

KIAMA PUBLIC HEALTH PLAN

SUPPLEMENT 2005-2008

Healthy Communities - Town Country and Coast
CREATING ENVIRONMENTS FOR HEALTH



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Community Profile of the Kiama Municipality

Introduction

The following information is a summary of the Community Profile contained in the Kiama Municipal Council Social Plan. It largely details information obtained from the Australian Bureau of Statistics, Community 004-2009, 2001 Census and the two previous censuses of 1996 and 1991. Local data when available has supplemented the census data. Specific references for information can be obtained from the Community Profile of the KMC Social plan.

In 2002 the Australian Bureau of Statistics estimated that the total population of the Kiama Municipality was 20,139 people. Between 1996 and 2001, there has been a 6.3% growth, or an increase of 1,121 people in the Kiama LGA. Population projections indicate that the population of Kiama in 2019 will be 23,115 persons. Although there has been a constant increase in numbers, the percentage of population growth has declined over the last 20 years.

The Kiama Township has the largest population centre in the Municipality, housing 6,395 (34.0%) people. Most of the smaller planning areas in the LGA have seen an increase in population over the two periods (1991-1996, 1996-2001) particularly the small coastal townships of Gerroa and Gerringong town. The population of Jamberoo Rural has increased dramatically (67.3%) between 1996 and 2001.

Kiama has a high proportion of children; people aged 45-64 years, and older people (aged 65 years and over) in comparison to the Illawarra and NSW. Population projections indicate that the median age of Kiama residents will increase. There will be a considerable increase in the number of over 65-year-old people living in the area and only a slight increase of the 25 to 44 year old age group. ABS projections estimate that the number of persons aged 12 to 24 years will actually decrease over the next 15 years. Current data indicates that 49.2% of the total population of Kiama LGA are male and 50.8% female. Projected population figures indicate that this balance is unlikely to change by 2019.

Age and Residence

- A young population: The Kiama LGA is characterised by a high proportion of children/young people (aged 5-19 years) and their parents (aged 40-54 years). It can also be seen that Kiama has a relatively low proportion of younger people aged 15-24 years, and people aged 25-44 years. Kiama Town has a high proportion of 25-34 year olds 10.2%.
- An ageing population: In 2001, the median age in Kiama was 39 years. This is higher than the median age for the Illawarra, which was 37, and the NSW median age of 35 years. There is a high proportion of 40-49 year old people living in the area but also a growing proportion of older people. In 1976, only 6.6% of the population of Kiama were over the age of 70. This proportion has doubled with 13.3% of the people of Kiama in 2002 being over the age of 70. Gerroa and Jamberoo Rural have a high proportion of 50-69 year olds living in the area, with 30.5% and 29.7% of all residents being of this age group respectively. Kiama Town has 15.7% of people aged 70 years and over.

- A decreasing population of the working aged: Kiama has a relatively low proportion of younger people aged 15-24 years, and people aged 25-44 years. The Kiama region has seen a decrease in the amount of young people living in the area. The proportion of 20-24, 25-29, and 30-34 year olds all dropped considerably between 1976 and 2001 from 7% to 4.3%, 7.4% to 4.3%, and 7.3% to 5.2% respectively. ABS Population projections indicate that there will essentially be a drop in the number of young people in the Municipality, defying expected growth pattern

Housing

- In the 2001 Census, 83.6% of all dwellings in the Kiama LGA were separate houses. Semi-detached houses, townhouses and flats represent the remaining dwellings and have shown only a small increase since 1991.

- Kiama has 82.4% of all Flat/Units or Apartments in the Municipality. Gerroa has a large proportion of dwellings being classified as “unoccupied” by the ABS, with over half of its dwellings being untenanted at the time of the 2001 Census. These are mainly holiday houses.

- Information on homelessness is limited. The Census of 2001 finding 156 “other” dwellings (includes caravans cabins, houseboats, improvised homes, tent, sleepers or, house or flat attached to a shop/office, and “Not Stated”, etc.).

- 5,174 (77.1% of all households) are family households, 1,433 (21.4%) are lone person households, and 100 (1.5%) are group households.

Education

- At the 2001 Census, there were 5,125 (27.2%) persons attending an educational institution. Of this figure, 1,136 were attending an educational institution beyond school level.

- 58% of young people aged 12-24 years, were attending a primary or secondary school in 2001, 17.4 % were attending TAFE or University and 24.3% were not attending an educational institution.

- Examining level of schooling, the 2001 Census revealed that 67.4% of people aged 15 years and over completed either year 10 or year 12 at school. 16.8% completed year 9 or below, and 0.2% did not go to school.

- In 2001 there were 6,307 persons (43.0% of persons aged 15 years and over) who had a non-school qualification. Comparatively, Illawarra had 35.3% and NSW 34.0%. Of all persons aged 15 years and older with a non-school qualification.

- The number of people attending TAFE has stabilised between 1991 and 2001. However, the number of people attending University or other Tertiary Institutions has increased representing a growth of 48.5% of people

- 4.0% of persons aged 15 years and over held a post graduate degree, graduate diploma or graduate certificate. There has also been a growth in the number of persons with an advance diploma, a diploma or a certificate. In 2001, 4,262 people (29.1%) had this form of qualification while in the 1991 census this compared to 3,250 (26.9%) people.

- In examining computer and Internet usage by young people, it can be seen that 69.9% used a computer at home, and 61.6% used the Internet. Males were slightly less likely to use the Internet.

Children and Families

- In the 2001 Census children under the age of 12 years of age, represented 16.8% of the total population of Kiama. These figures represent a drop in the proportion of children in Kiama. Comparatively, children under the age of 12 years represented 17.1% of the total population of the Illawarra and 16.6% of the total population of NSW. There is a higher concentration of children less than 8 years of age in Gainsborough, Jamberoo Township and Gerringong Township.
- ABS Population projections indicate that the population of children aged 0-11 years will actually decline and plateau over the next 15 years.
- In 2001 there were 5,220 families in Kiama and 15,884 people were residing as a family in their occupied dwellings. The median household size in Kiama was comprised of 2.7 persons. In NSW the median household size was 2.6 persons.
- The 2001 Census also recorded that there were 48.4% couple families with children (10,095 people). There were also 38.7% couple families without children (3,997 persons), 12% one-parent families (1,687 people), and 1% other families (105 people). In the Illawarra there were 45.5% couple families with children and 47.8% for NSW. Figures for couples without children were 37.7% for Illawarra and 34.9% for NSW. For Illawarra and for NSW the figures for one parent families were higher with 15.5% for both.
- Looking at relationships within households, almost half (46.7%) of the population of Kiama are a husband or wife in a registered marriage, 22.6% is a child under 15, and 8.1% is a lone person. Partners in a de facto marriage represent 3.9% and lone parents 3.5% of households.
- There is a higher concentration of sole parent households in the Gainsborough and Gerringong regions.
- Examining marital status, the 2001 Census found that in Kiama 43.4% of people aged 15 years and over are married, 4.5% divorced (388 males, 523 females), and 1.8% are separated.

Young People

- In 2001, there were 3,171 young people aged between 12-24 years living in Kiama. This represents an increase of 24.7% since 1991. This represents a higher percentage growth rate than for the Illawarra and NSW.
- The proportion of young people per total population has slightly increased from 16.0% in 1991 to 16.9% in 2001. However the proportion of young people in Kiama is lower than the figures from the Illawarra region (17.2%) and the for NSW (17.6%).
- Kiama Rural and Gerringong Rural have the highest proportion of young people, having 21.6% and 21.4% of the total population of the planning area respectively. Gerroa has the lowest proportion of young people living in the area.

Older People

- The ABS 2001 Census count demonstrates that there were 5,124 persons aged 55 years and over living in the Kiama LGA. This represents a 29.8% increase over the last twenty years. Both the Illawarra and NSW have also experienced an increase in the number of older people, with Illawarra having an increase 30.2% since the 1991 Census, and NSW having an increase 20.8% since the 1991 Census.
- The proportion of older people in Kiama as a figure of the total population has increased from 24.9% in 1991 to 27.3% in 2001. The proportion of older people in Kiama is higher than the percentages of older people in Illawarra and NSW, where older people represented 25.2% and 22.5% of the population respectively.
- Looking specifically at people aged 65 years and over, in 2001 Kiama had a higher proportion of this particular age group than the Illawarra region and NSW.
- Persons over the age of 55 years with a disability make up just over half (54%) of the total number of persons with a disability in the Kiama LGA.
- ABS Population Projections indicate that the population of older people will continue to rise over the next 15 years. In 2001 the projected population of older people for 2004 was 6,041 persons and in 2019 the projections indicate there will be 9,009 older people in the Kiama area.

Country of Birth

- The 2001, Census found that 15,505 (82.6%) persons in Kiama were born in Australia. In comparison to other areas, Kiama has a relatively high proportion of Australian born citizens. In the Illawarra 75.4% of people born in Australia, and in NSW, 70.5% of all people were born in Australia.
- In 2001 2,392 (12.7%) persons in Kiama were born overseas. Of these persons, 1,616 or 8.6% of the total population were born in a mainly English speaking country and 774 (4.1%) people stated they were born in a mainly non-English speaking country. Whilst the number of overseas born people has steadily increased since 1991, the proportion of overseas born people has stabilised around 13.0%.
- Of those born overseas, the three main countries of birth in 2001 were United Kingdom, New Zealand and Germany.
- In 2001, 4.1% of people stated they were born overseas in a mainly non-English speaking country. Comparatively, 10.3% were born overseas in mainly non-English speaking countries in the Illawarra, and 16.1% in NSW. A large proportion, (85.6%) were over the age of 30. Just over half of those born overseas (411 persons or 53.2%) stated that they spoke only English at home, while 348 people spoke languages other than English, of these people, 134 spoke southern European languages.

Aboriginal and Torres Strait Islander (ATSI) Population

- The 2001 Census found that there were a total of 189 indigenous people living in the Kiama Municipality. Indigenous people made up 1% of the total population of Kiama.

- The Indigenous population has seen increase of 103 persons, or 119.8% increase between 1991 and 2001. This expansion of the Aboriginal and Torres Strait Islander (ATSI) population can also be seen in the Illawarra where there was a 101.4% increase, and slightly less so in NSW where there was an increase of 71.2% between 1991 and 2001.
- Children and young people make up a large proportion of the indigenous population, with 44.4% being between the ages of 5 and 24 years of age. Older people make up a small percentage, with 10.6% of the Indigenous population being 55 years of age or older.
- Looking at Indigenous people across the Kiama Municipality, Gerringong Town had the highest Aboriginal and Torres Strait Islander population (62 people) in 2001, followed by Kiama Town (46 people) and Minnamurra/Kiama Downs (41 people).
- In 2001, 58 (79.5% of the indigenous labour force) persons (32 males, 26 females) were employed. There has been an increase in the unemployment rate, where in 2001, 15 (20.6%) persons (10 males, 5 females) were unemployed - a 25% increase from the 1996 figure of 12 (20%) and a 100% increase from 1991, where no Aboriginal people were unemployed (0%). There are 52 persons aged 15 years and over that were not in the labour force.
- The median income bracket for both individual income and family income appears to be only slightly less for indigenous persons than that of the total population.

People with a Disability

- The ABS 1998 Survey of Disability, Ageing and Carers and the 1996 Census of Population and Housing estimated that there were 3,382 persons with a disability in the Kiama area. This figure makes up 19.5% of the total population of Kiama. This percentage is higher than the figures for NSW, where 18.2% of the population has a disability.
- Kiama has a relatively high percentage of persons aged 65 years and over with a disability.
- The 2001 ABS Survey of Disability, Ageing and Carers found that the main area of restriction was mobility, where 2,428 people, or 14.0% of the total population is effected. This was followed by employment (1,181 people or 6.8%), self care (953 persons, or 5.5%), communication (702 persons, or 4.0%), and schooling (186 persons or 1.1%).

Women

- At the 2001 Census, there were 9,508 females in the Kiama Municipality. This makes up 50.6% of the total population of Kiama. This proportion of females in the Kiama LGA compares with figures from Illawarra and NSW, where there were 50.5% and 50.6% respectively in 2001.
- In 2001, 7,641 or 80.3% of females were aged 15 years or over.
- There were 1,815 women aged 65 years and over, making up 56.3% of all persons of this age.
- There were 63 indigenous women (50.0% of indigenous persons aged 15+) aged 15 years and over in the Kiama Municipality in 2001.
- The 2001 Census also found that 520 women aged 15 years and over were lone parents, making up 83.3% of all lone parents.

- Looking at individual income, it can be seen that in 2001 women (aged 15 years and over) were more likely to dominate the lower earning age brackets, and were less likely than males to earn in the higher income brackets.
- Women aged 15 years and over were slightly more likely (51.9%) to be attending an educational institution. More women than men attended University and other institutions. More women were full-time students at TAFE than men were.
- ABS Projected Population Statistics show a steady increase in the population of women aged 15 years and over in the Kiama Municipality. However the projections see the proportion of women slightly decrease from 51.6% in 2004 to 51.3% in 2019.

