7.1.1 Local and Regional Air Quality**

There are a range of sources of air pollution that have an impact on local and regional air quality such as motor vehicles, fire, solid fuel heaters, industrial and commercial emissions and agricultural activities. These sources produce pollutants that can include lead, particulate matter, carbon monoxide, odour, sulphur dioxide, nitrogen oxides, photochemical smog and ozone. These are described in more detail in Council's *Local Air Quality Management Plan* (Kiama Municipal Council, 2001).

The Department of Environment, Climate Change & Water (DECCW) monitors the air quality throughout the Greater Metropolitan Region from Newcastle to Albion Park. There are currently no monitoring stations within the Kiama Municipality. There are now three monitoring stations within the Illawarra Region, at Albion Park, Kembla Grange and Wollongong.

In June 1998, there were two major changes in relation to air quality and how it is reported:

1. national standards were set for how air quality is measured (using five criteria air pollutants)
2. national reporting process was introduced.

The five pollutants measured under the 1998 national standards are ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide and air particles.

In 2002 the then NSW DECC began reporting on these pollutants to the national body. The NSW DECCW updated the old Regional Pollution Index (RPI) in 2008. This new index, the Regional Air Quality Index (RAQI), is based on the five criteria pollutants (as per national standards) plus visibility (as per a standard set by NSW) at all sites in the NSW DECCW air quality monitoring network. This now replaces the Regional Pollution Index (RPI) that was reported on in previous State Of The Environment Reports.

The new RAQI combines all the daily data from the three monitoring stations in the Illawarra and uses the highest reading for the calculations. A new categorisation scheme is now used to indicate how an AQI relates to relevant NSW standards: National Environment Protection Measure (NEPM) or NSW standards:

VERY GOOD 0-33	GOOD 34-66	FAIR 67-99	POOR 100-149	VERY POOR 150-199	HAZARDOUS 200+
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An AQI of 100 corresponds to the relevant NEPM standard for criteria pollutants or the relevant NSW standard for visibility. Hence, when the AQI is reported as UNHEALTHY or VERY UNHEALTHY it indicates that the determining pollutant levels have reached or exceeded the relevant standard or goal. (DECCW website accessed October 2008 <http://www.environment.nsw.gov.au/AQMS/aboutaqi.htm> )

Illawarra Regional Air Quality Index data for the reporting period is shown in Figure 7, and Figure 8 shows a comparison of RAQI data since 1999.

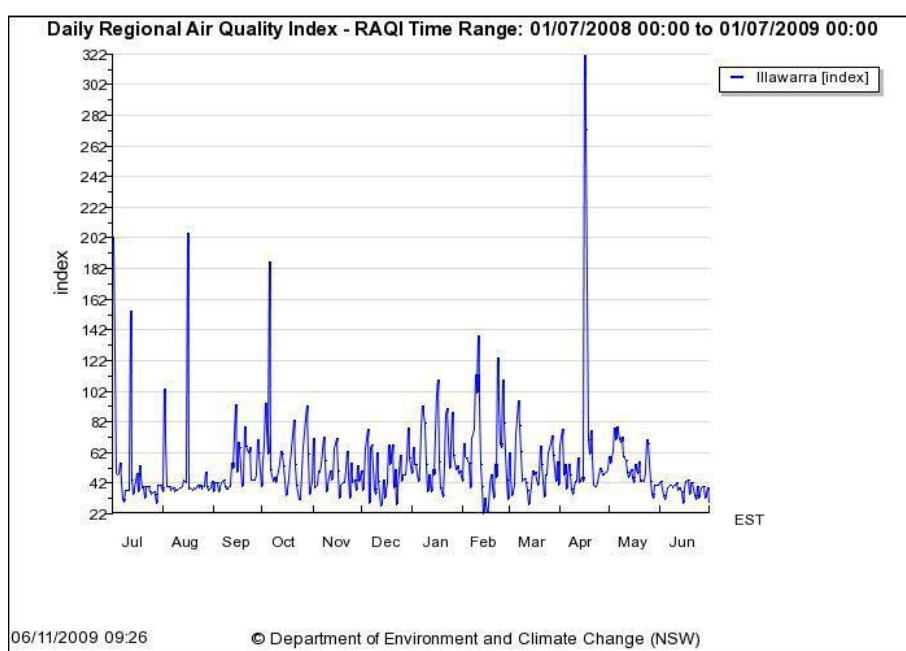


Figure 7: Regional Air Quality Index data for the Illawarra Region July 2008 to June 2009

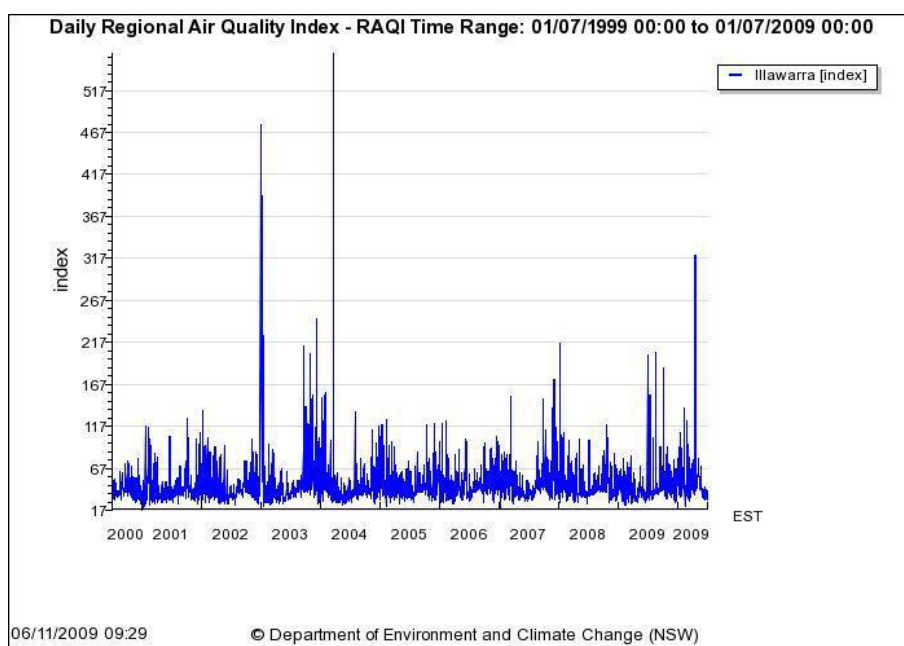


Figure 8: Comparison of Regional Air Quality Index for the Illawarra Region for the period July 1999 to June 2009.



During the 2008/2009 reporting period, the RAQI count exceeded 100 in the Illawarra region on fourteen occasions, which is ten times more than the previous reporting period (Rivett K, pers comms. DECCW 2009).

DECCW now also have a system where you can receive air quality updates via SMS or email (or both) to let you know if the RAQI is over the recommended health levels. This is particularly useful for people with asthma, cystic fibrosis or other lung conditions, as it gives them the 'heads up', so they can make decisions about the amount of time they spend outdoors that day exercising etc. You can register for this free service at <http://www.environment.nsw.gov.au/aqms/subscribe.htm> (Salter, D. pers comm 2008)

The number of complaints relating to air pollution in the Kiama LGA is shown in Table 21. The total number of complaints have decreased since the last reporting period.

Table 21: Complaints relating to Air Pollution to Council and the DECCW

Type of Complaint	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Burning Complaints to Council	6	15*	6	5	4	3	6	5
Commercial Complaints to Council	1		-	-	-	2	19#	5
Dust Complaints to Council	1		4	-	-	4	6	-
Odour Complaints to Council	-		4	6	6	2	20	20
Odour Complaints to DECCW	4	-	-	-	-		^	
Industrial Air Complaints to DECCW	4	5	21	7	1	1**	2	1
Other Air Complaints to DECCW	2	-	-	1	-		0	1
<b>Total Air Complaints</b>	<b>18</b>	<b>20</b>	<b>35</b>	<b>19</b>	<b>11</b>	<b>12</b>	<b>53</b>	<b>32</b>

\*The breakdown of complaints to Council (ie burning, commercial, building sites, odour) was not available for the 2002-2003 reporting period

\*\* The breakdown of complaints to DECC was not available for the 2006-2007 reporting period.

^ Air and Odour are classed in one category and the total complaints for 2007-2008 reporting period are 2, both of which are industrial.

# The figure for Commercial complaints is extracted from the total Dust and Odour complaints.

### 7.1.2 Global Air Quality

There are two main global air quality issues: depletion of the ozone layer and the enhanced greenhouse effect. While stratospheric ozone concentrations have stabilised significantly since the 1980s and the concentration of ozone-depleting substances in the atmosphere is decreasing, the concentration of greenhouse gases in the atmosphere is still an urgent and significant problem, caused by activities such as the burning of fossil fuels (primarily oil, coal and natural gas) and land clearing.

The enhanced greenhouse effect is causing climate change globally and will have local impacts. According to a CSIRO study on the *Potential Impacts of Climate Change on the Kiama Local Government Area*, commissioned by Council as part of the review of Council's LEP, it is predicted that the following climate changes may occur in the Kiama area: increased temperatures, decreased rainfall, increased

evaporation, more warm days and hotspells, fewer cool days and cool spells, changes to wind patterns, and an increase in the intensity and frequency of extreme daily rainfall events. Such changes are predicted to have an impact on agriculture, water availability, biodiversity, bushfires, human health and infrastructure (CSIRO Australia, 2005).

According to a greenhouse gas inventory of the year 2001-2002 conducted as part of the Cities for Climate Protection Program (CCP™) in 2004, the dominant source of greenhouse gas emissions from Council's operations is from Council owned buildings, which contributed 42.9% of emissions. Contributions from the other Council sources included vehicle fleet (21.1%), waste (14.7%) and streetlights (11.3%) (shown in Figure 8). The dominant sources of emissions from the Municipality as a whole in the inventory year of 1996 was from the residential sector (32.7%) and the transportation sector (31.6%). Contributions from the other sources were industrial (13.5%) and waste (11.4%) and commercial (10.8%) (shown in Figure 9).

If Council and the community do not act to reduce these emissions, it is predicted that by 2010, emissions in the Kiama Municipality will increase 47.4%, with the greatest growth in emissions predicted to occur in the transportation, residential, and commercial sectors.