Employment

- In 2001, a total of 7,871 persons or 94.0% of the total labour force of the Kiama area were employed.
- Of the total number of employed persons in 2001, a total of 4,638 persons (3,164 males and 1,474 females) or 58.9% worked full-time, and 2,994 (962 males and 2,032 females) or 38.0% worked part-time.
- In 2001, the Census found that there were 502 persons (6.0% of labour force) unemployed in the Kiama area. This represents a decrease from 1991, where 583 (8.5%) persons were unemployed. In comparison, the Illawarra had an unemployment rate of 8.9% (14,545 people) and NSW 7.2% (213,196 people) in 2001.
- Of those unemployed in 2001, 41.9% were aged between 15 and 24 years of age. Kiama has a relatively high youth unemployment rate (15.2% for persons aged 15-24 years) when compared with the state (NSW 13.8 %). However, the unemployment rate for Kiama was lower than the Illawarra region, where the unemployment rate of persons aged 15-24 years was 16.9%.
- Of those unemployed, 335 (67.1%) persons (237 males and 98 females) were looking for full-time work and 164 (32.9%) persons (51 males and 113 females) were looking for part-time work.

Occupation

- In 2001, there were 23.7% persons (849 males and 1,013 females) employed as a professional in the Kiama LGA. This compares with 22.1% in 1991. In the Illawarra professionals comprised 17.3% and NSW 19.1%.
- 14.4% persons (268 males, 864 females) were employed as intermediate clerical, sales and service workers, and 13.8% persons (971 males and 112 females) were trades persons and related workers. Comparatively, intermediate clerical sales and services workers employed 15.9% in Illawarra, 16.5% in NSW and trades persons and related workers employed 14.9% in Illawarra, 11.9% in NSW.
- Younger people, particularly those aged 15-19 years were more likely to be holding elementary clerical, sales and service positions than older people. People aged 35 years and over were more likely to hold positions as professionals, managers and administrators than those in the younger age groups.

- Comparing occupation over time, the field of work that has had the biggest growth in numbers is Associate Professionals; there was a 98.1% increase - a growth of 509 people. Intermediate clerical, sales and service workers have seen an increase a growth of 79.4%, from 1991 to 2001. The number of professionals has also increased by 33.7%, or 469 persons between 1991 and 2001.

- In 2001, the Census found that 14.4% of employed persons were in the retail trade industry, and 13.2% persons were employed in the education industry. Health and community services has 11.0% persons employed in this industry.

- Construction is the industry with the highest number of males employed, where 684 persons (88.5% of the industry) were male. Health and community services had 687 females, or 77.4% employed.

Income

- The median weekly individual income for persons aged 15 years and over at the 2001 Census was \$300-399. This figure is the same as the median income for the Illawarra and NSW.

- The median individual income by age can be seen to have a bell curve effect, where the median slowly increases by age group until approximately after the 45-54 years age bracket, when it starts to fall again.

- The median household income for Kiama in 2001 was \$800-999 per week. This aligns with the NSW figure of \$800-\$999, but is higher than the figure for the Illawarra, which was \$600-699.

- In 2001, the median family income was \$800-\$999. This corresponds with the median for NSW and the Illawarra, which were both \$800-\$999.

Transport

- 68.1% persons travelled to work in a car, either as a driver or as a passenger. Comparative figures in the 2001 Census were 67.5% for the Illawarra and 60.3% in NSW.

- Also 3.3% walked to work and 1.2% caught a train. Females were more likely to catch the bus (25 females, 5 males).

- Looking at motor vehicle ownership in 2001, 88.9% households had at least one motor vehicle. This compares with 83.0% in the Illawarra, and 80.8% of dwellings in NSW. At least one motorbike/scooter was found in 4.7% households.

- 4.7% had no motor vehicles and no motorbikes/scooters. Comparing this with the Illawarra, 8.1% has no motor vehicles or motor bikes, and NSW, 9.1%.

Epidemiological Profile of the Kiama Municipality

Introduction

The following information presented in this report provides a summary of available data for the major causes of death and hospitalisation for the Kiama Municipality.

The data was taken from the most recent epidemiological profiles produced by the Illawarra Area Health Service. These profiles (Illawarra Population Health Profilers) are the most current analysis of local data available. The Population Health Profilers use a variety of information sources including:

- NSW In-patients Statistics Collection
- NSW Health surveys
- Australian Bureau of Statistics (ABS) Death Registrations
- Cancer registration Data
- Other state and regional surveys eg. National Drug Strategy Household Survey 2001, Illawarra Youth Health Survey, NSW Midwives Data Collection

The sources of data are specified in the Population Health Profilers in considerable detail but, for the purposes of simplicity, are not reproduced in this document.

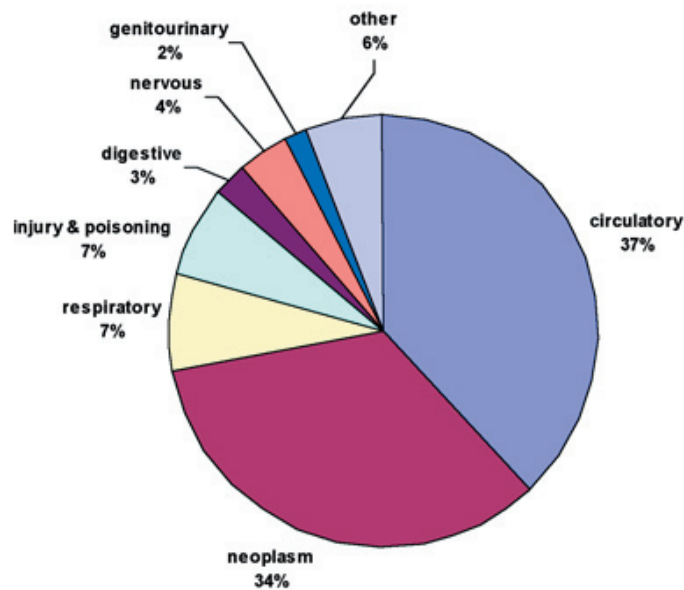
Where possible Kiama specific data has been drawn out of these reports and compared with both NSW and local government areas. In many cases no significant differences were found between Kiama and other local government areas or the NSW average. Any significant findings have been summarised in the Key Findings section.

Key Findings

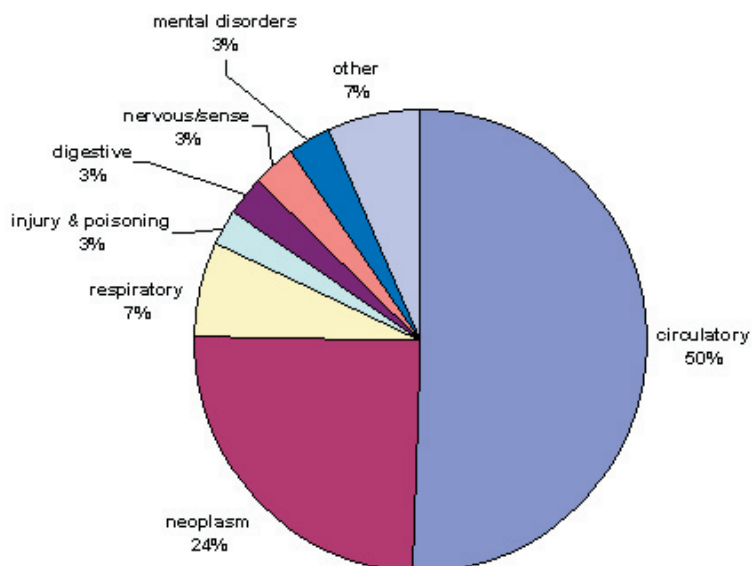
- Kiama was not significantly different to other LGA's for Coronary Heart Disease death or hospitalisation rates.
- Kiama males had the lowest death rates for Coronary heart disease when compared to males from the other Illawarra local government areas.
- Smoking prevalence was lowest among women in the Kiama LGA
- Lung cancer mortality rates among Kiama LGA males were significantly lower than between both Shellharbour and Wollongong LGA males, but not compared to the NSW average.
- Colorectal cancer incidence rates in Kiama were significantly higher for females than the NSW average for females.
- The prevalence of diabetes was significantly higher in the Illawarra than the NSW average (for total persons, and females).
- Asthma hospitalisation rates were significantly lower than the NSW average in all Local Government Areas (LGA's).
- Hospitalisation rates amongst Kiama males were significantly higher than the NSW average for sports injury and significantly lower for unintentional poisoning and fire/burns/scalds.
- For Kiama females, hospitalisation rates were significantly higher than the NSW average for road injury and significantly lower for interpersonal violence, unintentional poisoning, and fire/burns/scalds.

Major Causes of Death and Hospitalisation

Graphs 1-4 show the major causes of death and hospitalisation for Kiama males and females across all age groups. Cardiovascular disease is the most common cause of death and the second commonest cause of hospitalisation for both males and females in the Illawarra Health Area. The second most common cause of death is cancer for both males and females and this is consistent with the whole Illawarra area. Respiratory disorders are the next most common cause of death for both males and females followed by injury and poisoning, digestive disorders and disorders of the nervous system/sensory organs. In Kiama men, genito-urinary disorders was the 7th leading cause of death responsible for 7 deaths. However, in Kiama female's mental disorders was the 7th leading cause of death being responsible for 12 deaths.



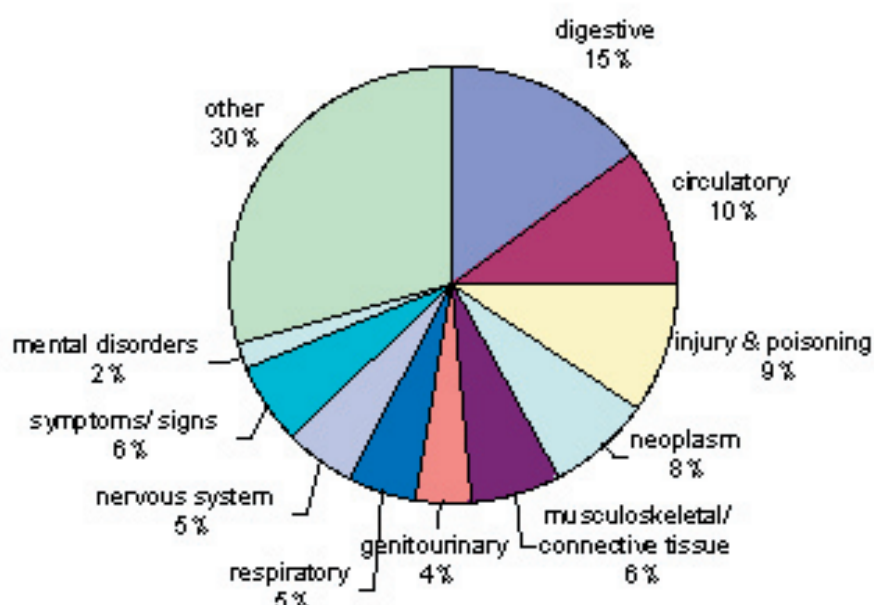
Graph 1: Major Causes of Death among Male Residents of the Kiama Local Government Area, by Sex, 1994-1998



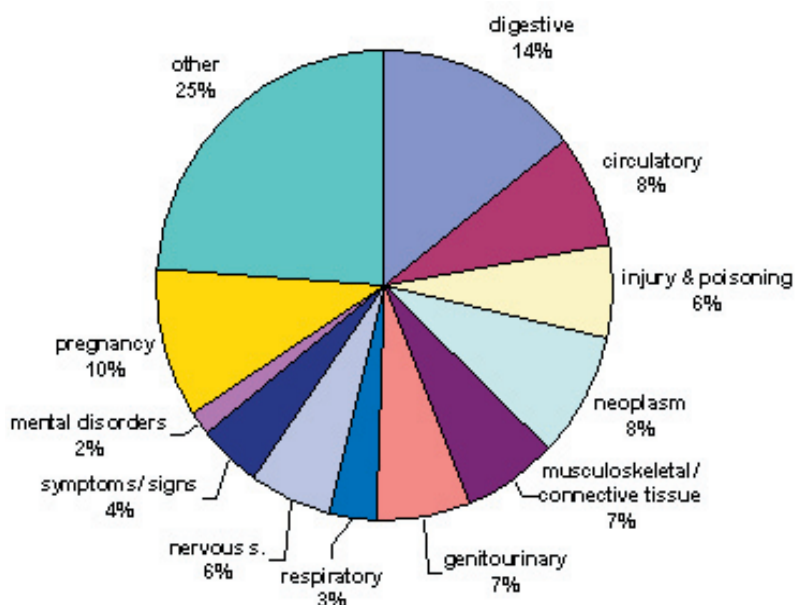
Graph 2: Major Causes of Death Among Female Residents of the Kiama Local Government Area, by Sex, 1994-1998

Major Causes of Hospitalisation

Graphs 3 and 4 show the major causes of hospitalisation for male and female residents of Kiama. The most common cause of hospitalisation for both males and females in Kiama was digestive disorders (eg. gastritis, gastric ulcers, gastro-enteritis) comprising 15% and 14% of all hospitalisations respectively. Circulatory disorders, injury and poisoning, cancer and musculo-skeletal problems were the next most common causes of hospitalisation for both males and females in Kiama. This was consistent with the Illawarra region. Pregnancy represented 10% of the hospitalisations for females in the Kiama LGA.



Graph 3: Major Causes of Hospitalisation among Male Residents of the Kiama Local Government Area, by Sex, 1997/98 - 1998/99



Graph 4: Major Causes of Hospitalisation among Female Residents of the Kiama Local Government Area, by Sex, 1997/98-1998/99

Cardiovascular Disease

Cardiovascular disease (CVD) is the most common cause of death, and second commonest cause of hospitalisation among both males and females in the Illawarra Health Area. Coronary heart disease (causing angina and acute myocardial infarction) and stroke are the major forms of CVD causing death and illness.

Information for this report is taken from the Illawarra Population Health Profiler - Cardiovascular disease mortality, morbidity and risk factors among residents of the Illawarra, Health Area Issue 2, October 2001. The information considers rates of death and hospitalisations for major cardiovascular diseases and also major risk factors for the development of these diseases. Data are reported at the Illawarra Health Area, and each of its Local Government Areas (LGA's). The relative impact of the condition in the population is compared to the NSW average.

Coronary Heart Disease

In 1994-1998, coronary heart disease (CHD) accounted for 60% (3,261) of CVD death and 27% of total death among Illawarra residents. In 1997/98-1998/99, CHD accounted for 42% (7,904) of CVD hospitalisations and 3.7% of total hospitalisations. Males were at nearly double the risk of CHD death, and more than twice as likely to be hospitalised for CHD, than females.

Compared to NSW, CHD mortality rates in the Illawarra were 18% higher for males and 11% higher for females. Mortality rates were significantly higher than the NSW average among Shellharbour and Wollongong LGA males and females, and Shoalhaven LGA males. Rates in Kiama were 180.6 deaths per 100 000 for males and 112.8 for females.

CHD hospitalisation rates among Illawarra residents were 20% higher than the NSW average among males and 14% higher among females. CHD hospitalisation rates were significantly higher than the NSW average among Shellharbour and Shoalhaven males and females, and Wollongong males.

In 1994-1998 the CHD mortality rate among Illawarra males was 88% higher than the rate for females (228.1 as compared to 121.4 per 100,000 per annum). In each of the Local Government Areas (LGA's), the CHD mortality rates were 60% (Kiama) to 107% (Shoalhaven) higher among males than females.

In 1997/98 - 1998/99 the CHD hospitalisation rate among Illawarra males was 133% higher than the rate for females (1,365.7 as compared to 585.7 per 100,000 per annum. In comparing LGA's, CHD hospital separation rates were 131% (Shoalhaven) to 146% (Kiama) higher among males than females.

In 1994-1998, CHD mortality rates were highest in Shellharbour LGA for both males and females, and lowest in the Kiama LGA for males and Shoalhaven LGA for females.

The CHD mortality rate among Shellharbour LGA males was significantly higher than among Kiama LGA males.

In 1997/98-1998/99 CHD hospitalisation rates were highest among Shellharbour LGA males and Shoalhaven LGA females and lowest among Kiama LGA males and females.

CHD hospitalisation rates among both males and females resident in the Shellharbour and Shoalhaven LGA's were significantly higher than among residents of both the Wollongong and Kiama LGA's.

Stroke

In 1994-1998, stroke accounted for 22% (1,227) of CVD deaths and 10% of total deaths among Illawarra residents. In 1997/98-1998/99, stroke accounted for 12% (2,316) of CVD hospitalisations and 1.1% of total hospitalisations.

Compared to NSW, stroke mortality rates in the Illawarra were average for males and females. However stroke mortality rates were significantly higher than the NSW average among Wollongong males (and lower than the NSW averages among Shellharbour females).

In 1994-1998, stroke mortality rates (directly age-standardised) were highest among Wollongong males and Kiama females (followed closely by Wollongong females) and lowest among Shellharbour males and females.

In contrast, stroke hospitalisation rates among Illawarra residents were 10% higher than the NSW averages among males and females.

In 1997/98-1998/99 stroke hospitalisation rates were highest among Wollongong males and Shoalhaven females, and lowest among Kiama males and females. However differences between the LGA's in stroke hospitalisation rates were not significant.

Risk Factors for Cardiovascular Disease

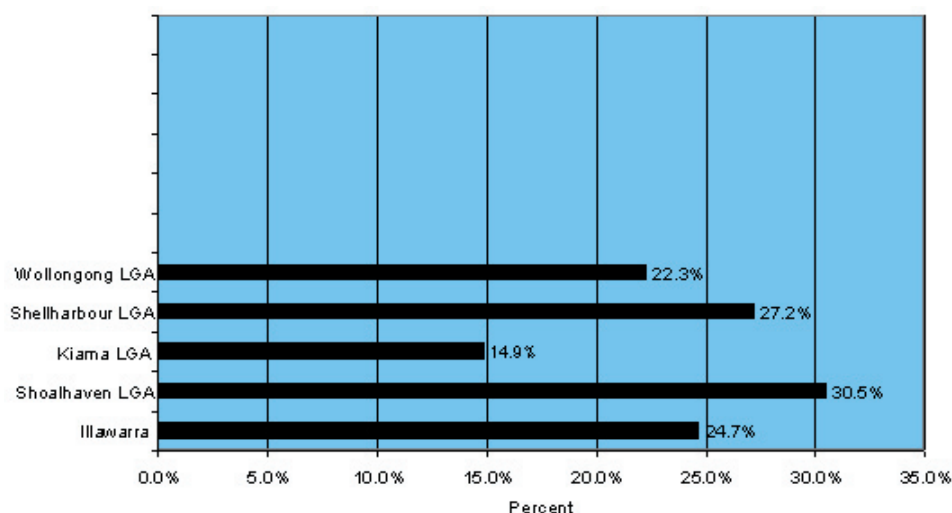
Smoking

In 1997-1998 an estimated 24.2% of Illawarra residents (males: 28.3%, females: 20.0%) were current smokers (daily or occasional). These prevalence rates were average for NSW.

Smoking rates were highest among young adults, peaking in the age group 25-34 years for both Illawarra males and females (males: 40.6%, females: 28.0%).

Over the last decade current smoking rates (among people aged 18 years and over) have apparently declined considerably among Illawarra females (from 32% in 1989/90 to 20.5% in 1997-1998).

In 1996-1999 the prevalence of (any) smoking during pregnancy among Illawarra females was 24.7%. Smoking prevalence was lowest among women in the Kiama LGA (14.9%)



Graph 5: Prevalence of Smoking in Pregnancy among Residents of the Illawarra Health Area, Each of its Local Government Areas (LGA), and Sub-Areas within the Wollongong LGA, 1996-1999

Physical Activity

In 1998 an estimated 65.1% of Illawarra adults had undertaken adequate physical activity in the previous week, which was higher than the NSW average (60.9%), the difference nearly reaching statistical significance. Similarly the prevalence of adequate physical activity among Illawarra males and females (69.0% and 61.3% respectively) were both higher (but not significantly so) than the NSW averages (64.7% and 57.2% respectively).

Adequate physical activity was highest in the youngest age group, (73.9% of 16-24 year olds) and then declined steadily with age (to 39.0% in the age group 75 years and over). Adequate physical activity was more common among Illawarra males than females in all age groups, the difference being most pronounced in the age group 75 years and over (males: 61.0%, females: 21.7%).

Nutrition

In 1997-1998, the Illawarra compared favourably with NSW in terms of consumption of the recommended quantities of fruit and, particularly, vegetables, daily. Nevertheless, less than a half of Illawarra adults reported eating the recommended quantities of fruit and less than a quarter the recommended quantities of vegetables. Males were less likely than females, and younger people than older people, to eat adequate amounts of fruit and vegetables.

In 1997-1998 an estimated 21.6% of Illawarra residents ate the recommended quantities of vegetables daily, which was significantly higher than the NSW average (15.8%). An estimated 47.1% of Illawarra adults ate the recommended quantities of fruit daily, which was higher than the NSW average (44.1%).

In 1997-1998 an estimated 19.4% of Illawarra adults ate the recommended quantities of bread and cereal daily (males: 22.8%, females: 16.0%), which was average for NSW (males: 21.7%, females: 15.3%).

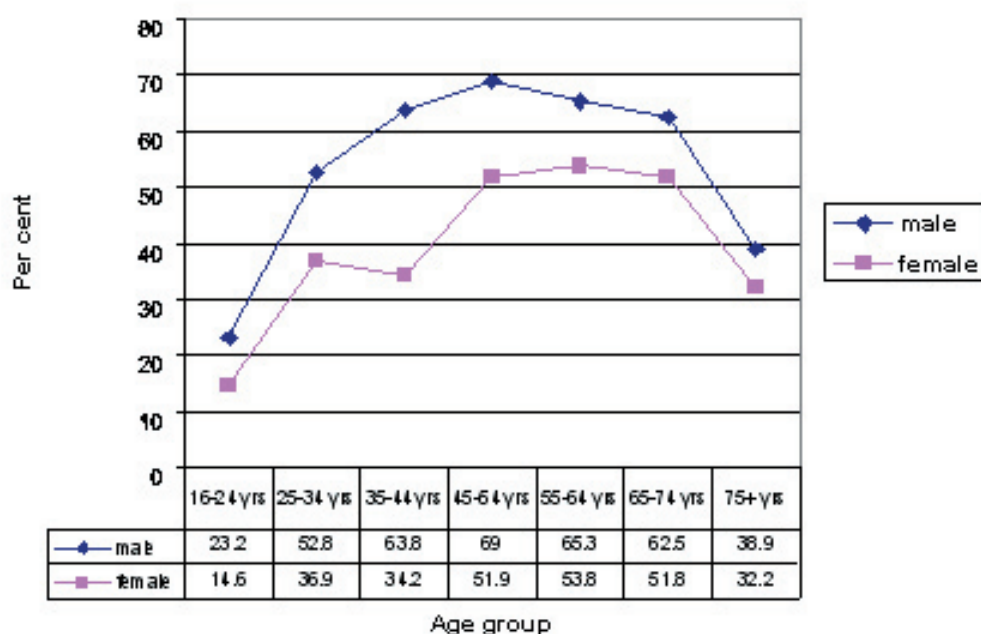
The Illawarra compared unfavourably with NSW in terms of consumption of all the high fat food categories, particularly fried potato products. Males were more likely than females, and younger people than older people, to eat high fat foods and less likely to consume low fat milk products. The prevalence rates for consumption of specific high fat foods were all higher than the NSW averages however the differences were not significant.

Overweight and Obesity

In 1997-1998 an estimated 47.0% of Illawarra adults were overweight or obese, which was significantly higher than the NSW average (42.3%). Similarly the prevalence of overweight or obesity among Illawarra males and females (54.8% and 38.9% respectively) were both higher than the NSW averages (50.0% and 34.5% respectively), the difference being significant for females.

Overweight or obesity was more common among Illawarra males than females in all age groups, the difference being most pronounced in the age group 35-44 years (males: 63.8%, females: 34.2%).

Over the last decade the prevalence of overweight/ obesity (among people aged 18 years and over) has increased considerably among both Illawarra males (from 43.9% in 1989/90 to 56.3% in 1997-1998) and females (from 30.5% to 40.2%), paralleling trends throughout NSW.



Graph 6: Overweight and Obesity, Illawarra Residents Aged 16 Years and Older, by Age and Sex, 1997 and 1998

High Blood Pressure and Cholesterol

In 1997-1998 nearly 20% of Illawarra adults (males: 19.1%, females 18.8%) reported that they had been told by a doctor that they had high blood pressure, similar to the NSW averages.

In 1997-1998 nearly 15% of Illawarra adults (males: 13.0%, females 14.7%) reported that they had been told by a doctor that they had high cholesterol, similar to the NSW averages.