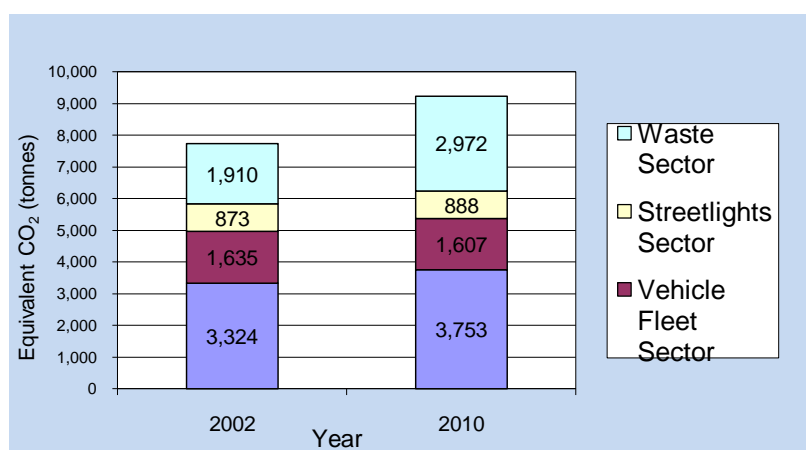


Figure 9: Council Greenhouse Emissions 2002 and Forecasted Emissions 2010

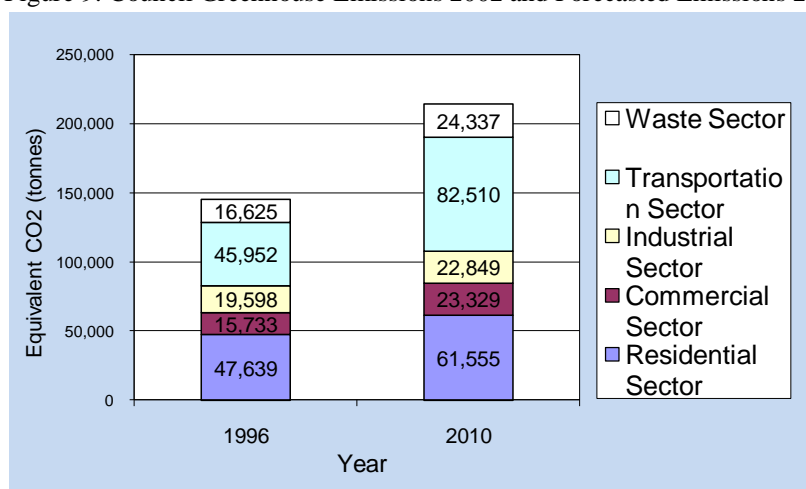


Figure 10: Community Greenhouse Emissions 1996 and Forecasted Emissions 2010

## 7.2 Pressures

There is pressure on the air quality of the Kiama Municipality from a variety of activities and sources throughout the residential, commercial, industrial, rural and transport sectors. The activities that impact on air quality can include the use of solid fuel heaters, burning of household refuse, motor vehicle use, vegetation clearing, waste disposal, dust from unsealed roads and construction, energy consumption and direct emissions of chemicals or odour from industrial and rural activities. Fires also place pressure on local and regional air quality.

Emissions from motor vehicles are a major pressure on air quality. The 2006 Annual Average Daily Traffic recorded on the Princes Highway at Bombo (station 07.804) was 27,757, which is a decrease of 1,956 from the 2003 figure of 29,713 (Roads and Traffic Authority, 2006\*). A large proportion of this figure would be through traffic. The latest figure on vehicle registrations in the Kiama Municipality show that in 2008, there were 18,194 vehicles registered, which was an increase of 481 vehicles since 2007 (Roads and Traffic Authority, 2009) See Table 22.

Table 22: Vehicle Registration in the Kiama Municipality 1998-2008  
(Roads and Traffic Authority, 1999- 2008)

Year	Number of Registered Vehicles	Increase since previous year	% Increase since previous year
1998	13,918		-
1999	14,374	456	3.3%
2000	14,774	400	2.8%
2001	15,099	325	2.2%
2002	15,588	489	3.2%
2003	16,012	424	2.7%
2004	16,411	399	2.4%
2005	16,621	210	1.3%
2006	17,440	819	4.7%
2007	17,713	273	1.6%
2008	18,194	481	2.7%
<b>Total increase 1998-2008</b>	<b>4,276</b>		<b>30.7%</b>
<b>Average Annual Increase</b>	<b>427.6</b>		<b>2.7%</b>

According to the Roads and Traffic Authority Local Government Area Vehicle Registrations report (Roads and Traffic Authority, 2009), as of 30<sup>th</sup> June 2009, 82.1% of fuelled vehicles in the Kiama Municipality were fuelled by unleaded petrol, 3% by leaded petrol, 11.4% by diesel, 3% by LPG or LPG/petrol and 0.6% by other fuel types (or unknown). The fuel consuming registered vehicles made up 81.69% of the total registered vehicles, the remaining 18.31% of registered vehicles was made up of trailers and non-fuel consuming vehicles.

Bushfire and hazard reduction burns also place pressure on local and regional air quality. According to the Department of Environment and Conservation (2003), bushfires are responsible for most of the occasions which high levels of particle pollution are recorded. This is supported by the majority of Regional Pollution Index readings that are “high” being recorded during the November to March period.

The number of fires within the Kiama Local Government Area is shown in Table 23. There were slightly less fires during the last reporting period than compared to 2007/2008.

Table 23: Fires in the Kiama and Shellharbour Local Government Areas during 1998-2009  
(Danaskos, H. 2009)

Type of Incident Subdivision Name	1997/ 1998	1998/ 1999	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	Total Incid.
Fires and Explosions: Other	1	3	0	0	0	0	0	0	0	0	0	0	4
Building Fires	10	11	3	3	13	10	11	2	8	5	3	4	83
Fires in buildings confined to non-combustible containers	0	0	4	16	4	5	5	3	3	3	7	1	51
Special structure fires	0	0	2	5	7	9	0	3	7	12	2	4	51
Outside storage fires	16	14	3	2	2	1	0	0	0	0	0	0	38
Mobile property type fires	5	9	6	8	12	3	6	4	11	3	4	4	75
Vegetation and other outside fires	35	18	11	42	23	13	21	5	27	28	10	8	241
Small vegetation fire	0	0	1	1	2	0	0	1	1	0	1	0	7
Outside rubbish fire	8	5	5	9	6	12	19	20	21	19	13	15	152
Explosions not as a result of fire	0	1	0	0	0	0	0	0	1	0	0	0	2
<b>Total</b>	<b>75</b>	<b>61</b>	<b>35</b>	<b>86</b>	<b>69</b>	<b>53</b>	<b>62</b>	<b>38</b>	<b>79</b>	<b>70</b>	<b>40</b>	<b>36</b>	<b>704</b>

## 7.3 Responses

### 7.3.1 Local Air Quality Management Plan

Council adopted the Kiama Municipal Council *Local Air Quality Management Plan* (LAQMP) in 2001. Kiama Municipality, through the LAQMP, is committed to establishing and maintaining clean air for its community. The LAQMP sets out broad strategies that will assist Council to achieve its environmental goals (Kiama Municipal Council, 2001).

There are a range of strategies contained within the LAQMP, falling under seven overall objectives as outlined below:

- Implement a local and regional approach to air quality management;
- Educate, inform and involve the Community in air quality and its management;
- To improve energy efficiency within the Council area;
- To reduce the impact of air pollution for vehicle emissions;
- To reduce air pollution from industry and other sources;
- To monitor the impacts of air quality within the Municipality; and

- To encourage and undertake activities that will have positive impacts of air quality (Kiama Municipal Council, 2001).

An education program was also undertaken to encourage the uptake of more 4 cylinder cars by Council staff. Approximately 45% of Council's motor vehicle fleet is now comprised of 4 cylinder vehicles, and 90% of the commercial vehicles are now diesel. We have also changed to B20 Biodiesel for all Council trucks and plant.

A review of the LAQMP plan was included in the development of the Cities for Climate Protection Local Action Plan during the reporting period.(see section 9.2.2). For a detailed list of actions implemented previously, refer to SoE Report 2004 (Kiama Municipal Council, 2004).

### **7.3.2 Development Control**

Development control conditions are placed on development approvals for industrial and commercial activities to ensure air pollution is minimised or prevented. From 1<sup>st</sup> July 2005 the Building Sustainability Index (BASIX) came into effect in the Kiama Municipality. BASIX is a web-based planning tool for Councils and proponents of residential dwellings to assess the potential performance of their development against a set of sustainability indices, including energy conservation. For energy, a BASIX rating of 25 for energy conservation will apply, potentially reducing greenhouse gases by 25%. This target increased in July 2006 to 40 for energy conservation, to achieve a 40% reduction in greenhouse gases. More information about BASIX can be found in Chapter 2: Land.

### **7.3.3 Enforcement**

Council's Environmental Health Officers and Ranger Services Officers investigate complaints received by Council relating to air pollution. The DECCW investigates complaints regarding air pollution from scheduled premises and activities and smoky vehicles. Notices or Penalty Infringement Notices for air pollution offences may be issued by these officers under the *Protection of the Environment Operations Act 1997*.

### **7.3.4 Cycleways**

Cycleways promote physical activity as well as improved air quality through alternative transport options. On and off-road cycleways are shown in Council's *Cycleway Plan* which is a strategic plan incorporates engineering, educational and encouragement strategies and lists cycleway projects as priorities for implementation (Kiama Municipal Council, 2005). The priorities for proposed cycleway projects have also been reviewed and are listed below in the preferred order of implementation:

- Minnamurra River Crossing;
- Gainsborough to Jamberoo Stage 1;
- Gainsborough to Jamberoo Stage 2, Swamp Road to Jamberoo (Kiama Municipal Council, 2005b);

- Fern Street to Miller Street via pathway across Millers Flat; and
- Crooked River Road, Crooked River to Municipal boundary;

The completed sections of cycleway for the reporting period include the Minnamurra River Crossing, which was funded by the RTA as part of the handover of the former Princes Highway.



Minnamurra River Crossing Cycleway

### 7.3.5 Kiama Council *No Burn* Policy

In December 2007, Council adopted a *No Burn* Policy within the Kiama Municipality. Under Part 2, Schedule 8 of the Protection of the Environment Operations (Clean Air) regulation 2002, and through authority delegated by the Department of Environment, Climate Change & Water (DECCW), Kiama Council is required to regulate outdoor burning in the Municipality.

Council will only consider applications to burn piles of vegetation that relate to properties over one acre that perform agricultural operations, or for burning in accordance with the Bush Fire Hazard Reduction Certificate under the Bush Fire Act. The Council approval is only for permission to make pollution and is not a fire permit. During the Bush Fire Danger Period from 1<sup>st</sup> October to 31<sup>st</sup> of March, a permit must also be obtained from the Rural Fire Service, prior to any burning taking place.

Council will not consider applications to burn piles of vegetation from Urban (Residential) and Rural (Residential) areas. Rural residential is classified as a lot size of 1 acre or less.

Council is required to consider issuing an approval using Section (6G) 3 which states; before granting approval the local Council must take into account the following matters:

- The impact on local air quality and amenity;

- Feasibility of reuse, recycling or other alternative means of disposal; and
- Any opinions of the sector of the public likely to be affected by the proposed approval.

Kiama Council's Scheduling only allows for the burning of vegetation.

### **7.3.6 Cities for Climate Protection Program**

In 2003, Council joined the international greenhouse gas reduction program called the Cities for Climate Protection (CCP™) Program. The CCP™ program is aimed at assisting local Councils to deal with greenhouse gas issues within their locality. See section 9.2.2 for more details.