Cancer

Introduction

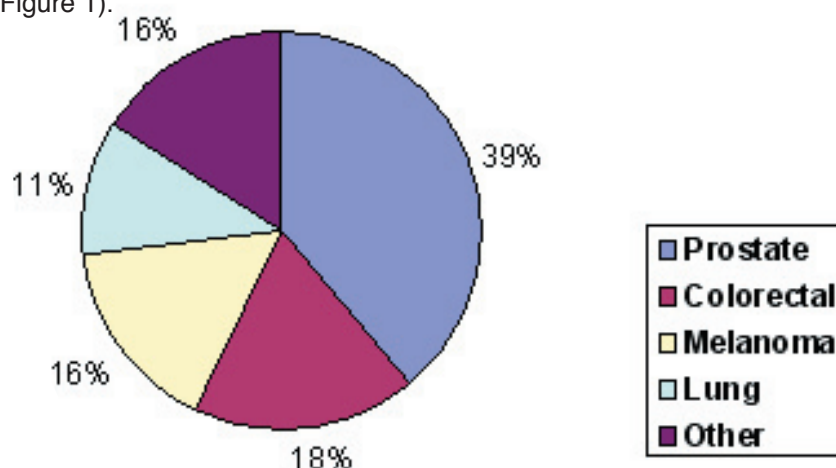
The information for this profile was taken from the most recent analyses of relevant data. The source of the information for this profile was The Illawarra Population Health Profiler - Cancer Incidence, Mortality and Screening Among Residents of the Illawarra Health Area, Issue 7 July 2003 by the Illawarra Area Health Services' Division of Population Health and Planning.

Overview

In 1996-2000 215 Kiama males and 166 females were diagnosed with cancer.

Similar to the pattern for Illawarra as a whole, the most common types of cancer diagnosed among Kiama males were, in order:

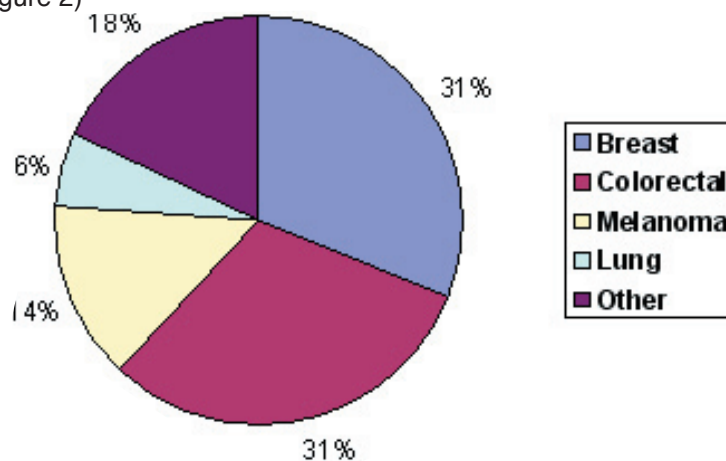
Prostate: 84 (39%);
Colorectal: 38 (18%);
Melanoma: 35 (16%); and
Lung: 24 (11%) (Figure 1).



Graph 7: The most common types of cancer for Kiama males

Among Kiama females, the most common types of cancer were, in order:

Colorectal: 52 (31%);
Breast: 51 (31%);
Melanoma: 23 (14%); and
Lung: 10 (6%) (Figure 2)



Graph 8: The most common types of cancer for Kiama females

For the years 2000-2002, biennial screening rates were significantly higher in the Kiama LGA (68.7%) than the Illawarra Health Area average (59.3%).

Kiama's population experienced a rate significantly different to other area for only two types of cancer. Lung cancer mortality rates among Kiama LGA males (35.1/100,000) were significantly lower than among both Shellharbour and Wollongong LGA males, but not the NSW average (47.5/100,000). Colorectal cancer incidence rates in Kiama were significantly higher for females (71.1/100,000) than the NSW average for females (45.6). This finding did not apply to males.

Breast Cancer

In 1996-2000 the breast cancer incidence and mortality rates in the Kiama LGA were not significantly different to the NSW averages, nor the averages of the other Illawarra LGA's.

Breast Cancer screening rates were 63% in the Kiama LGA, compared with 60% for the total Illawarra region, 54% for NSW, 52% for women from non-English speaking backgrounds, and 33% for Indigenous women.

Cervical Cancer

In 1996-2000 cervical cancer was the 16th most common cause of cancer, and 13th most common cause of cancer-related death, among Illawarra women, accounting for 2.0% of new cases and 1.7% of cancer deaths.

In 1996-2000, the Kiama LGA's cervical cancer incidence and mortality rates were not significantly different to either the NSW average or rates for the other Illawarra LGA's.

For the years 2000-2002, biennial screening rates were significantly higher in the Kiama LGA (68.7%) than the Illawarra Health Area average (59.3%). The 2000-2002 cervical screening rates for NSW was 60.4%.

Prostate Cancer

In 1996-2000, prostate cancer was the most common cause of cancer, and second most common cause of cancer-related death (following lung), among Illawarra men, accounting for 25% of new cases and 12% of cancer deaths. In 1996-2000 the prostate cancer incidence rate and mortality rate in the Illawarra were about 9% and 5% higher, respectively, than the NSW average. This represented significant excess for new cases, but not for deaths.

The highest rate of prostate cancer in the Illawarra region, particularly for new cases, was in Kiama LGA males (141.4/100,000, based on new 84 cases). This rate was not significantly higher than other Illawarra LGA's rates, nor than the NSW average.

Lung Cancer

In 1996-2000 lung cancer was the 3rd most common cause of cancer, but most common cause of cancer-related death, among Illawarra men, accounting for 13% of new cases and 25% of cancer deaths. Among Illawarra women, lung cancer was the 4th most common cause of cancer, and 2nd most common cause of cancer-related death, accounting for 7.0% of new cases and 16% of cancer deaths.

While not significantly different to the NSW average, lung cancer incidence rates were lowest in the Kiama LGA. In fact, lung cancer incidence rates (per 100,000) among Kiama LGA males (38.1) were significantly lower than rates among Wollongong and Shellharbour males (65.7 and 77.9, respectively)

Lung cancer mortality rates among both Kiama males (35.1/100,000) and females (13.6/100,000) were the lowest of all the Illawarra LGA's. Lung cancer mortality rates among Kiama LGA males were significantly lower than among both Shellharbour and Wollongong LGA males, but not the NSW average (47.5/100,000).

Colorectal Cancer

In 1996-2000 colorectal cancer was the 2nd most common cause of cancer, and 3rd most common cause of cancer-related death, among Illawarra males and females. Colorectal cancer was the most common cancer for both sexes combined. In 1996-2000 colorectal cancer incidence rates (per 100,000) among Illawarra males (76.1) and females (47.9) were about 11% and 4% higher than the NSW averages, respectively. This excess was significant for males only. Colorectal mortality rates among Illawarra males and females were not significantly different to the NSW average.

In 1996-2000, colorectal cancer incidence rates in Kiama were significantly higher for females (71.1/100,000) than the NSW average for females (45.6). The incidence rate for Kiama males was not significantly different to the NSW average for males.

Melanoma

In 1996-2000 melanoma was the 4th most common cause of cancer among Illawarra males, and 3rd most common cause among females. For Illawarra females in 1996-2000, the melanoma incidence rate and mortality rate were about 23% higher than the NSW averages. For incidence only, this represented significant excess.

Melanoma incidence rates for Kiama were not significantly different to the NSW average or rates in other LGA's. The melanoma mortality rate in Kiama was not significantly different to the NSW rate.

Haematopoietic and other Cancers

This group of cancers includes leukaemia, non-Hodgkins lymphoma, multiple myeloma, bladder cancer, brain cancer, thyroid cancer and mesothelioma. Table 1 shows the percentage of all new cases and deaths for each of these cancers as a proportion of total cancers recorded (death or diagnosis) in the Illawarra.

Kiama was not significantly different to NSW for either death or incidence rates for any of these forms of cancer.

Table 1: Haematopoietic and other cancers incidence and death rates as a percentage of total cancers in the Illawarra region

Cancer Type	Male		Females	
	Incidence%	Death%	Incidence%	Death%
Leukaemia	2.5	3.6	2.5	3.3
Non-Hodgkins Lymphoma	3.8	3.7	3.6	4.5
Multiple Myeloma	1.1	1.9	1.1	1.7
Bladder	3.2	2.4	1.7	1.4
Brain	1.5	2.7	1.3	2.6
Thyroid	0.9	0.2	1.8	0.2
Mesothelioma	1.2	2.4	0.3	0.6

All figures are the percentage of total cancers for the Illawarra region between 1996-2000.

Diabetes Mellitus

The source of this information on diabetes is The Illawarra Population Health Profiler- 'Diabetes Mellitus Among Residents of the Illawarra Health Area', Issue 1, October 2001. It represents the most current analysis of local data available.

It should be noted that hospitalisation data does not give an accurate picture of the real burden of diabetes and diabetes-related illness. Diabetes hospitalisations are mainly determined by complications such as cardiovascular disease and neuropathy, which are often recorded as the principal diagnosis rather than diabetes. Mortality data for diabetes among Illawarra residents have not been included in this report because of these limitations in the available data.

Prevalence

In 1997-1998 an estimated 4.5% of Illawarra residents (males: 4.2%, females: 4.8%) aged 16 years and over had current diabetes. The prevalence of diabetes was significantly higher in the Illawarra than the NSW average (for total persons, and females). 4.8% had Type I and 95.5% Type II diabetes mellitus.

Hospitalisations

Diabetes hospitalisation rates among Illawarra residents decreased steadily in the early 1990s, then increased steeply to a peak in 1996/97, and have been declining since. These trends are similar in direction to, but much more pronounced than NSW, suggesting that local changes such as admission practices have had a major influence.

In 1997/98-1998/99 diabetes (as the principal diagnosis) accounted for 0.40% of all hospitalisations (857 of 215,326) and 33.6% of hospitalisations for endocrine/ nutritional/ metabolic/ immunity disorders. Diabetes accounted for a slightly higher proportion of hospitalisations among Illawarra males than females.

The diabetes hospitalisation rate among Illawarra residents was significantly higher than the NSW average among both males (15% higher) and females (20% higher). This equates, on an annual basis, to 429 excess hospitalisations. This 'excess' was accounted for by the relatively high rate of diabetes hospitalisations among Shoalhaven residents. Kiama hospitalisation rates were not significantly different to Wollongong or Shellharbour rates.

The diabetes hospitalisation rate increased steeply with age from about 40-50 years (i.e. associated with a steep increase in prevalence and complications of Type II diabetes).

Management

About 20% of Illawarra males and 14% of Illawarra females with diabetes reported moderate to extreme interference with their daily activities. This was slightly higher than their NSW counterparts (males: 13.7%, females: 12.2%); however these differences were not significant.

In addition, 81% reported that they followed a diet, 26% were trying to control their weight, and 32% were doing exercise.

More than 50% of Illawarra residents with current diabetes or high blood sugar reported never having had a consultation with a podiatrist. 20% reported not having a consultation with a diabetes educator or a dietitian.

In addition, more than 50% of Illawarra residents with current diabetes reported not having either foot or eye checks in the previous year. 1 in 4 sufferers reported no eye specialist consultation in the previous 2 years.

Relative to NSW, the Illawarra appears to compare favourably in terms of accessing diabetes educators and dietitians, but unfavourably in terms of accessing podiatrists, and having regular foot and eye checks.

Respiratory Disease

The following information was taken from the Illawarra Population Health Profiler, Respiratory Disease among Residents of the Illawarra Health Area Issue 4, December 2001. It summarises deaths and hospitalisations due to respiratory disease - focussing on asthma and chronic obstructive pulmonary disease (COPD) for the Illawarra area, and where available, Kiama LGA. In addition, information is provided from a population-based survey data relating to asthma prevalence, severity and management among Illawarra adults aged 16 years and over. It represents the most current analysis of local data available.

Respiratory disorders are the third commonest cause of death, and seventh commonest cause of hospitalisation, among Illawarra residents.

In 1994-1998 respiratory disease accounted for 8.3% of total deaths among Illawarra residents.

Asthma

In 1997-98, 7.7% of Illawarra males and 11.7% of Illawarra females aged 16 years and over reported having current asthma and 13.1% of Illawarra males and 18.5% of Illawarra females had ever been diagnosed with asthma.

Asthma hospitalisation rates were significantly lower than the NSW average in all Local Government Areas (LGA's).

In 1994-1998 asthma accounted for 5.2% (53) of respiratory deaths, and 0.43% of total deaths. Asthma mortality rates in the Illawarra were 31% lower than the NSW average for males and 28% lower for females however these were not statistically significant.

Asthma prevalence, hospitalisation rates, and mortality rates are higher among females than males (at least among adults). While death rates are highest among the elderly, asthma prevalence and hospitalisation rates are highest in the younger age groups.

While death (and even hospitalisation) is fortunately a rare outcome of asthma, asthma has a significant impact - in terms of symptoms and diminished quality of life - for large numbers of people who develop asthma. Asthma cannot be cured, but can be effectively managed, for example, through use of written asthma management plans, and regular preventive medications for people with moderate or severe asthma.

In 1997-1998 about a third of Illawarra adults with asthma reported having a written asthma management plan. About 60% of Illawarra adults with asthma reported using preventer medications, with about 40% using them on at least half the days in the previous month. In contrast to deaths, asthma hospitalisation rates peak among children aged less than five years for both males and females, and are lowest among 55-64 year olds for males and 25-34 year olds for females

In each of the Local Government Areas, asthma hospitalisation rates were higher among females than males, except in Kiama where the rate among females was 42% lower than males. Asthma hospitalisation rates were lowest among Wollongong males and Kiama females.

Chronic Obstructive Pulmonary Disease (COPD)

In 1997/98-1998/99, COPD accounted for 17% (1,951) of respiratory hospitalisations and 0.91% of total hospitalisations.

COPD hospitalisation rates for the Illawarra were average for NSW.

COPD hospitalisation rates among both males and females resident in the Kiama and Wollongong LGA's were significantly lower than for the Shellharbour and Shoalhaven LGA's.

In 1994-1998, deaths from COPD in the Illawarra were average for NSW accounting for 60% (609) of respiratory deaths, and 5.0% of all deaths.

COPD hospitalisation and mortality rates are considerably higher among males than females, and increase steeply with age. Over the previous decade the COPD death rates among Illawarra residents has declined (at least among males), while hospitalisation rates have increased considerably.

Injury and Poisoning

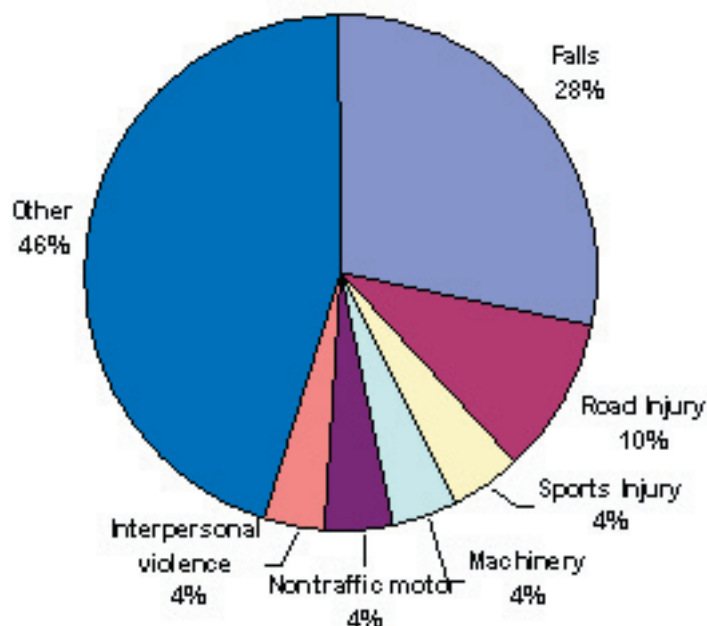
The following information was taken from the Illawarra Population Health Profiler- Injury & Poisoning Mortality and Morbidity Among Residents of the Illawarra Health Area, Issues 3 & 4. It summarises the causes of hospitalisation and death due to injury and poisoning in the Kiama Local Government Area (LGA), for the years 1997/98 and 1998/99 (hospitalisation) and 1994-98 (death). It represents the most current analysis of local injury data available.

Hospitalisations

Injury hospitalisation rates in the Kiama population are compared to the average hospitalisation rates for the rest of NSW. In Kiama, the total injury hospitalisation rates were average compared to the rest of NSW, but were significantly higher than the NSW average for road injury amongst females and sports injuries amongst males.

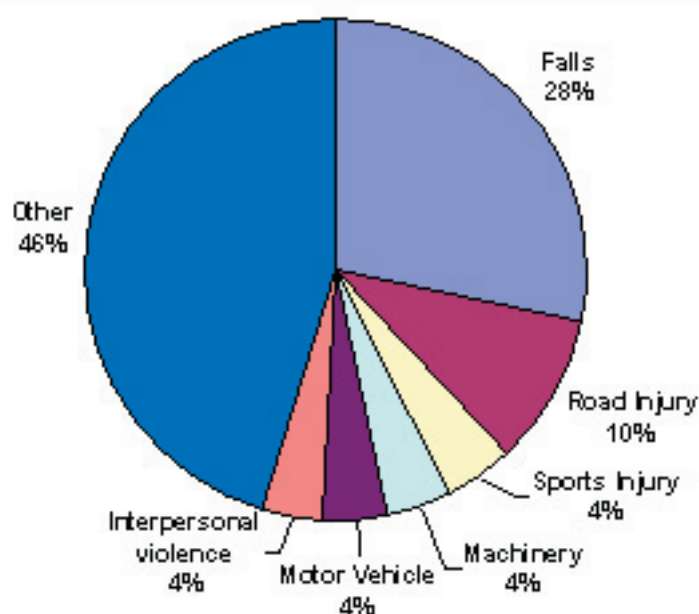
For the period analysed, 739 hospitalisations due to injury and poisoning were recorded, consisting of 59% males, 41% females. A total of 30% occurred amongst people aged 65 years and over.

The most common causes of injury hospitalisation for Kiama males were falls (28%), road injury (10%), sports injury (4%), machinery-in-operation (4%) and motor vehicle non-traffic accidents (4%). Kiama females were most commonly hospitalised with injuries due to falls (55%), road injury (41%) and self harm (5%).



Graph 9: Major Injury caused hospitalisations for males in the Kiama LGA.

Compared to the NSW average, hospitalisation rates amongst Kiama males were significantly higher for sports injury and significantly lower for unintentional poisoning and fire/burns/scalds. For Kiama females, hospitalisation rates were significantly higher for road injury and significantly lower for interpersonal violence, unintentional poisoning, and fire/burns/scalds.



Graph 10: Major Injury causes of hospitalisation for females in the Kiama LGA

Falls were a notable cause of injury amongst elderly Kiama females. The falls related hospitalisation rate for Kiama females aged 65years and over was significantly higher than the rate for Wollongong females. Road injury rates for Kiama females were also higher than for females in other Illawarra LGA's (Wollongong, Shellharbour, Shoalhaven). Hospitalisations due to self harm and interpersonal violence were lowest for Kiama males and females compared to the other Illawarra LGA's, whilst sports injury hospitalisation rates were higher.

For the Kiama LGA, falls were the most common cause of hospitalisation across all age groups except one (15-24yrs) and accounted for the majority of hospitalisations in the 65yrs+ age group. Road injury was the most common cause of hospitalisation for 15-24 yr olds whilst interpersonal violence was the third most common cause for this age group. Self-harm ranked in the top 5 causes of hospitalisation across the age groups from 15-44 yrs whilst sports injury ranked in the top 4 causes for the age groups covering 5-44 yrs. For the age groups from 25-74 yrs, machinery-in-operation also ranked in the top five causes of hospitalisation.

Deaths

Injury accounted for 4.9% of all deaths in the Illawarra region in the years 1994-98 with the death rate due to injury being slightly, but not significantly below the NSW average. Injury and poisoning was the fourth most common cause of death in Illawarra males and females after circulatory disorders, neoplasms (eg; tumours) and respiratory disorders. Males accounted for 70% of injury deaths in the Illawarra.

Cause-specific injury death rates in the Illawarra were not significantly different to the NSW averages for any particular cause. The most common causes of death for Illawarra males in order were; suicide, road injury, falls, unintentional poisoning (drugs, etc.), drowning and interpersonal violence. For Illawarra females, the main causes of injury death in order were suicide, falls, road injury, interpersonal violence and drowning.

For Illawarra children under 5yrs, drowning, road injury and interpersonal violence were the top 3 causes of death in order. Falls accounted for the greatest number of deaths in Illawarra residents over 75yrs and was in the top five causes of death for 5-14yr olds and age groups from 25-74 yrs. Road injury was the most common cause of injury death for males and females in the 5-14 and 15-24 yr old age groups and was the second most common cause of death in all other age groups up to 75 years. Whilst suicide was the most common cause of death for males and females, Illawarra suicide death rates were lower (but not significantly) than the NSW average.

From 1994-98, there were 36 injury-related deaths in the Kiama LGA, the causes of which included suicide, road injury, falls, unintentional poisoning, and drowning/submersion. Since the total number of deaths in Kiama was so small, the ability to make statistical inferences is limited.

Table 2: External (Injury) Causes of Death among Residents of the Kiama Local Government Area, 1994 – 1998

Cause	Male			Females		
	Number	Standardised Mortality ratio	Excess Deaths	Number	Standardised Mortality ratio	Excess Deaths
Suicide	9	0.99	0	3	1.22	+1
Road injury	5	0.88	-1	3	1.10	0
Falls	5	1.56	+2	3	0.75	-1
Unintentional poisoning - drugs, medicines, biologicals	1	0.84	0	0	0.00	0
Drowning/ submersion	3	2.64	+2	0	0.00	0
Interpersonal violence	0	0.00	-1	0	0.00	0
Fire, burns, scalds	0	0.00	0	0	0.00	0
Machinery-in-operation	1	5.86	+1	0	0.00	0
Motor vehicle non-traffic accident	0	0.00	-1	0	0.00	0
Fire-arms	0	0.00	0	0	0.00	0
Unintentional poisoning - other	0	0.00	0	0	0.00	0
Other	2	0.86	0	1	1.19	0
TOTAL	26	1.05	+1	10	0.85	-2

Source: Australian Bureau of Statistics' Death Registrations for 1994-1998 and Estimated Resident Populations for 30 June 1996, accessed from NSW Health's Health Outcomes Information and Statistical Toolkit (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869, E880-929, E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Kiama LGA resident deaths to the 'expected' number of Kiama LGA resident deaths. The 'expected' number of deaths is calculated by multiplying the age specific mortality rates in the NSW population by the population numbers resident in the Kiama LGA.

Tobacco, Alcohol & Illicit Drugs

The following information was taken from the Illawarra Population Health Profiler- Tobacco, Alcohol and Illicit Drugs: use and impact among residents of the Illawarra Health Area, Issue 8, September 2003. It summarises the use and impact of tobacco, alcohol and other drug use among residents of the Illawarra Health Area, and where available, the Kiama LGA, as well as being compared to NSW averages. It represents the most current analysis of local data available.

It should be noted that in this report 'Drugs' includes tobacco, alcohol and illicit drugs.

Drugs

Death and hospitalisation rates due to drug use represent only the most severe end of the spectrum of consequences of substance use. Drug deaths and hospitalisation rates have been similar to the NSW averages in recent years, with a few exceptions. Illicit drug hospitalisation (but not death) rates have been lower than the NSW rates. Tobacco-attributable hospitalisation rates were lower than the NSW rates in the early 1990s but have been higher in most years since 1993/94.

Deaths

Drugs are responsible for one in four deaths among Illawarra males and one in eight deaths among Illawarra females. 84% of drug related deaths are due to tobacco, 13% are alcohol related, and less than 3% are due to illicit drugs.

Hospitalisations

Drugs are attributable for an estimated one in 15 hospitalisations among Illawarra males and one in 33 among females. 66% of hospitalisations are attributable to tobacco, 28% due to alcohol, and 5% due to illicit drugs.

Tobacco

There is a considerable time lag between exposure to tobacco smoke and the onset of many diseases such as lung cancer, chronic obstructive pulmonary disease (COPD) and stroke, which represent the result of smoking at a much earlier age.

In 2002 an estimated 22% of Illawarra residents (males: 27%, females: 18%) were current smokers. In 1997-1998 an estimated 72% of Illawarra adults lived in smoke-free households

In 2002 smoking rates were highest among Illawarra males in the 35-44 year age group (45%) and in the 25-34 age group for females (27%).

In 1996 almost half (49%) of Illawarra students (Years 6, 8 and 10) reported having ever smoked and 40% reported that other people smoke inside their home.

Deaths

In the decade 1992-2001, 3,929 deaths among Illawarra residents were attributable to tobacco, an average of 393 deaths per year. 73% of deaths were people aged 65 years and over.

Hospitalisations

Over the three year period, 1999-2002, an estimated 10,913 hospitalisations among Illawarra residents were attributable to tobacco, ie an average of 3,638 per year.

Of the four Illawarra LGA's, Kiama had the lowest rates of tobacco-attributable hospitalisations.

Alcohol

In 1996 alcohol was responsible for 4.9% of the total disease burden, mainly through alcohol dependence, road trauma, liver cirrhosis and stroke.

In 2002 an estimated 37.6% of Illawarra residents aged 16 years and over had risk-drinking behaviour, which was not significantly different to the NSW average. (See National Health and Medical Research Council for alcohol consumption guidelines, 2001). Nearly 2 in 3 Illawarra young adults appear to have risk drinking behaviours

Deaths

In the decade 1992-2001, 601 deaths among Illawarra residents were attributable to alcohol, i.e. an average of 60 per year. This represented 2.3% of all deaths, and 13% of deaths attributable to drugs. The main causes of death attributable to alcohol during this period were: alcoholic liver cirrhosis (26% of all alcohol-attributable deaths), stroke (23%), road injury (11%), and suicide (7.5%).