## **7.4 Potential Future Activities**

### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (including Cities for Climate Protection™ Milestone 3 – action plan development);
- *Protection of the Environment Operations Act* implementation; and
- Provide Coastal Walking Track from Kiama Heights to Werri Lagoon;

### **Potential Future Activities Beyond 2009-2010**

(H – High Priority, M - Medium Priority, L – Low Priority)

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- *Protection of the Environment Operations Act* implementation (H);
- Cities for Climate Protection™ Milestone 3 – seek funding for priority projects (H); and
- Construct Stage 1 Jamberoo Valley shared pathway.

## Chapter 8: Heritage

### 8.1 Heritage Listings

#### 8.1.1 Aboriginal Heritage

In NSW Aboriginal places are administered under the *National Parks and Wildlife Act 1974*, *Heritage Act 1977*; and *Environmental Planning and Assessment Act 1979*.

The Department of Environment, Climate Change & Water (DECCW) maintains a register of identified Aboriginal Heritage sites throughout the state, known as the Aboriginal Heritage Information Management System (AHIMS). There are 60 known Aboriginal sites currently recorded in the Kiama Municipality and within these sites, 97 site features were recorded, as shown in Table 24 (see <http://www.nationalparks.nsw.gov.au/npws.nsf/Content/What+information+can+you+obtain+from+AHIMS> for more information and limitations of this register).

Table 24: Aboriginal Heritage Information Management System Record for the Kiama Municipality

Site Feature	Number within Kiama Municipality
Aboriginal Ceremony and Dreaming	1
Art (Pigment or Engraved)	7
Artefact	41
Burial	1
Earth Mound	18
Grinding Groove	4
Potential Archaeological Deposit	3
Shell	19
Stone Arrangement	2
Modified Tree (Carved or Scarred)	1
TOTAL	97

All Aboriginal sites are protected under the *National Parks and Wildlife Act 1974*, regardless of their inclusion in the register, and it is an offence to damage or destroy them without the prior permission of the Director-General of the DECCW.

The NSW Heritage Council is required under the *Heritage Act 1977* to keep a register, known as the State Heritage Register (SHR), of both Aboriginal and Non-Aboriginal places of significance. Listing on the SHR means that a place is protected and that the approval of the Heritage Council is required for any changes or demolitions.

At a national level, the Department of the Environment, Water, Heritage & Arts (DEWHA) has one site listed in the Register of the National Estate as an Aboriginal place, located in Jamberoo, but the register does not have any specific details on the site. A new national heritage system commenced in 2004, and developed the National Heritage List, which records natural, Aboriginal and Non-Aboriginal places with outstanding heritage value to the nation. There are currently no Aboriginal sites in Kiama recorded in this register.

#### 8.1.2 Non-Aboriginal Heritage

Non-Aboriginal Heritage inventories have been conducted in the Kiama Municipality in 1987, 1994 and 2000-2002.



Non-Aboriginal Heritage Items of national significance are listed by the DEWHA in the Register of the National Estate and National Heritage List. Items of State significance are listed in the NSW State Heritage Register. Items of regional significance are listed in Schedule 1 of the *Illawarra Regional Environmental Plan No. 1* (1986) and amendments, as well as *Illawarra Regional Environmental Plan No 2 – Jamberoo Valley 1987*. Heritage items of local heritage significance are listed in Schedule 2 of Kiama’s *Local Environmental Plan 1996*. The following Table 25 lists heritage items in the Kiama Municipality identified in the above noted registers.

Table 25: Kiama Municipality Heritage Items and Listings

Item	Location	Listing
Bombo Headland quarry geological site	Bombo	AHC(R), SHR, REP No.1, LEP
Jamberoo Valley	Jamberoo	AHC(I)
Hartwell House and former Coachhouse	Farmer St, Kiama	AHC(R), REP No.1, LEP
Former Infants School	Minnamurra & Shoalhaven Sts, Kiama	AHC(R), REP No.1, LEP
Scots Presbyterian Church	Shoalhaven St, Kiama	AHC(R), SHR, REP No.1, LEP
Terrace Houses	24-40 Collins St, Kiama	SHR, REP No.1, LEP
Terrace Houses	42-44 Collins St, Kiama	SHR, REP No.1, LEP
Cottages	3a,3, 2-10 Collins Lane, Kiama	REP No.1, LEP,
Masonic Temple	46 Collins St, Kiama	SHR, REP No.1, LEP
Manning Street Group -Former CBC Bank (No.18) -Westpac Bank (Bank of NSW) (No 32) -Uniting Church (No. 48) -Grand Hotel (No. 49) -ANZ Bank includes stables, rear garden and fences (No 33) -Council Chambers, Pine Trees at rear -Post Office grounds and Pine trees (No 11)	Manning St Kiama	REP No.1, LEP CBC Bank - SHR Westpac Bank - AHC(R)
Kiama Government Building Group -Post Office and Buildings  -Courthouse, grounds and trees -Police Station -Police Station Residence	Cnr Manning and Terralong St, Kiama	REP No.1, LEP Post office - AHC(R), SHR Courthouse - AHC(I) Police Station - AHC(R)
Mount Vernon	64 Bong Bong St, Kiama	AHC(I), REP No.1, LEP
Blowhole Point (Lighthouse, Ice Factory and Wharf)		REP No.1, LEP Lighthouse – AHC(R)
Cottages	43 & 38 Bong Bong St, Kiama	REP No.1, LEP, Number 43 - AHC(I)
Cottage	34 Bong Bong St	AHC(I)
Anglican Christ Church	Kiama	AHC(I), REP No.1, LEP
Public School	Churchill St, Jamberoo	AHC(R), REP No.1, LEP
Culwalla	Main Rd, 2km east of Jamberoo	SHR, REP No.1, LEP,
Minnamurra House	Minnamurra Lane, Jamberoo	AHC(R), REP No.1, LEP
Terragong House and home paddock	Jamberoo	AHC(R), REP No.1, LEP
Site of Woodstock Sawmill, Piggery, Cooperage and Butter Factory	Robertson Rd, Jamberoo	REP No.1, LEP
Dry Stone Walls	Jamberoo, Foxground, Kiama areas	AHC(I), REP No.1
Anglican Church of the Resurrection	Jamberoo	REP No.1, LEP
St Stephen’s Presbyterian Church	Allowrie St, Jamberoo	AHC(I), SHR, REP No.1, LEP,

St Mathew's Roman Catholic Church	Jamberoo	AHC(I), REP No. 1, LEP
Remains of Flour Mill, Bush Bank	Princes Highway, Kiama	AHC(R), REP No.1, LEP
Alne Bank and Stone Barn	Rose Valley	AHC(R), REP No.1, LEP
Renfrew Park	Princes Hwy, Gerringong	REP No.1, LEP
Black Head palaeontological site	Gerroa	AHC(R), REP No.1, LEP
Commercial Hotel	Allowrie St, Jamberoo	REP No.2, LEP
Frederick's Store	Allowrie St, Jamberoo	AHC(I), REP No.2, LEP
Church of England Cemetery	Tate's Hill Jamberoo	REP No.2, LEP
O'Marra's Grave, Roman Catholic Burial Ground	Jamberoo Mountain Rd	REP No.2, LEP
Kellys Cottage (also known as Minnamurra Huts)	Minnamurra Falls Rd, Jamberoo	AHC(I), REP No.2, LEP
Park Mount	Jerrara Road, Jamberoo	AHC(R), REP No.2, LEP
Former Jamberoo Dairy Factory	Factory Lane, Jamberoo	REP No.2, LEP
Antique Shop	Allowrie St, Jamberoo	REP No.2, LEP
Colewood	Mountain Rd, Druewalla, Jamberoo	REP No.2, LEP
Former Wesleyan Parsonage	Macquarie St, Jamberoo	REP No.2, LEP
Kinross Cemetery	Minnamurra Lane, Jamberoo	REP No.2, LEP
Gundarimba	Minnamurra Lane & Allowrie St, Jamberoo	REP No.2, LEP
Roman Catholic Church graveyard	Chappel St, Jamberoo	REP No.2, LEP
Aughinvar	117 Manning St Kiama	AHC(I)
Catholic Presbytery	Manning St, Kiama	AHC(I)
Dalmeny	72 Shoalhaven St, Kiama	AHC(I)
Uniting Church	Bridges St Gerringong	AHC(I)
Uniting Church	28 Fern St Gerringong	AHC(I)
Former Pilot Station Residence	Terralong St Kiama	AHC(I)
Coach House Art Gallery	Farmer St, Kiama	AHC(I)
Barren Grounds Nature Reserve	Jamberoo Mountain Rd Jamberoo	AHC(R)
Gerroa Littoral Rainforest	Gerroa	AHC(R)
Kiama Blowhole and Surrounds	Terralong St Kiama	AHC(R)
Little Blowhole Geological Site	Tingira Cr Kiama	AHC(R)
Seven Mile Beach National Park	Gerroa Rd, Shoalhaven Heads	AHC(R)
Westley Park Headland	Attunga Ave Kiama	AHC(I)
Bombo Railway Station Group	Bombo	SHR
Kiama Rail Underbridge over Princes Hwy	Terralong Street, Kiama	SHR
Kiama Railway Station Group	Kiama	SHR
Kiama Reservoir (WS0231)	Irvine Street Kiama	SHR
Kiama Reservoir (WS0232)	Irvine Street Kiama	SHR
Uniting Church Hall and Cemetery	Jamberoo	LEP
Cottage	Browns Lane, Jamberoo	LEP
St Mary's Church	Fern & Jupiter St, Gerringong	LEP
Weatherboard Cottage	127 Terralong St Kiama	LEP
Weatherboard Cottage	2-4 Railway Pde Kiama	LEP
Barroul House	Bonaira St Kiama	LEP
Formerly Grans Fudge	132 Terralong St, Kiama	LEP
Kendall House	Saddleback Mountain Rd	LEP
3, 3a Central Park	Hindmarsh Park	LEP

DEWHA (R) - National Estate Register listed as registered place  
DEWHA (I) - National Estate Register listed as indicative place  
DEWHA (I) - National Estate Register listed as indicative place  
LEP - Kiama Local Environmental Plan 1996

REP No.1- Illawarra Regional Environmental Plan No.1  
REP No.2 - Illawarra Regional Environmental Plan No.2 –  
Jamberoo ValleySHR – NSW State Heritage Register

## **8.2 Pressures**

Aboriginal Heritage sites are under threat by activities such as land clearing and housing development, lack of management strategies for assessing the potential impacts of such activities, and the lack of identification of sites.

Non-Aboriginal Heritage items can become degraded through re-development, weather conditions, vandalism, general poor maintenance and lack of understanding.

## **8.3 Responses**

### **8.3.1 Heritage Adviser**

Council utilises the services of a consultant Heritage Adviser who promotes heritage conservation, educates and advises the community with regard to heritage conservation and provides specialist support and advice to Council on heritage planning and development control activities.

### **8.3.2 Development Approval Process**

Council has statutory responsibilities under *the Environmental Planning & Assessment Act 1979*, the *Heritage Act 1977* and the *National Parks & Wildlife Act 1979* to consider the potential impacts of any development or planning proposal on items of natural and cultural heritage which includes Aboriginal and European cultural heritage.