Hospitalisations

Over the three-year period, 1999-2002 an estimated 4,660 hospitalisations among Illawarra residents were attributable to alcohol, ie an average of 1,553 per year. This represented 1.3% of all hospitalisations, and 28% of hospitalisations attributable to drugs. The main causes of hospitalisation attributable to alcohol were falls injury (accounting for 23% of all alcohol-attributable hospitalisations and assault (11%). Kiama LGA had the lowest rates of hospitalisation attributable to alcohol among both males and females

Illicit Drugs

In 2001 an estimated 16% of NSW adults (14 years and over) had recently used (any) illicit drugs and approximately 12% reported recently using cannabis. Recent cannabis use was commonest in the youngest age group with 26% of 14-24 year olds reporting recent use (25-39 years: 18%; 40+ years: 4.3%). In 1999, an estimated 25% of 12-17 year old Australian secondary school students had recently used cannabis. While 7.1% of 12 year olds had used cannabis in the last 12 months, this increased to 40% among 17 year olds.

In contrast, use of other illicit drugs was highest in the next age group 25-29 years with 4.2% reporting recent use (14-24 years: 4.0%; 40+ years: 2.8%). Excluding cannabis across all age groups, only 3.4% had recently used any illicit drugs (males: 3.3%, females: 3.5%). Inhalants were the most commonly used drugs, with about 19% of 12-17 year olds using them in the previous year. Inhalant use decreased with increasing age.

The most common (recently used) illicit drugs (excluding cannabis) were amphetamines and ecstasy/ designer drugs (both 3.4%), followed by painkillers/ analgesics (2.5%), then cocaine (1.8%), and tranquillisers/sleeping pills (0.9%). Less than 1% had used heroin, inhalants, barbiturates, steroids, and methadone.

Deaths

In the decade 1989-1998, 132 deaths among Illawarra residents were attributable to illicit drugs, an average of 13 per year. The main causes of death attributable to illicit drugs were: opiate dependence (accounting for 84 deaths, or 64% of all illicit drug-attributable deaths), with accidental opiate poisoning (26 deaths, 20%), and suicide (18 deaths, 14%)

Hospitalisations

Over the three year period 1997-2000, 866 hospitalisations among Illawarra residents were attributable to illicit drugs giving an average of 289 per year. The vast majority (674, 78%) were among people aged 15-44 years. The main causes of hospitalisation attributable to illicit drugs in 1997-2000 were; drug psychoses (accounting for 330 hospitalisations, or 38% of all illicit drug-attributable hospitalisations), attempted suicide (98, 11%), opiate dependence (72, 8.3%), and opiate poisoning (71, 8.2%).

Indigenous Health

Indigenous status is currently poorly reported in the In-patients Statistics Collection throughout NSW, particularly in urban areas. This makes the interpretation of hospital morbidity data for indigenous people difficult. For example, where indigenous hospital separation rates are surprisingly low for particular conditions, it is currently not possible to gauge whether this is a true reflection of morbidity, and/ or related to poor recording of indigenous status, poor access to hospital services and/ or other factors. It is also not possible to draw any conclusions about trends over time, as an apparent upward trend could well just reflect improvements in recording of indigenous status.

Kiama LGA is included in the northern Illawarra data for Wollongong, Shellharbour and Kiama LGA's and shows patterns that are general to all these LGA's.

Hospitalisations

Indigenous hospitalisations accounted for 0.67% of all hospitalisations among Illawarra residents. This is nearly 50% lower than the proportion of Illawarra residents recorded as indigenous for the 1996 Census (1.3%).

The hospital separation rate for indigenous males was 7% higher, and for females was 30% lower, than the rates for the general population. (The minor excess among indigenous males, however, is more than accounted for by multiple admissions for dialysis).

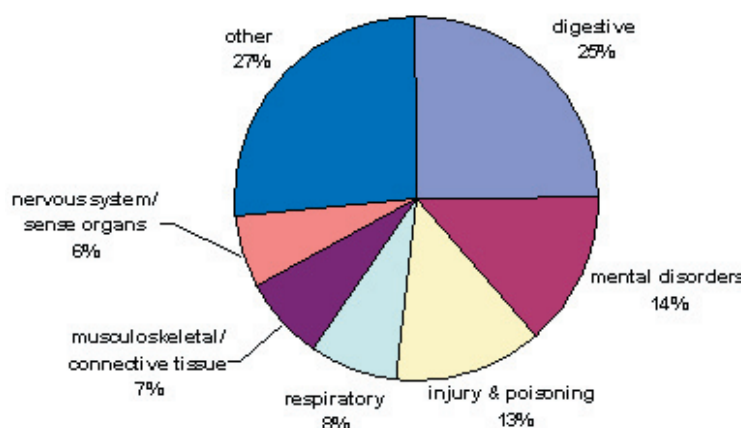
However it should be noted that a substantial proportion of hospital separations among indigenous males in particular were for 'supplementary V codes', including dialysis, which involves multiple admissions for the same person.

In 1996/97-1997/98 1,255 hospital separations were recorded among indigenous residents of the Illawarra, of which 55% were male (685). (The Illawarra is defined as the Wollongong, Shellharbour and Kiama LGA's).

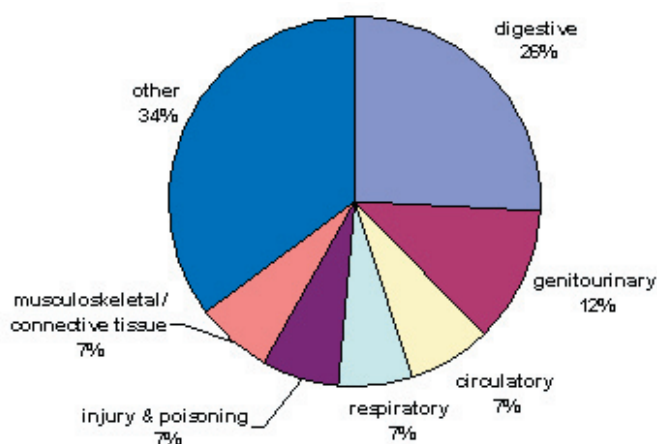
In 1996/97-1997/98, the most common principal diagnoses for hospitalisations for indigenous males were related to:

- Digestive disorders (25%, 84);
- Mental disorders (14%, 46);
- Injury and poisonings (13%, 44);
- Respiratory disorders (8%, 26); and
- Musculoskeletal and connective tissue disorders (7%, 25) (Table 2, Figure 4).

- Hospital separation rates among indigenous males were significantly higher than the general Illawarra Health Area population for:
 - Circulatory disorders (including coronary heart disease and hypertensive disorders);
 - Mental disorders (including schizophrenia);
 - Acute respiratory infections;
 - Chronic obstructive pulmonary disease;
 - Diabetes; and injuries due to interpersonal violence.
- The conditions/ disorders, which accounted for the highest number of excess hospital separations among indigenous males (i.e. above that expected based on rates in the general population) were: mental disorders (27 excess hospitalisations); and epilepsy.
- In 1996/97-1997/98, the most common principal diagnoses for hospitalisations (excluding pregnancy-related conditions and supplementary V codes), among indigenous females were related to:
 - Digestive disorders (26%, 93);
 - Genitourinary disorders (12%, 43);
 - Circulatory disorders (7%, 26);
 - Respiratory disorders (7%, 24); and
 - Injury and poisonings (7%, 24) (Table 2, Figure 3).
- Hospital separation rates among indigenous females were significantly higher than in the general Illawarra Health Area population for:
 - 'Endocrine, nutritional, metabolic and immunity disorders' (including diabetes);
 - Gastritis and duodenitis; and
 - 'Other heart disease' (excluding coronary and rheumatic).



Graph 11: Major causes of hospitalisation among indigenous male residents of the Northern Illawarra 1996/97-1997-98



Graph 12: Major causes of hospitalisation among indigenous female residents of the Northern Illawarra 1996/97-1997-98

Environment Profile for the Kiama Municipality

Summary of Key Findings

- Although there have not been a large amount of cautions issued regarding sedimentation control at building sites, it can still be a major impact on our waterways after rainfall. More stringent monitoring and enforcement is required to confirm the extent of the issue.
- Water quality in the beaches of the Kiama Municipality is generally excellent, with 100% of beaches complying with water quality criteria in most years on record. Kiama has the highest percentage of clean beaches in the Illawarra Region.
- Water quality in the creeks and estuaries of the Kiama Municipality is quite varied. The poorest water quality during 2003-2004 was found at Munna Munnora Creek, Minnamurra River at Swamp Road and Rocklow Creek, while the Upper Minnamurra River, Minnamurra River Estuary and Crooked River had the best water quality on sample days.
- There has been an increase in dry weather overflows throughout the sewerage system in Kiama during the last year, mainly caused by blockages. Maintenance of this system is important to reduce the input of sewage into the stormwater system.
- Some defects have been found in on-site sewage management systems under their inspection program and owners have been advised of such defects. To reduce risk to the environment and public health, continuation of this inspection program is important.
- Single dwellings in the Kiama Municipality were the second lowest consumers of water in the Sydney, Blue Mountains and Illawarra regions during 2002-2003.
- Complaints about noise pollution have been decreasing steadily since 1999-2000, although there was a slight rise in numbers during 2003-2004. It is not known whether the general decrease over time may be due to a more tolerance among the community or an actual decrease in noise due to education, development controls and enforcement.
- Barking dogs are the main source of noise complaints, however the number of complaints has also been decreasing, particularly over the last three years. This may be attributed to Council Rangers advising complainants to try and discuss the matter with neighbours prior to Council intervention.
- According to the Regional Pollution Index, air quality generally declined between 1999-2003, but improved during the last 12 months. However, air quality is better in the Illawarra when compared to central east Sydney, where in 2002-2003, the number of “low” readings was nearly 10% less.
- The average annual percentage increase in registered cars in the Municipality between 1998-2002 was higher than the annual population growth. Kiama residents have more registered vehicles per capita than Shellharbour and Wollongong LGA's, but less than Shoalhaven LGA, which may be a result of the amount of public transport available in each area.

- The dominant sector of emissions is from Council owned buildings, which contributed 42.9% of emissions and the dominant source of these emissions was from the residential sector (32.7%) and the transportation sector (31.6%). Overall, Corporate emissions are forecast to increase by 19.1% by the year 2010 and emissions from the Municipality of Kiama are forecast to increase 47.4% under the 'business as usual' scenario.
- There are four endangered ecological communities, seven threatened plants and 30 threatened animals known to occur in the Kiama Municipality. Having an accurate map of the communities is crucial so as to adequately provide protection during the development process.
- The number of vegetation fires was high in 2001-2002, due to the severe bushfire season that summer. Having bushfire hazard zones mapped accurately will enable better bushfire planning and reduce the risk of bushfire impact on assets.
- With the closure of the Gerroa Waste Depot and the proposed closure of the Minnamurra Landfill, waste minimisation is an increasingly important issue in the Kiama Municipality.
- The proportion of waste being reused or recycled has increased since 2001-2002, which may be attributed to more education and better recycling services available. However, there is still a large amount of waste being sent to landfill each year (9,849.81 tonnes in 2003-2004).
- In 2003-2004, the number of reports of littering was similar to 2001-2002, despite the litter education programs, such as Plastics in the Sea, Leave Only Footprints, Kiama Pelican Story and the Catchment Caretakers Programs. While statistics show relatively few reports of littering (only 16 reports in 2002-2003), littering should still be considered an important issues in the Kiama Municipality, especially during peak holiday periods.
- Overall, the number of customer action requests and complaints have increased over the last three years, to reach a five year high. While the most common issue that Council and the DEC are contacted about is noise (with an average of approximately 66% of all CARS/complaints being about noise), the number of noise complaints has generally decreased since 1999. The number of water pollution and air pollution complaints has been increasing, but this may be due to better records of customer action request/complaint data. The main pollution issue that Council is contacted about is barking dogs.

Land

Acid Sulfate Soils

Acid sulfate soils contain iron sulfide, or pyrite, which when exposed to oxygen leads to the generation of sulfuric acid. This can have adverse effects on water quality and aquatic systems.

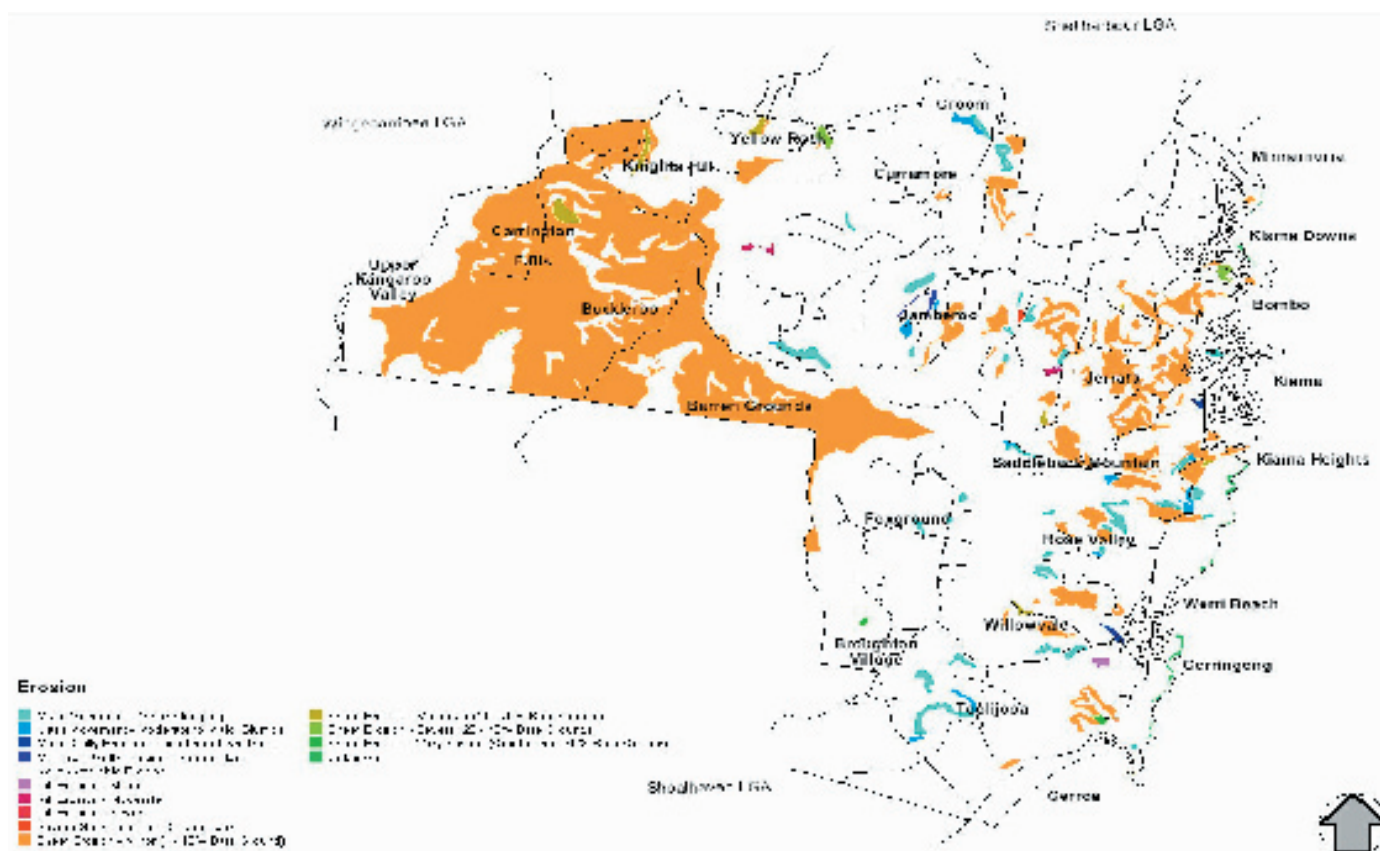
A number of locations in the Kiama Municipality have been identified by NSW Government as potential acid sulfate soil prone areas, including Minnamurra River and Floodplain, Spring Creek Wetland area, Werri Lagoon and Ooaree Creek Floodplain, Crooked River and Blue Angle Creek (including wetland areas).

Erosion and Sedimentation

Map 1 shows the areas and types of erosion in the Kiama Municipality. Over the last four years, 59 cautions regarding inappropriate sediment controls at building sites were issued. The majority of these were issued during 2000-2001, possibly due to stronger enforcement during that year.

Key Findings

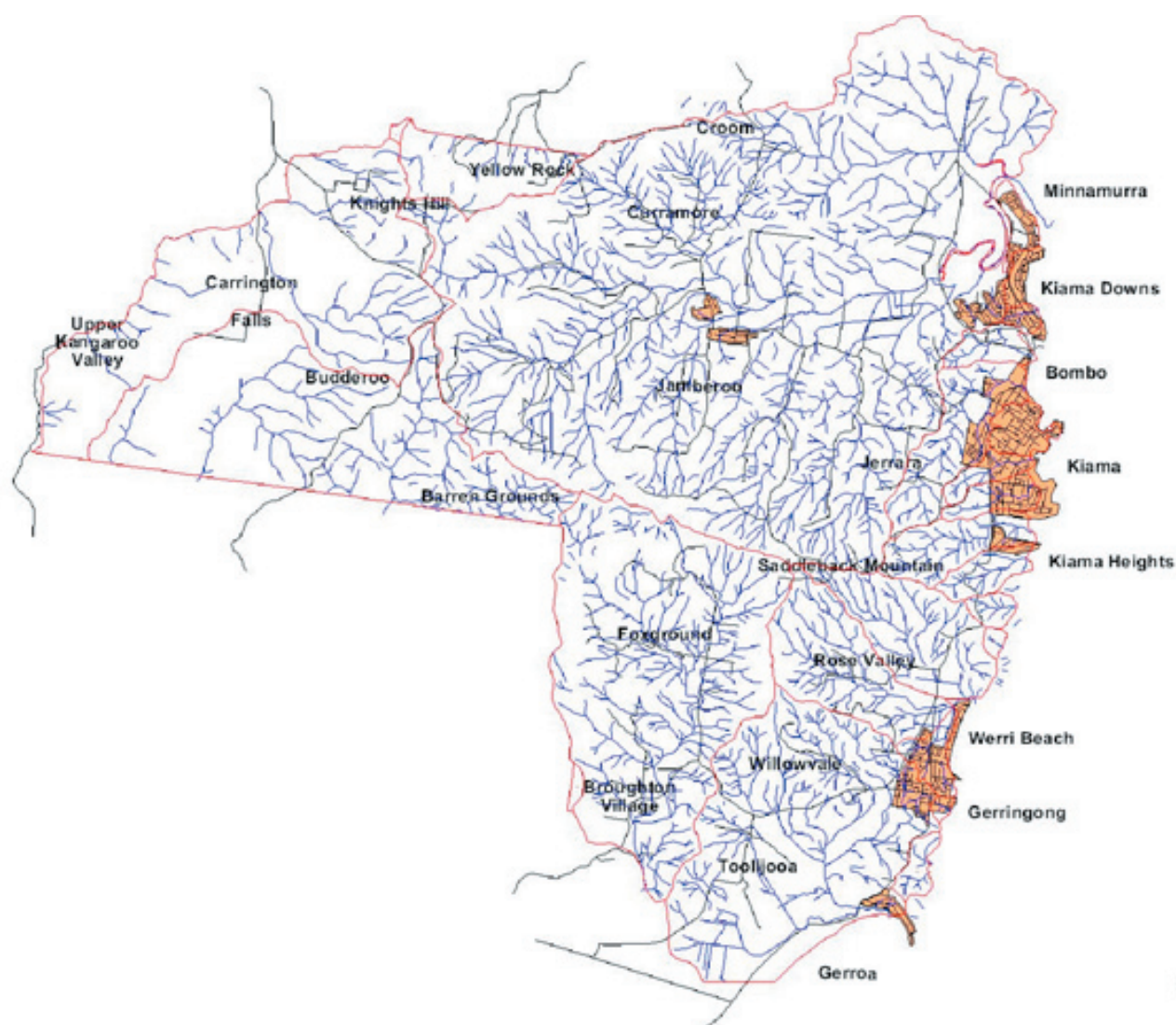
Although there have not been a large amount of cautions issued regarding sedimentation control at building sites, it can still be a major impact on our waterways after rainfall. More stringent monitoring and enforcement is required to confirm the extent of the issue.



Map 1: Land Susceptible to Erosion

Water

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 catchments are shown in Map 2.



Map 2: Waterways

Beach Water Quality

Sydney Water Corporation and the Department of Environment and Conservation undertake monitoring of beach water quality at Boyd's Jones, Bombo, Surf and Werri Beaches under the Beachwatch Program.

Over the last four years, all beaches monitored in the Kiama Municipality have generally recorded 100% compliance with Beachwatch criteria for both faecal coliforms and enterococci (note: only faecal coliforms are measured at Surf Beach). However, during this reporting period, Boyds Jones Beach only achieved 88% compliance with enterococci criteria.

Table 1 shows the ranking of each beach in relation to the 18 Illawarra beaches that are sampled. Graphs 2 and 3 show the range of bacteria levels at all Illawarra Beaches during summer 2002-2003. These results show that the beaches of the Kiama Municipality are among the cleanest in the Illawarra.

*Table 1: Compliance and Ranking of Kiama Beaches for Summer 2003-2004
(Source: Department of Environment and Conservation, 2004)*

Site	Compliance (%)		Overall Ranking
	Faecal Coliforms	Enterococci	(out of 18)
Boyd's Jones Beach	100	88	6
Bombo Beach	100	100	1
Surf Beach, Kiama	100	No Data	-
Werri Beach	100	100	1

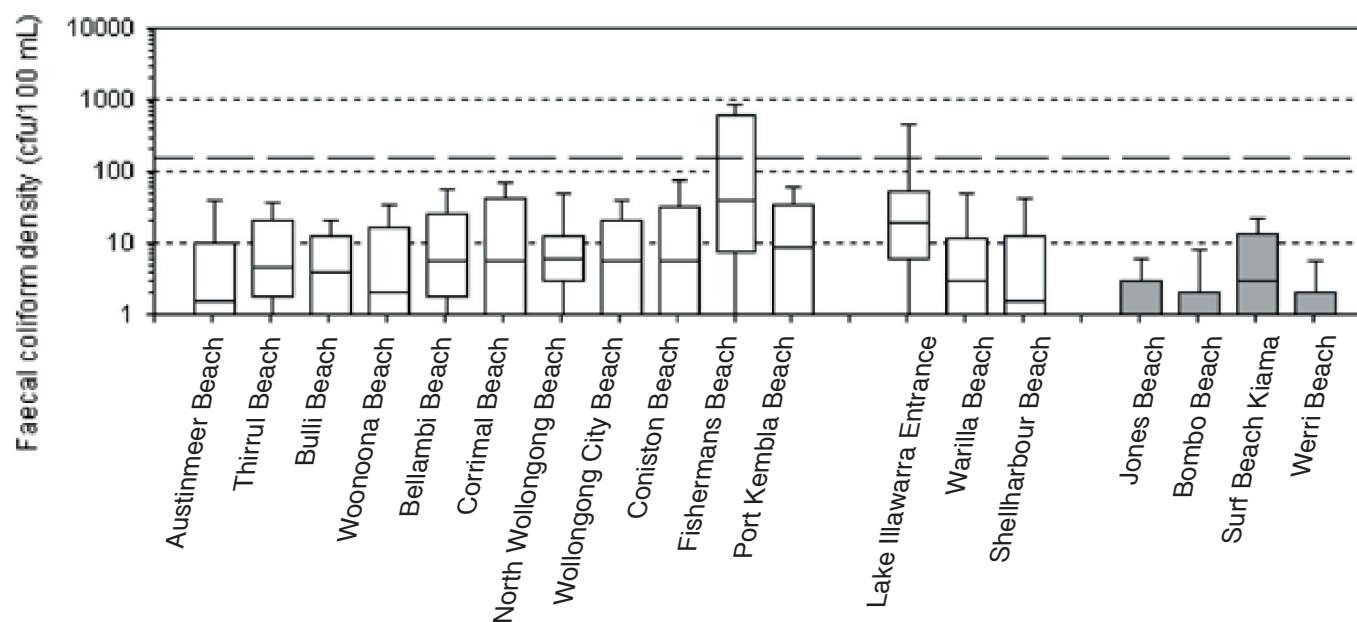


Figure 1: Range of Faecal Coliform Levels at Illawarra Beaches during Summer 2003-2004
(Source: Department of Environment and Conservation, 2004)

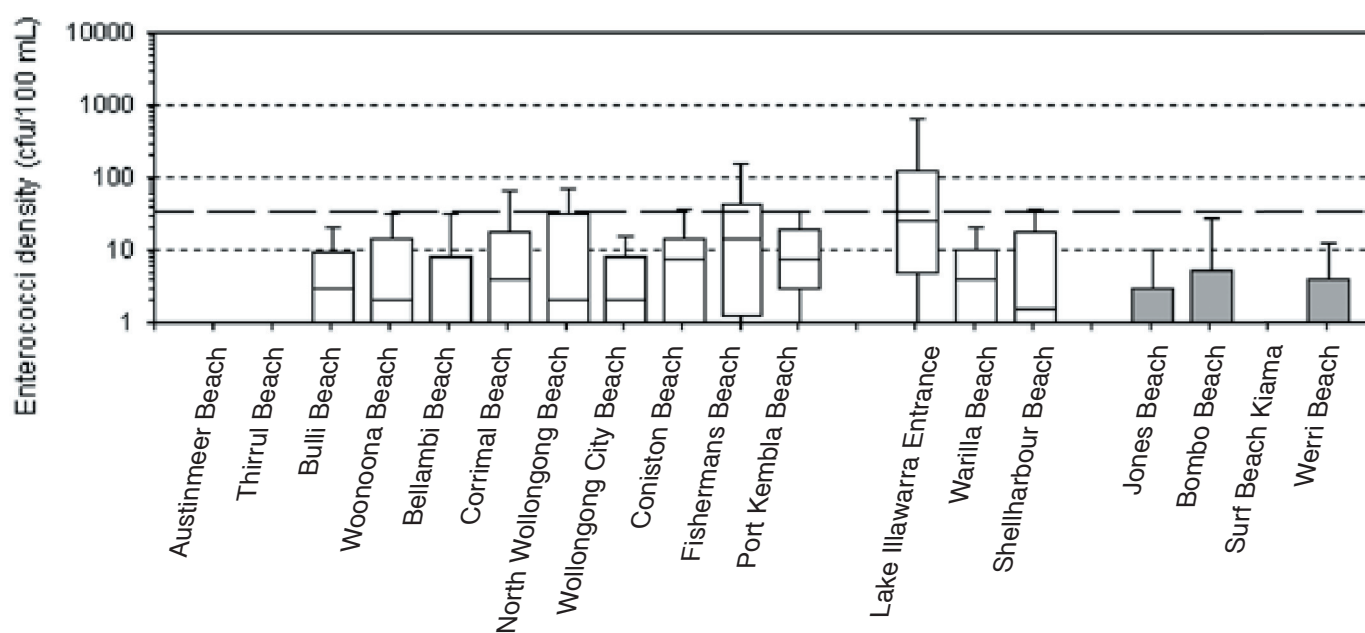


Figure 2: Range of Enterococci Levels at Illawarra Beaches during Summer 2003-2004
(Source: Department of Environment and Conservation, 2004)

The last four years of Beachwatch data has been used to develop a “Water Quality Headline Sustainability Indicator” for annual State of the Environment Reporting. This indicator, shown in Figure 3, has moved out of the sustainable zone (which equated to 100% compliance) during 2003-2004.