During the reporting period no Aboriginal Heritage Studies have been conducted.

Recent studies were carried out for:

- Draft LEP (Amendment 63) - the Gerringong Cemetery extension site at Gerringong;
- LEP (Amendment 62) - the *Illawarra Fly* site at Knights Hill; and
- LEP (Amendment No. 40) - Gerringong Headland residential release site at Gerringong.

### **8.3.3 Heritage Projects**

The *Kiama Heritage Review Project* was carried out between 2002-2003 by consultant Simpson Dawbin Pty Ltd. The project involved:

- reviewing existing heritage studies;
- verifying that heritage items identified in those studies still existed and that their heritage values and statements of heritage significance were still valid; and
- identifying any new previously unknown sites.

The project relied on existing published heritage information and no new heritage studies were carried out. Assistance was provided by local historical societies in the examination and

review of draft heritage items proposed for listing by the consultant. Minor amendments were made to existing heritage inventories published in the *Illawarra Regional Heritage Study Review* September 1994. Affected land owners were notified that their properties were under investigation for heritage listing purposes.

The Kiama Heritage Review process was subsequently incorporated in the Kiama Local Environmental Plan Review process that commenced in 2004. The Minister for Planning has now implemented standard heritage provisions in the Standard LEP on which all new LEPs will be modelled. Council will list proposed heritage items in Schedule 5 of the draft Kiama LEP 2009 when it is exhibited for public submissions.

Council engaged a new consultant, Truman Zaniol & Associates, to review the *Kiama Heritage Review* recommendations and recommend those items that should be included in Schedule 5 of the draft Kiama LEP 2009. The draft LEP is awaiting the approval of the Department of Planning and it is hoped that it will be exhibited for public submissions by either late 2009 or early 2010.

#### **8.4 Potential Future Activities**

##### Existing Future Activities in the Management Plan 2009-2012

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (including Kiama Local Environmental Plan Review - incorporate heritage;
- Commence Aboriginal Cultural Heritage Study;
- Prepare, exhibit and adopt Kiama Local Environmental Plan for urban and rural lands; and
- Monitor Heritage advisor program and implement heritage initiatives as supported by Council.

##### Potential Future Activities Beyond 2009-2010

(H – High Priority, M - Medium Priority, L – Low Priority)

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- Require applicants to provide assessment reports where areas of European heritage and buildings are potentially impacted (H);
- Implement findings of the Aboriginal Cultural Heritage Study; and
- Monitor Heritage Adviser program and implement heritage initiatives as supported by Council.

## **Chapter 9: Sustainable Communities**

This chapter presents the concept of sustainability and sustainable communities in the Kiama Municipality and is divided into three sections. The first section contains a set of measurable Headline Sustainability Indicators, which will assist Council and the community in following a sustainable path. The second section outlines the current strategies that Council is undertaking to move towards sustainability, including strategies to promote environmental protection and healthy communities. Similar to the theme chapters of this report, the final section lists possible future responses that Council could undertake to improve the sustainability of the community of the Kiama Municipality.

Sustainability is often used as a substitute for the term Ecologically Sustainable Development (ESD), which involves the effective integration of economic, social and environmental considerations in decision-making processes. The principles of ESD include:

- The precautionary principle, namely that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- Intergenerational Equity, namely that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- Conservation of biological diversity and ecological integrity should be a fundamental consideration; and
- Improved valuation, pricing and incentive mechanisms, namely that environmental factors, should be included in the valuation of assets and services.

### **9.1 Headline Sustainability Indicators**

While each theme chapter presents extensive data that can be monitored over time, four Headline Sustainability Indicators are presented in this chapter, with the objective to chart the overall progress of Council and to measure the effectiveness of actions and technologies at achieving a more sustainable Municipality. All of the pressures on the environment that are identified within the theme chapters have an impact on the overall sustainability of the Kiama Municipality. For sustainability to be achieved, these pressures must be counter-balanced by actions and technologies implemented throughout the community.

Each indicator graph includes a sustainable zone, based on the data in the baseline year of 1999-2000. The zone includes any result that indicates a similar or improved environment compared to the relevant baseline year. The graphs therefore indicate the move towards or away from the 'sustainable zone'.

There are currently four Headline Sustainability Indicators, Beach Water Quality, River and Estuary Water Quality, Waste and Air Quality.

### 9.1.1 Headline Sustainability Indicator – Beach Water Quality

This indicator, shown in Figure 11, utilises data obtained by the DECCW and Sydney Water Corporation in the Beachwatch Program, as reported in Chapter 3: Water. This program measures faecal coliform and enterococci levels at four of the Municipality's beaches: Jones' Beach, Bombo Beach, Surf Beach and Werri Beach.

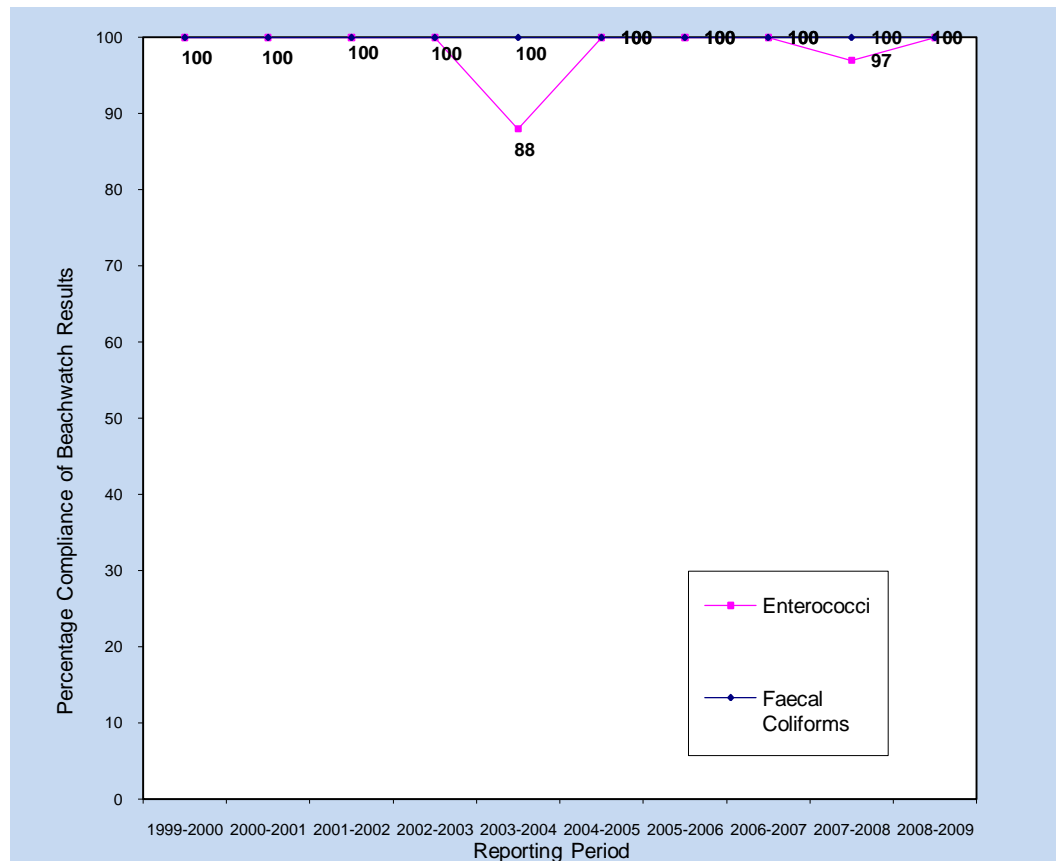


Figure 11: Headline Sustainability Indicator – Beach Water Quality

As the results in the baseline year of 1999/2000 were 100%, there is no zone of sustainability for this indicator. Sustainability is simply the line value of 100%, which was maintained in all previous reporting periods except 2003/2004 and 2007/2008.

### 9.1.2 Headline Sustainability Indicator – River and Estuary Water Quality

Unfortunately, due to Council budget cutbacks, the Water Monitoring Program was not undertaken during the 2008/2009 reporting period. It is hoping to be re-established in the 2009/2010 reporting period.

### 9.1.3 Headline Sustainability Indicator – Waste

This indicator, shown in Figure 12, utilises data from the Minnamurra and Gerroa Waste Disposal Depots, as reported in Chapter 6: Waste. The indicator is based on the total tonnes of waste that went to landfill during the reporting period, divided by the estimated population of that year. The population figures are based on the population data until 2006, then the projected population for 2006 to 2009 (since the last reported census count), according to the

Kiama *Social/Community Plan* (Kiama Municipal Council, 2004a) and the Australian Bureau of Statistics Census of Population and Housing.

The sustainable zone, as defined by the baseline data in 1999/2000, is any value below 0.41 tonnes per capita. This value was exceeded in previous reporting periods since the baseline year, but during the last four reporting periods, the value has fallen well within the sustainable zone. The reduction in waste received at the Minnamurra Waste and Recycling Depot during this time, is partly due to no loads over two tonnes being accepted. These are now being directed straight to the Shellharbour Waste Depot.

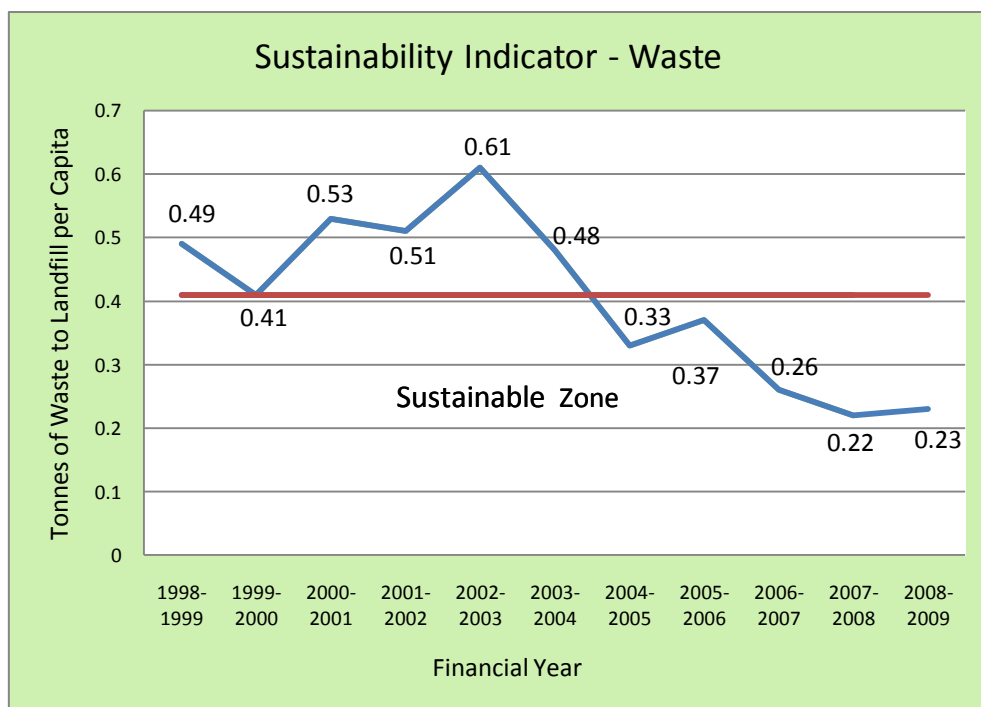


Figure 12: Headline Sustainability Indicator – Waste

#### 9.1.4 Headline Sustainability Indicator – Air Quality

Due to the changes to air quality reporting a comparison with the existing data for this indicator is not possible. See Chapter 7.1.1 for more information.

It is hoped that there will be a time when all Headline Sustainability Indicators lie within their sustainable zones, meaning that the actions of Council and the community have resulted in less impact than the baseline year of 1999/2000. With increasing population in the area, this will be an ongoing challenge and will require sustainable living by all in the Kiama Municipality.

## **9.2 Climate Change and Sustainability Strategies**

### **9.2.1 Urban Sustainability Grants**

Kiama Council was successful in obtaining three Urban Sustainability Grants from the NSW Environmental Trust. They are to be undertaken over a period of three years.

#### **Sustainable Illawarra Grant**

This grant for \$2 million dollars, is split between Wollongong, Kiama and Shellharbour Councils. It was officially launched on June 25<sup>th</sup>, 2008, and is broken into three components:

#### **Illawarra Sustainability Roadmap**

The Illawarra Sustainability Roadmap Project is about assisting Kiama, Shellharbour and Wollongong Councils to integrate the consideration of sustainability into all decisions that are made as a local Council. Several activities are being undertaken with staff from all sections of each Council, to result in two guiding documents (Schipf, A. email 2008)

- The Illawarra Sustainability Roadmap, (<http://www.kiama.nsw.gov.au/environmental-services/pdf/Health-and-Environment-Section/Illawarra-Sustainability-Roadmap.pdf>), includes a comprehensive review of each Councils' current approach to organisational sustainability and a set of sustainability indicators to measure sustainability over time.

The Illawarra Sustainability Roadmap was adopted by Kiama Council on the 20th May, 2008.

- The Illawarra Sustainability Action Plan – includes specific strategies for each Council to embed the consideration of sustainability into all Council decisions, processes, planning, reporting and operations.

The Action plan for the Illawarra Sustainability Roadmap was completed during the reporting period. The next stage of the process will be incorporating actions from the Roadmap Action Plan into Council's new integrated planning framework.

#### **Water Sensitive Urban Design Project**

The Water Sensitive Urban Design (WSUD) component of the regional NSW Environmental Trust funded Sustainable Illawarra project for Kiama Municipal Council, saw the installation of a 280,000 litre underground storage tank for the collection and re-use of stormwater runoff from the Hindmarsh Park catchment.

The stormwater harvesting project will add to previous projects in the catchment which included installation of gross pollutant traps and enviro pods in stormwater drains and a sand filter which uses permeable concrete piping to remove toxins and heavy metals.

During the reporting period the 280,000 litre stormwater harvesting and collection system was turned on at the launch of the Sustainable Kiama Communities project on September 4<sup>th</sup> 2008.





Photo: Kiama Council staff putting the finishing touches on the 280,000 litre Stormwater harvesting tank at Black Beach, Kiama

### **“Sustainability Begins At Home” Project**

This project targets householders across the Illawarra providing environmental education on waste minimisation, better buying, backyard biodiversity, and water and energy efficiency. It includes community workshops, discount vouchers on products and a network of ‘Super Challenge’ households who are being supported in their efforts to reduce their carbon footprint, as well as provide a network for sharing stories and case studies.

During the reporting period, working groups were formed amongst the officers from the three Councils, to share expertise and knowledge in forming resources and activities in the areas of Energy, Water, Waste, Food, Better Buying and Biodiversity. These working groups implemented a range of activities, workshops, tours and events in all three participating local government areas.

The program to date has had two rounds of ‘Super Challengers’, with over 150 households participating in the program network. Participants have the opportunity to access incentives from 10 project partners supporting the project, attend workshops and events organised through the Sustainable Illawarra project, seek information to enable them to reduce their carbon footprint and utilise the networking opportunities provided by project events and the Sustainable Illawarra website.



Kiama residents take advantage of Sustainable Illawarra workshops

## **Sustainable Kiama Communities**

This grant is aimed at mobilising the Kiama Community into living more sustainably, using the following strategies:

- Encouraging and promoting energy and water conservation through retrofitting, consumption monitoring;
- Recycling and reuse – composting and waste minimisation;
- Community co-operation with biodiversity and landcare projects;
- Sustainability Monitoring for Council operations; and
- Community and Business Partnerships.

During the reporting period the Sustainable Kiama Communities project was involved with a number of activities and programs including:

- Running solar hot water information night in partnership with local action group Jamberoo Future Care which was attended by over 100 community members and 8 suppliers;
- Working on Council monitoring and reporting of energy, water and waste with Planet Footprint;
- Leak detection and monitoring of Council facilities and pilot leak detection and water monitoring project with local primary school; and
- Implementation of energy monitoring trial with 40 local residents, evaluating the effectiveness of real time energy monitoring meters in helping residents reduce their energy consumption



The well attended Solar Hot Water Night held at Gerringong Town Hall

### **Business Treading Lightly (BTL)**

Business Treading Lightly (BTL) is a \$2 million grant awarded to the Southern Council's Group from the NSW Environmental Trust. The three year program assists member Council's and targeted business sectors in the Illawarra, South Coast and Southern Highlands regions to become more sustainable.

Business Treading Lightly has engaged 3 key business sectors, namely Aged care, Clubs and Hospitality and the third sector varies across LGA's. In Kiama the third sector is the Accommodation sector, including Council holiday parks.

BTL serves as a broker and facilitator for State Government programs such as the Sustainability Advantage program, the Energy Efficiency for Small Business program and the Gumnut Awards program for camping and caravan parks. BTL has also developed its own sustainability toolkits for medium and small business – BTL Business Advantage and BTL Business Essentials. In December

Currently BTL has 125 business partners across the Southern Council's region. Through the team of BTL sustainability officers working across the 7 LGAs, the program has the capacity to provide practical and face to face support to businesses to enable them to become recognised within their communities as leaders in sustainability. The list of businesses engaged by BTL in the Kiama Municipality include Kiama Council's Blue Haven Aged Care facility, Illawarra Retirement Trust, Jamberoo Valley Lodge, Gerringong Bowling and Recreation Club, all five of Kiama Council's holiday parks and the East's Beach holiday park.

In working with businesses towards sustainable operations and business models, the BTL program aims to demonstrate that sustainable practices increase business competitiveness. (Bogie R, 2009)

### **Illawarra Biodiversity and Local Food Strategy for Climate Change**

The Illawarra Biodiversity and Local Food Strategy for Climate Change project is being developed by Wollongong, Shellharbour and Kiama Council's, in collaboration with a range of stakeholders. It will provide a regional sustainability framework for the protection, enhancement and management of natural areas with Endangered Ecological Communities (EECs) and Threatened Species (TSs) and identify opportunities for developing the Wollongong food security project regionally.

The Strategy uses sustainability, health promotion, economic and community development approaches to support an equitable and sustainable community food system in our region. Through community based activities and creative partnerships, this project responds to the immediate need to address food insecurity whilst incorporating a multi level planning response to the challenges posed by Climate Change.

On-going resilience of the project will be enhanced through establishing a regional Revolving Fund by registering Council's as forest managers for National Greenhouse Abatement Credits (NGAC's) to deliver a financial return from tree planting and revegetation works.

The project will focus on the following key areas for Biodiversity and Food Security.

**Biodiversity:**

- A review of available biodiversity data and identification of biodiversity priorities as a region, and agree to a course of action that supports those priorities and maximises efficient use of resources;
- Review natural areas on public lands and identify priorities for restoration;
- Identification of data gaps and resources needed to maximise biodiversity conservation efforts;
- Identify key regional biodiversity corridors to enhance the resilience of natural areas in the face of climate change impacts;
- Identify opportunities to enhance the integration of natural resource management into planning instruments or internal processes to enhance biodiversity through the planning process;
- Identify biodiversity challenges and threats associated with the impacts of climate change;
- Identify and rank the key operating threats to biodiversity in the Illawarra;
- Education / resources on biodiversity for the Illawarra; and
- Identify operation improvements that can be made to improve biodiversity conservation.

**Food Security:**

- Review available data on local food security and sustainable food systems;
- Investigate coherent strategic and policy framework to support local food security and sustainable food systems;
- Integration of activities and policies relating to health, farming practices, land use planning, cost, availability, access, equity, economic development, diversification, quality and waste;
- Identify and prioritise key threats to local food security and sustainable food systems;
- Identify and scope key strategic actions to improve local food security and sustainable food systems;
- Identify opportunities to enhance the integration of local food security and sustainable food system support into planning instruments and policy;
- Identify roles and responsibilities of key stakeholders, and;

- Identify key regional sustainable food strategies to enhance resilience of local food security in the face of climate change impacts.

The project has been in the planning phase for the 2008/09 reporting period, with on-ground works and project deliverables beginning implementation in the 2009/10 financial year.

### **9.2.2 Cities for Climate Protection™ Program**

In 2003, Council joined the international greenhouse gas reduction program called the Cities for Climate Protection (CCP™) Program. The CCP™ program is aimed at assisting local Councils to deal with greenhouse gas issues within their locality. Milestone 1 of the CCP™ Program was completed in 2004. The process provided valuable baseline data of both Council and Community greenhouse gas emissions and forecasts of estimated emissions in 2010 if no pro-active action is taken (see Section 7.1.2 for results of the Milestone 1 Inventory).

In November 2005, Council achieved Milestone 2, which involved committing to greenhouse gas emission targets of 15% for community emissions and 20% for council emissions by 2010.

During the 2008/2009 period Kiama Council completed Milestone 3 of the Cities for Climate Protection program, developing a Greenhouse Local Action Plan for the Kiama Municipality. The Action Plan sets out future priorities and actions for each of Council's Corporate sector, the Kiama LGA community sector, commercial/industrial sector, waste operations, street and public lighting and transport. These actions are aimed at achieving the targets of 15% reduction in community emissions and 20% for Council emissions by 2010.

### **9.2.3 Climate Change Adaptation Strategy and Action Plan for Kiama Municipal Council**

During the reporting period, Kiama Council was responsible for developing a Climate Change Adaptation Strategy and Action plan. Wollongong, Shellharbour and Kiama Council were awarded a grant from the Australian Government to conduct Climate Change Risk Planning and develop an Action Plan in each of the three Council areas.

Through two workshops, which included Council staff and external stakeholders, Kiama Council identified a number of risks which climate change would pose to Council assets and functions.

The second phase of the project saw the development of the Climate Change Adaptation Strategy and Action Plan, which identifies the adaptation options for Council and how these should be implemented.

The main objectives of the strategy are to:

- Promote the cultural shift towards considering climate change risks in all Council's long term planning, financial management and operations;
- Utilise the Southern Councils Group as a vehicle to lobby to all levels of Government to support adaptation actions;

- Engage with the local community to increase awareness of climate change risks and encourage ownership of initiatives; and
- Build on existing links and relationships between all levels of Government, volunteer groups and organisations to deliver a consistent approach to adaptation.

The Climate Change Adaptation Strategy and Action Plan was in the final stages of completion at the end of the 2008/09 reporting period.

#### 9.2.4 World Environment Day

Kiama Council's Environment and Health Team celebrated World Environment Day 2009, which was themed *"Your planet needs you to UNite to combat Climate Change"*. The day was carefully planned to coincide with the local produce markets to maximise community access and participation in events.

The community was treated to a number of environmentally themed activities including a local producer's brunch, a community waste avoidance event and giveaways to help local residents in their efforts to reduce their impact on the environment.

Slow food Saddleback and Kiama Municipal Council held a 'Big and Slow' Producers Brunch at the Harbourside Brighton Restaurant. Slow food Saddleback is a local action group who focus on local produce and local producers, and this event was particularly effective in encouraging people to see, smell and taste the food that our region is capable of producing. Guests enjoyed a range of courses whilst listening to the relevant producers, who provided the inside stories on the food being sampled.

Another substantial drawcard on the day was the Second Hand Saturday waste avoidance event, which was held on the School Flat at Black beach Kiama. Stallholders at the event can sell, trade or give away their unused goods on the day. Second Hand Saturday is not only good for community spirit, it also plays an important role in reducing waste to landfill by promoting re-use and recycling of unwanted items.



Residents view information at the Kiama Council World Environment Day



### **9.2.5 Sustainable Living Grants Program 2008/2009**

The Sustainable Living Grants Program has been developed by Kiama Municipal Council to fund environmental and health projects within schools and the general community. Projects funded under this program assist in the improvement of the health and wellbeing of the community and the natural environment of the Kiama Municipality.

The Sustainable Living Grants Program aims to:

- Promote and encourage participation of a wide range of members of the community in health and environmental projects that promote the sustainability of the Kiama Municipality;
- Strengthen partnerships between schools, the local community, business and Kiama Municipal Council;
- Increase awareness of local health and environmental issues facing the Kiama Municipality; and
- Assist schools, community groups and the wider community with the implementation of important local projects (or research) that promote sustainability and recognise the link between our health and the health of the environment.

The six projects funded this year, covered a range of issues including waste minimisation, water saving, cultural awareness, physical activity, and environmental rehabilitation and education. An assessment panel, consisting of Council Officers, Councillor Peter Bowman and a community representative assessed the applications based upon the following selection criteria:

- Project will result in improved health, wellbeing and or environment;
- Addressed multiply health, environmental health, waste minimisation and environmental themes;
- Demonstrated partnerships with the wider community; and
- The project will be sustainable after the funding is provided.

The projects funding this year are as follows:

#### Dairy Youth Inc. – Jet and Emma Dairy Management Series

This project will engage young people and the educational sector, in developing and communicating positive and contemporary stories and modules relating to sustainable primary production.

#### Jamberoo Tennis Club

This project will ensure the umpires at the Jamberoo Tennis club won't be getting hot under the collar this summer, with new shades being installed on umpire's chairs.

#### Kiama Public School – “Incredible Edibles”, Living Pantry

Kiama Public School and their local community network are creating two gardens, one for bush tucker, and the other for vegetables. Students will not only benefit from seeing vegetables in their “natural habitat”, and not just the supermarket aisle, but also gain valuable hands on experience growing their own food. The bush tucker environment will provide an insight into how the original inhabitants of Kiama survived and give the students a chance to sample the tucker themselves.

#### Kiama Downs Childcare Centre – Our Natural Play Space Project

The environmental awareness of the children at the Kiama Downs Childcare centre will be significantly enhanced by this imaginative garden space that will encourage biodiversity as well as physical activity.

#### St. Peter and Paul Primary School – Regeneration of Indigenous Garden

Restoring and regenerating the Aboriginal Gardens at St Peter’s and Paul’s School with native plants, in conjunction with students and other community volunteers, will reaffirm the significance of our indigenous heritage and provide the opportunity for future generations of students to benefit.

#### Foxground Landcare Group – Ongoing attack on Madeira Vine Menace

The energetic Foxground Landcare group have been performing important work since 2001 to restore natural areas of Foxground and Broughton Village, and eradicate Madeira Vine from the area.

### **9.2.6 Kiama Public Health Plan 2005-2008 Healthy Communities Town, Country & Coast**

The Kiama *Public Health Plan*, which was adopted in 2005, covers a broad range of issues, which Council believe interact to have an impact on the health of the residents and visitors, and the environment. The plan offers a balance between the practical and theoretical, with links that draw on international, national, state and regional research, policies and best practice. The Plan has the following overall aims:

- To improve the health, wellbeing and quality of life for all residents and visitors to the Kiama Municipality; and
- To improve, protect and enhance the environment for the benefit of present and future generations.

The Plan consists of the following sections and themes:

- Strengthening Community

Priorities: Community Connections, Information Provision, Partnerships and Funding and Service Provision



- Supportive Social Environment For Health

Priorities: Regulatory Functions, Food & Nutrition, Physical Activity, Cancer Awareness & Prevention, Safety and Injury

- Health Of Our Environment

Priorities: Regulatory & Statutory, Clean Water, Energy Efficiency, Sustainable Living, Biodiversity, Built Environment, Transport and Waste Management

The major achievements of the *Public Health Plan* during the reporting period are outlined below. Many projects are detailed in other sections of this report and the relevant section reference is included.

- Strengthening Communities

- ✓ The New Residents Kit was launched;
- ✓ Continued to lobby state government for additional health and police services;
- ✓ Continued partnership with the University of Wollongong and government agencies for collaborative projects and research students;

- Supportive Social Environment For Health

- ✓ Kiama Council was recognised as a 'Healthy City' by the World Health Organisation (WHO) in August 2008
- ✓ Skills workshops were conducted in cheese and pasta making
- ✓ Annual inspection and education programs were conducted on food premises, hairdressers and body piercing and tattooists. Continued to implement Smoke Free Sporting Grounds policy in playgrounds, sporting grounds and rockpools;
- ✓ Continued to support of Just Walk It Walking groups.
- ✓ Continued to support the North Kiama Neighbourhood Centre Community Garden.
- ✓ Map of walking paths in the Municipality was produced.

- Health Of Our Environment

- ✓ Continued to distribute Butt Bins throughout the Municipality and also to complement the Smoke Free Sporting Grounds Policy.
- ✓ Implemented National Tree Day in conjunction with Kiama High School and Conservation Volunteers Australia.
- ✓ Relevant Environmental Management Plans (Stormwater and Estuary Management Plans) were implemented (see Chapter 3: Water for more information);
- ✓ The *Stormwater pollutant control and riparian management in the Minnamurra Estuary* Project continued to be implemented, with assistance from a grant from the SRCMA (see Chapter 3: Water for more information);

- ✓ The Streamwatch Networks in Jamberoo, Kiama, Gerringong and Gerroa were supported and data was obtained for this SoE report (see Chapter 3: Water for more information);
- ✓ Water Saving Action Plans for Council operations were implemented (see Chapter 3: Water for more information);
- ✓ Milestone 3 of the Cities for Climate Protection Program was achieved(see 9.2.2 for more information);
- ✓ World Environment Day 2009 was celebrated (see this chapter for more information);
- ✓ Clean Up Australia Day was implemented in 2009 (see Chapter 6: Waste for more information).

### **9.2.7 Southern Rivers Catchment Management Authority**

The Southern Rivers Catchment Management Authority (SRCMA) plays a vital role in the management of south coast catchments from Stanwell Park in the North to the Victorian border, including the Snowy River.

SRCMA was established in 2004 by the NSW Government to ensure the protection and sustainable development of land, vegetation and water resources within the catchment. It answers directly to the Minister for Environment and Climate Change.

The SRCMA has strong partnerships in natural resource management, working closely with local communities, farmers and other land managers, Landcare, government agencies, local government, Aboriginal people, and industries within the catchment to achieve its goals.

Southern Councils Group, on behalf of Councils, and the Southern Rivers Catchment Management Authority (SRCMA) have signed a Memorandum of Understanding (MoU) to enable cooperation between Local Government and the Catchment Management Authority. The MoU seeks to establish clear working relationships with Councils that enables cooperative and coordinated pursuit of sustainable natural resource management.

During community consultations the issue that the CAP was too broad to be applicable at a sub-regional level was raised. To enable the community to see how the CAP targets will have local relevance, SRCMA identified the need to develop sub-regional plans. The draft for the sub-regional plan for the Illawarra is still in development, and should be distributed for comment to member Councils and the community in the near future. The sub-regional plans will identify and detail current and future local projects that meet the set targets of the CAP.

Kiama Council values the close links it has with the SRCMA and looks forward to engaging in future projects that benefit our local environment.

## **9.3 Potential Future Activities**

### **Existing Future Activities in the Management Plan 2009-2012**

- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received;

- Implement projects to reduce Council's consumption of water, energy, waste and other natural resources as identified in the Cities for Climate Protection Action Plan;
- Implement Sustainable Illawarra grant Years 2 and 3;
- Implement strategies identified in the Illawarra Sustainability Roadmap;
- Implement Sustainable Kiama Communities Project Years 2 and 3;
- Implement Food and Biodiversity Grant Year 2;
- Implement the programs/strategies of the Kiama Public Health Plan;
- Review and evaluate the Kiama *Public Health Plan*; and
- Provide assistance and input to Climate Change Risk Assessment and Action Plan as part of the Local Adaptation Pathways Program Grant.

#### Potential Future Activities Beyond 2009-2010

(H – High Priority, M - Medium Priority, L – Low Priority)

- To implement the programs/strategies of the Kiama *Public Health Plan* (H, M & L as per Plan timeframes) and incorporate strategies of the KPHP into Council's integrated reporting strategy;
- *Public Health Plan* Annual review reported in SoE Report (H);
- Prepare and/or implement plans to improve the environment and report on activities undertaken and grants received (H);
- Develop the Illawarra Sustainability Roadmap Action Plan (complete) (H);
- Continue implementing the Sustainable Living Grants Program to fund community health, environmental and waste minimisation projects (M);
- Implement a range of appropriate Sustainable Living Workshops, for example Composting, Worm Farming, Waterwise Gardening, Energy and Water Conservation, Safe and Green Cleaning through the Sustainable Kiama and Sustainable Illawarra Projects.(M);
- Begin implementing recommendations of the Climate Change Action Plan subject to Council's adoption of the Action Plan and future grant funding opportunities.

## Chapter 10: Summary of Existing and Potential Future Activities

All of the existing and potential future activities that aim to address issues identified in this SoE Report are listed in the final section of each relevant Theme Chapter (Chapter 2-9) and are summarised below. The **existing** future activities are already planned for implementation in Council's Management Plan 2009-2012. The **potential** future activities have been identified for implementation in future years (after 2009-2010) in the Management Plan 2009-2012 or are new activities proposed based on issues raised in this SoE Report. The **potential** activities will be considered for inclusion in the Management Plan 2010-2013 or later, depending on level of priority. The activities are outlined according to the relevant Council Strategic Goal, in line with the format of Council's Management Plan.

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Protect, enhance, manage and monitor the area's landscapes, places of heritage significance, and natural environments

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<b>ENVIRONMENTAL PROTECTION AND MANAGEMENT</b>				
Cities for Climate Protection	<ul style="list-style-type: none"> <li>Implement projects to reduce Council's consumption of water, energy, waste and other natural resources as identified in the Cities for Climate Protection Action Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Implement projects to reduce Council's consumption of water, energy, waste and other natural resources as identified in the Cities for Climate Protection Action Plan.(H)</li> </ul>	<ul style="list-style-type: none"> <li>Complete 3 milestone actions per annum.</li> </ul>	Land, Water, Biodiversity, Waste, Air,, Heritage Sustainable Communities
Protection of Environment	<ul style="list-style-type: none"> <li>Investigate promote and enforce compliance with pollution control, litter reduction and environmental legislation.</li> <li>Implement programs to reduce litter.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate promote and enforce compliance with pollution control, litter reduction and environmental legislation.(H)</li> <li>Implement programs to reduce litter.(H)</li> </ul>	<ul style="list-style-type: none"> <li>100% of complaints actioned within 5 working days.</li> <li>Implement car litter blitz program during summer months</li> <li>Participate in Project AWARE aquatic cleanup program</li> <li>Conduct Clean Up Australia Day, number of participants and tonnage of litter collected.</li> </ul>	
Environmental Monitoring	<ul style="list-style-type: none"> <li>Promote community participation in water quality and environmental monitoring.</li> <li>New Local Government reporting regime to commence</li> </ul>	<ul style="list-style-type: none"> <li>Promote community participation in water quality and environmental monitoring.(H)</li> <li>New Local Government Reporting regime to commence</li> </ul>	<ul style="list-style-type: none"> <li>Number of sites monitored.</li> <li>Reporting requirement met.</li> </ul>	

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Protect, enhance, manage and monitor the area's landscapes, places of heritage significance, and natural environments

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
Stormwater Management Plan	<ul style="list-style-type: none"> <li>Implement street sweeping and stormwater pit cleaning schedule.</li> <li>Implement Catchment Caretakers Stormwater Education Grant Program for Jamberoo and Kiama Catchments.</li> </ul>	<ul style="list-style-type: none"> <li>Implement street sweeping and stormwater pit cleaning schedule</li> </ul>	<ul style="list-style-type: none"> <li>Services undertaken in accordance with schedule.</li> <li>Drain stencilling, water quality testing and education programs completed.</li> </ul>	Land, Water, Biodiversity, Waste, Heritage, Sustainable Communities
Minnamurra River Estuary Management Plan	<ul style="list-style-type: none"> <li>Preparation of rehabilitation plan for river upstream of Swamp Road</li> <li>Obtain grant funding for projects identified in Estuary Management Plan</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of rehabilitation plan for the river upstream of Swamp Road subject to grant funding</li> <li>Obtain grant funding for projects identified in Estuary Management Plan(M)</li> </ul>	<ul style="list-style-type: none"> <li>Plan prepared by DEECW</li> <li>\$ value of grant funding obtained</li> <li>Completion of community education campaign in accordance with conditions of grant</li> </ul>	
Tree Preservation	<ul style="list-style-type: none"> <li>Assess applications for tree removal or pruning in accordance with Council's Tree Preservation Order.</li> </ul>	<ul style="list-style-type: none"> <li>Assess applications for tree removal or pruning in accordance with Council's Tree Preservation Order</li> </ul>	<ul style="list-style-type: none"> <li>80% of applications assessed within two weeks of receipt.</li> <li>Breaches recommended for prosecution reported to Council as per Council's Policy.</li> </ul>	

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Protect, enhance, manage and monitor the area's landscapes, places of heritage significance, and natural environments

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
Community Lands Management	<ul style="list-style-type: none"> <li>• Prepare and review Plans of Management for the following reserves: <ul style="list-style-type: none"> <li>– Nobles Estate – Werri Headland</li> <li>– Cedar Grove Estate</li> <li>– Turpentine Reserve</li> <li>– West Kiama Reserves</li> </ul> </li> <li>• Progressive implementation of actions identified in the Plans of Management subject to funding.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare and review Plans of Management for the following reserves: <ul style="list-style-type: none"> <li>○ Neighbourhood parks</li> <li>○ Bailey Island</li> <li>○ Willow Gully</li> </ul> </li> <li>• Progressive implementation of actions identified in the Plans of Management subject to funding.(H)</li> <li>• Continue to support and participate in Landcare Illawarra, Conservation Volunteers Australia and Southern River Catchment Management Authority projects within the Kiama Municipality (H)</li> </ul>	<ul style="list-style-type: none"> <li>• Plans of Management prepared and adopted by Council.</li> <li>• Works completed on time and within budget.</li> </ul>	Land, Biodiversity, Water

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Control and plan development of our built environment for the wellbeing of the community

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>STRATEGIC AND RURAL PLANNING</u>				
Strategic Town & Rural Planning	<ul style="list-style-type: none"> <li>Monitor Implementation of Kiama LEP.</li> <li>Commence Local Environment Study (LES) process for urban release proposals supported by Council and DOP</li> <li>Monitor implementation of area wide Development Control Plan (DCP) and recommend changes as appropriate to Council</li> </ul>	<ul style="list-style-type: none"> <li>Prepare LEPs for urban release areas approved by Council and the DOP subject to completion of LES process.(H)</li> <li>Commence review of Kiama LEP 2009 to be completed by 2013</li> <li>Monitor implementation of area wide DCP and recommend changes as appropriate to Council.(H)</li> </ul>	<ul style="list-style-type: none"> <li>Draft urban release LEPs prepared within DOP gateway guidelines</li> <li>Draft and amend LEPs prepared in accordance with DOP gateway guidelines</li> <li>LES process for urban release areas commenced</li> </ul>	Land



**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Manage and reduce the environmental impacts of all activities on air, water and land systems

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>ENVIRONMENTAL QUALITY</u>				
Weed Management	<ul style="list-style-type: none"> <li>Provide funding for the operation of the IDNWA.</li> <li>Control noxious weeds through the implementation of the IDNWA Programs.</li> </ul>	<ul style="list-style-type: none"> <li>Provide funding for the operation of the IDNWA.</li> <li>Control noxious weeds through the implementation of the IDNWA Programs.</li> <li>Implement the Regional Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Funding provided.</li> <li>Program completed and reported to Council.</li> <li>Adoption of the Strategy</li> </ul>	Biodiversity
Roadside Vegetation Management	<ul style="list-style-type: none"> <li>Ensure the ongoing implementation of the Roadside Vegetation Management Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the ongoing implementation of the Roadside Vegetation Management Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Staff regularly briefed on the requirements of the Roadside Vegetation Management Plan and operational measures put in place to ensure compliance.</li> </ul>	
Environmental Assessment	<ul style="list-style-type: none"> <li>Assess all Council works activities under Part 4 and Part 5 of the EP and A Act as required.</li> </ul>	<ul style="list-style-type: none"> <li>Assess all Council works activities under Part 4 and Part 5 of the EP and A Act as required.(H)</li> </ul>	<ul style="list-style-type: none"> <li>Review of environmental factors prepared for all activities under Part 5.</li> <li>Development Applications submitted for all developments under Part 4.</li> </ul>	
Contaminated Lands Management	<ul style="list-style-type: none"> <li>Complete and adopt a rehabilitation plan on advice from DECCW</li> </ul>	<ul style="list-style-type: none"> <li>Commence implementation of rehabilitation works at the Kiama Gasworks site as recommended by DECCW.</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation Plan completed and adopted if required by DECCW.</li> </ul>	Land

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Manage and reduce the environmental impacts of all activities on air, water and land systems

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>WASTE MANAGEMENT</u>				
Waste disposal facilities and environmental monitoring	<ul style="list-style-type: none"> <li>Monitor and report environmental conditions at Gerroa and Minnamurra Tips.</li> <li>Maintain Closure Plan site works at Minnamurra and Gerroa Depots.</li> </ul>	<ul style="list-style-type: none"> <li>Monitor and report environmental conditions at Gerroa and Minnamurra Tips.</li> <li>Maintain Closure Plan site works at Minnamurra and Gerroa Depots.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring and reporting completed in accordance with license conditions and timeframes.</li> <li>Area revegetated and maintained.</li> </ul>	Waste
Domestic garbage, recycling, green waste and annual clean up services.	<ul style="list-style-type: none"> <li>Provide efficient and environmentally effective domestic garbage, recycling, green waste and annual clean up services.</li> <li>Review residential Clean Up Collection Program and alternative option.</li> <li>Develop and implement Second-Hand Saturday Recycling and Reuse Events.</li> </ul>	<ul style="list-style-type: none"> <li>Provide efficient and environmentally effective domestic garbage, recycling, green waste and annual clean up services.</li> <li>Develop and implement Second-Hand Saturday Recycling and Reuse Events.</li> </ul>	<ul style="list-style-type: none"> <li>Total quantity of waste collected in tonnes/kg per services.</li> <li>Total recyclable materials collected in tonnes/kg per services.</li> <li>Total quantity of green waste collected in tonnes/kg per services/</li> <li>55% of total annual waste generated from urban areas is recycled or reprocessed.</li> <li>Review completed May 2009.</li> <li>2 events conducted annually.</li> </ul>	

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Manage and reduce the environmental impacts of all activities on air, water and land systems

<b>Program</b>	<b>Activities 09/10</b>	<b>Potential Future Activities Beyond 2009/2010</b> (H-high priority, M-medium priority, L-low priority)	<b>(KPI) 2009/2010</b>	<b>Relevant SoE Chapter/s</b>
Commercial Waste & Recycling Services	<ul style="list-style-type: none"> <li>Provide and promote commercial recycling services.</li> </ul>	<ul style="list-style-type: none"> <li>Provide and promote commercial recycling services.</li> </ul>	<ul style="list-style-type: none"> <li>Number and percentage of commercial premises using services and quantity of recyclable materials in tonnes/kg collected.</li> </ul>	Waste
Regional Waste Management	<ul style="list-style-type: none"> <li>Participate in Business Treading Lightly Grant Project Years 2 and 3</li> <li>Participate in the regional management network waste minimisation and recycling projects.</li> </ul>	<ul style="list-style-type: none"> <li>Participate in Business Treading Lightly Grant Project Years 2 and 3.</li> <li>Participate in the regional management network waste minimisation and recycling projects</li> </ul>	<ul style="list-style-type: none"> <li>Number of programs conducted in the Kiama Municipality.</li> <li>Participation in regional expression of interest.</li> <li>Number of regional waste minimisation and regional projects implemented.</li> </ul>	
Waste Minimisation and Recycling Projects	<ul style="list-style-type: none"> <li>Develop and implement policies and projects to reduce, recycle and minimise waste from Council facilities and activities.</li> <li>Develop and implement policies and projects to reduce waste, increase recycling and reuse of materials from residential, rural and commercial premises</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement policies and projects to reduce, recycle and minimise waste from Council facilities and activities.</li> <li>Develop and implement policies and projects to reduce waste, increase recycling and reuse of materials from residential, rural and commercial premises.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a 3 year project plan for waste minimisation, recycling and reuse for Council operations and facilities.</li> <li>Develop, implement and evaluate 2 new projects annually at Council facilities.</li> <li>Develop a 3 year project plan for waste minimisation, recycling and reuse for urban, rural and commercial areas.</li> <li>Develop, implement and evaluate 2 new projects annually for urban, rural and commercial areas.</li> </ul>	

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Manage and reduce the environmental impacts of all activities on air, water and land systems

<b>Program</b>	<b>Activities 09/10</b>	<b><u>Potential</u> Future Activities Beyond 2009/2010</b> (H-high priority, M-medium priority, L-low priority)	<b>(KPI) 2009/2010</b>	<b>Relevant SoE Chapter/s</b>
Waste Minimisation and Recycling Projects	<ul style="list-style-type: none"><li>Undertake annual DECCW waste, recycling and green waste service audits and reporting</li></ul>	<ul style="list-style-type: none"><li>Undertake annual DECCW waste, recycling and green waste services audit and reporting.</li></ul>	<ul style="list-style-type: none"><li>Number of existing waste minimisation, recycling and programs implemented.</li><li>Annual audit completed in November 2008.</li></ul>	Waste

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Promote environmental awareness through educational programs

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>ENVIRONMENTAL EDUCATION</u>				
Biodiversity, Sustainability, Water and Waste Education	<ul style="list-style-type: none"> <li>Implement Sustainable Illawarra Grant Program – Years 2 and 3.</li> <li>Implement strategies identified in the Illawarra Council Sustainability Road Map.</li> <li>Implement Sustainable Kiama Communities Grant Years 2 and 3</li> <li>Implement the Biodiversity and Food Grant – Year 2 and 3</li> </ul>	<ul style="list-style-type: none"> <li>Implement Sustainable Illawarra Grant Program –Years 2 and 3.</li> <li>Implement strategies identified in the Illawarra Council Sustainability Road Map.</li> <li>Implement Sustainable Kiama Communities Grant Years 2 and 3</li> <li>Implement the Biodiversity and Food Grant – Year 2 and 3</li> </ul>	<ul style="list-style-type: none"> <li>Black Beach and Hindmarsh Park Stormwater Reuse Scheme implemented.</li> <li>Regional sustainability website and education fact sheets established.</li> <li>Sustainability Begins at Home Project Plan completed.</li> <li>Number of programs implemented.</li> <li>Number of participants.</li> <li>% reductions in energy, water usage and waste reduction.</li> <li>Number of partnerships formed.</li> <li>Number of strategies implemented.</li> <li>Completion of Project Plan.</li> <li>Commencement of GIS sustainable mapping.</li> <li>Number of participants.</li> <li>% reductions in energy, water usage and waste reduction.</li> <li>Number of partnerships formed.</li> <li>Project plan prepared and commenced implementation.</li> </ul>	Land, Water, Biodiversity, Waste, Air, Sustainable Communities

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Promote environmental awareness through educational programs

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>ENVIRONMENTAL EDUCATION</u>				
Community Lands	<ul style="list-style-type: none"><li>Continue the development of educational reserve sites at:<ul style="list-style-type: none"><li>- Spring Creek Wetlands</li><li>- Jerrara Dam Arboretum</li><li>- Bonaira Native Gardens</li></ul></li></ul>	<ul style="list-style-type: none"><li>Continue the development of educational reserve sites at:<ul style="list-style-type: none"><li>- Spring Creek Wetlands</li><li>- Jerrara Dam Arboretum</li><li>- Bonaira Native Gardens</li></ul></li></ul>	<ul style="list-style-type: none"><li>Reserves developed as per Plan of Management.</li></ul>	Land

**GOAL:** A SUSTAINABLE ENVIRONMENT

**OBJECTIVE:** Provide leadership by demonstrating environmental excellence in all Council activities and policies

<b>Program</b>	<b>Activities 09/10</b>	<b><u>Potential</u> Future Activities Beyond 2009/2010</b> (H-high priority, M-medium priority, L-low priority)	<b>(KPI) 2009/2010</b>	<b>Relevant SoE Chapter/s</b>
<b><u>SUSTAINABLE COUNCIL OPERATIONS</u></b>				
Pesticides Notification Plan	<ul style="list-style-type: none"><li>Implement the Pesticide Notification Plan</li></ul>	<ul style="list-style-type: none"><li>Implement the Pesticide Notification Plan (H)</li></ul>	<ul style="list-style-type: none"><li>Recommendations implemented.</li></ul>	Land
Water Savings Action Plan	<ul style="list-style-type: none"><li>Implement projects as identified in the Water Savings Action Plan.</li></ul>	<ul style="list-style-type: none"><li>Ongoing implementation of the Water Savings Action Plan.(H)</li><li>Seek funding assistance for priority water conservation projects (H);</li></ul>	<ul style="list-style-type: none"><li>Implement 2 new actions annually.</li></ul>	Water

**GOAL:** QUALITY FACILITIES, SERVICES AND INFRASTRUCTURE

**OBJECTIVE:** Provide and maintain services, facilities and infrastructure which are responsive to the diverse needs of the community, accessible to users, affordable within the Council's resources and planned in a local and regional context

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>STRATEGIC INFRASTRUCTURE &amp; FACILITIES PLANNING</u>				
Climate Change Risk Assessment & Action Plan	<ul style="list-style-type: none"><li>Provide assistance and input to Climate Change Risk Assessment &amp; Action Plan as part of Local Adaptation Pathways Program grant</li></ul>	<ul style="list-style-type: none"><li>Begin implementing recommendations of the Climate Change Action Plan subject to Council's adoption of the Action Plan</li></ul>	<ul style="list-style-type: none"><li>Completion and adoption of the Action Plan</li></ul>	Air, Sustainable Communities



**GOAL:** COMMUNITY COHESION AND WELLBEING

**OBJECTIVE:** Contribute to the health, safety and wellbeing of the community

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>PUBLIC HEALTH AND SAFETY</u>				
Public Health	<ul style="list-style-type: none"><li>Review and evaluate the Kiama Public Health Plan (2005-2008).</li><li>Implement programs/strategies of the Kiama Public Health Plan (2009-2012)</li></ul>	<ul style="list-style-type: none"><li>To implement the programs/strategies of the Kiama Public Health Plan (2009-2012).</li><li>To incorporate the strategies of the Kiama Public Health Plan into Council's integrated reporting strategy.(2010/2011)</li></ul>	<ul style="list-style-type: none"><li>Consultations held.</li><li>Issues and priorities identified.</li><li>Public Health Plan updated.</li></ul>	All
Cycleways and Walkways Plan	<ul style="list-style-type: none"><li>Construct Coastal Walking Track – Kiama Heights to Werri Lagoon.</li></ul>	<ul style="list-style-type: none"><li>Construct shared pathway Fern Street to Miller Street, Gerringong</li></ul>	<ul style="list-style-type: none"><li>Completion of Coastal Walking Track.</li></ul>	Air

**GOAL:** COMMUNITY COHESION AND WELLBEING

**OBJECTIVE:** Contribute to the health, safety and wellbeing of the community

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>PUBLIC HEALTH AND SAFETY</u>				
Sewer Connection Program	<ul style="list-style-type: none"><li>Implement program to ensure premises are connected to the sewer in the Gerringong, Gerroa and Jamberoo Townships.</li><li>Undertake On-site Sewage Management System inspections for compliance with legislation.</li></ul>	<ul style="list-style-type: none"><li>Implement program to ensure premises are connected to the sewer in the Gerringong, Gerroa and Jamberoo Townships.(H)</li><li>Undertake On-site Sewage Management System inspections for compliance with legislation.(H)</li></ul>	<ul style="list-style-type: none"><li>97% of premises connected to sewer system by June 2009.</li><li>% of scheduled annual inspections undertaken.</li></ul>	Water

**GOAL:** COMMUNITY COHESION AND WELLBEING

**OBJECTIVE:** Recognise and support the value of cultural heritage

Program	Activities 09/10	<u>Potential</u> Future Activities Beyond 2009/2010 (H-high priority, M-medium priority, L-low priority)	(KPI) 2009/2010	Relevant SoE Chapter/s
<u>HERITAGE</u>				
Heritage	<ul style="list-style-type: none"> <li>Commence Aboriginal Cultural Heritage Study</li> <li>Monitor Heritage Advisor program and implement heritage initiatives as supported by Council</li> </ul>	<ul style="list-style-type: none"> <li>Complete Aboriginal Heritage study</li> <li>Require applicants to provide assessment reports where areas of aboriginal heritage are potentially impacted.(H)</li> <li>Require applicants to provide assessment reports where areas of European heritage and buildings are potentially impacted.(H)</li> </ul>	<ul style="list-style-type: none"> <li>Aboriginal Cultural Heritage Study consultants appointed and project implemented</li> <li>Number of reports prepared</li> <li>Number of reports to Council on heritage initiatives implemented</li> </ul>	Heritage

## List of Abbreviations

AHC – Australian Heritage Commission  
ANZECC – Australian and New Zealand Environment Conservation Council  
AP – Available Phosphorus  
BASIX – Building Sustainability Index  
CAP – Catchment Action Plan  
CCP™ – Cities for Climate Protection  
CO<sub>2</sub> – Carbon Dioxide  
CREMP – Crooked River Estuary Management Plan  
CVA – Conservation Volunteers Australia  
DCP – Development Control Plan  
DECCW – Department of Environment, Climate Change and Water  
DO – Dissolved Oxygen  
DPI – Department of Primary Industries  
EC – Electrical Conductivity  
EP and A Act – *Environmental Planning and Assessment Act 1979*  
EPBC Act 1999 or EPBC Act – *Environment Protection and Biodiversity Conservation Act 1999*  
ESD – Ecologically Sustainable Development  
FM Act 1994 or FM Act – *Fisheries Management Act 1994*  
GIS – Geographical Information System  
IREP – Illawarra Regional Environmental Plan  
KMC – Kiama Municipal Council  
LAQMP – Local Air Quality Management Plan  
LEP – Local Environmental Plan  
LGA – Local Government Area  
MoU –Memorandum of Understanding  
MREMP – Minnamurra River Estuary Management Plan  
NEPM- National Environmental Protection Measure  
NSW – New South Wales  
OSSMS – On-Site Sewage Management Systems  
PAS - Priorities Action Statement  
POEO Act – *Protection of the Environment Operations Act 1997*  
PVP – Property Vegetation Plan  
REP – Regional Environmental Plan  
RPI – Regional Pollution Index  
RTA – Roads and Traffic Authority  
SEPP – State Environmental Planning Policy  
SHR – State Heritage Register  
SMP – Stormwater Management Plan  
SoE – State of the Environment  
SRCMA – Southern Rivers Catchment Management Authority  
STP – Sewerage Treatment Plant  
SWC – Sydney Water Corporation  
TSC Act 1995 or TSC Act – *Threatened Species Conservation Act 1995*

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