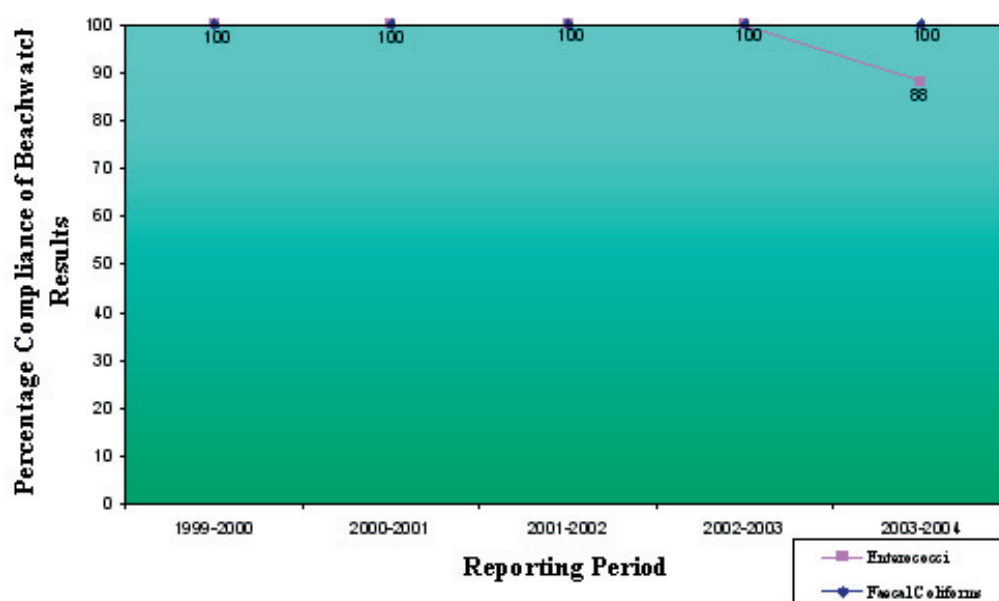


Figure 3: Headline Sustainability Indicator - Water Quality

Creek and Estuary Water Quality

Council has been implementing a Water Monitoring Program since July 2003 to gain a monthly snapshot of surface water quality across the Municipality. The program involves monthly monitoring of 12 sites in most catchments for a series of parameters. Samples are collected by Council Officers and faecal coliforms, enterococci, total phosphorus, total nitrogen, chlorophyll “A” (only from January 2004) are analysed at a NATA accredited laboratory.

The compliance with the criteria for ecosystem health (based on total phosphorus, total nitrogen, chlorophyll “A”), primary recreation and secondary recreation values (based on faecal coliforms, enterococci) are shown in both Table 2 and Map 3. The creeks with the poorest water quality during sampling throughout 2003-2004 were Munna Munnora Creek, Minnamurra River 2 and Rocklow Creek, while Minnamurra River 1, Minnamurra River 3 and both Crooked River sites had the best water quality on sample days.

Table 2: Rates of Compliance with the ANZECC Guidelines 2000

Compliance (% of Sample Days)			
	Ecosystem Health	Primary Reaction	Secondary Reaction
K1 - Kendalls Beach Creek	33.3	41.7	83.3
Mu1 - Munna Munnora Creek	16.7	41.7	100
W1- Werri Lagoon 1	25	75	100
W2 - Werri Lagoon 2	8.3	83.3	100
C1 - Crooked River 2	66.7	91.7	100
C2 - Crooked River 2	50	91.7	100
S1 - Spring Creek 1	33.3	91.7	100
M1 - Minnamurra River 1	75	75	100
M2 - Minnamurra River 2	0	58.3	100
R1- Rocklow Creek	0	66.7	100
M3 - Minnamurra River 3	50	91.7	100
S2 - Spring Creek 2	25	91.7	100

Sewerage Treatment

Provision of sewerage is the responsibility of Sydney Water Corporation. There are two Sewage Treatment Plants in the Kiama Municipality, at Bombo and Gerroa. Properties in Jamberoo will have a sewerage scheme available once the Jamberoo Sewerage Scheme is constructed. The scheme will pump sewage to the existing Bombo Treatment Plant.

The number of dry weather overflows, mainly due to tree root or debris blockages, within the Bombo Sewage Treatment Plant system has been increasing (see Table 3). Council has not been notified of any overflows in the new Gerringong-Gerroa Sewerage Scheme since it commenced in 2002.

Table 3: Sewerage Overflows in the Bombo Sewerage

Treatment Plant Catchment Area			
Year	2001-2002	2002-2003	2003-2004
Wet Weather Overflows	8	4	2
Dry Weather Overflows	-	3	9
Total	8	7	11

There is the potential for effluent to enter the waterways from the on-site sewage management systems that are still operating within the Municipality, in the Jamberoo, Gerringong and Gerroa areas. When systems are not maintained or operated correctly, this can result in untreated effluent entering drains and waterways.

There are approximately 800 rural properties that are unlikely to be offered the possibility to connect to any sewerage scheme and these properties have all been inspected during the last two years. Generally the operation of the systems have been found to be satisfactory, however some defects have been found which can put both the environment and public health at risk. The inspection program has identified such defects so that the appropriate action can be taken.

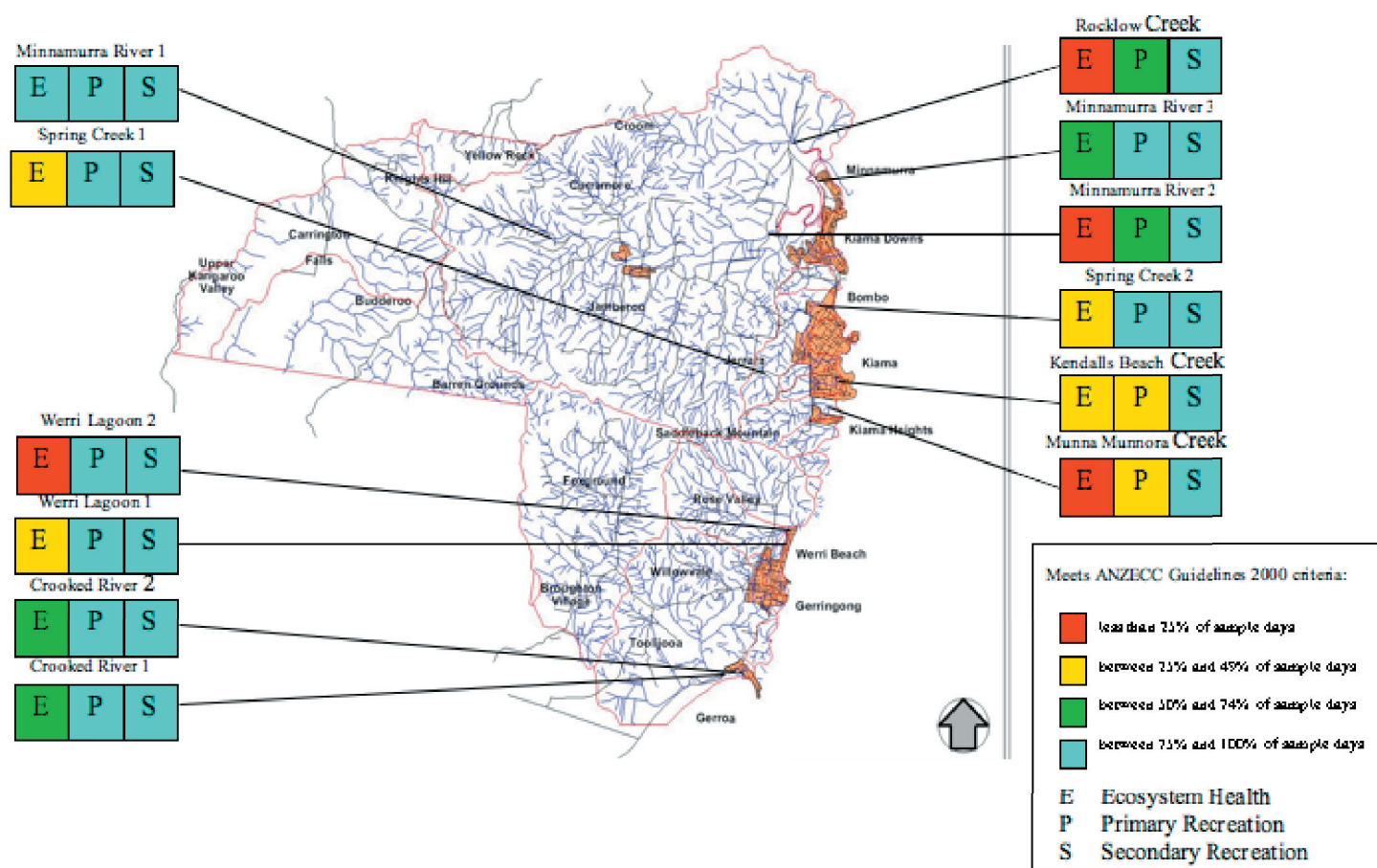
Water Consumption

During 2002-2003, the Kiama Municipality was the second best performer in the entire Sydney, Blue Mountains and Illawarra regions with regard to average annual water consumption for a single dwelling. Comparisons to other Illawarra Councils and the best and worst performers in the region are shown in Table 4.

Table 4: Average Single Dwelling Consumption by Local Government Area

Local Government Area	Average Annual Consumption (kl)	Ranking in the Sydney, Blue Mountains and Illawarra Region
Leichhardt	214	1st
Kiama	217	2nd
Wollongong	245	5th
Shellharbour	248	6th
Woollahra	409	45th (last)
Average	300	

(Source: Sydney Water Corporation - a).



Map 3: Compliance of Water Quality with ANZECC Guidelines 2000 for Ecosystem Health, Primary Recreation and Secondary Recreation Values Water Consumption

Key Findings

Water quality in the beaches of the Kiama Municipality is generally excellent, with 100% of beaches complying with water quality criteria in most years on record. Kiama has the highest percentage of clean beaches in the Illawarra Region.

Water quality in the creeks and estuaries of the Kiama Municipality is quite varied. The poorest water quality during 2003-2004 was found at Munna Munnora Creek, Minnamurra River at Swamp Road and Rocklow Creek, while the Upper Minnamurra River, Minnamurra River Estuary and Crooked River had the best water quality on sample days.

There has been an increase in dry weather overflows throughout the sewerage system in Kiama during the last year, mainly caused by blockages. Maintenance of this system is important to reduce the input of sewage into the stormwater system.

Some defects have been found in on-site sewage management systems under their inspection program and owners have been advised of such defects. To reduce risk to the environment and public health, continuation of this inspection program is important.

Single dwellings in the Kiama Municipality were the second lowest consumers of water in the Sydney, Blue Mountains and Illawarra regions during 2002-2003.

Noise

Noise may be generally defined as unwanted or offensive sound. 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.”

Noise Pollution

Council monitors noise pollution in the local environment through the documentation of the nature and type of noise complaints received. The NSW Department of Environment and Conservation also receives complaints regarding noise and provides this information to Council annually. These complaints are shown in Table 11 in Section 9.

The history of noise pollution complaints shows that the number of noise pollution complaints has been decreasing. The main source of noise is barking dogs. This decrease may be attributed to Council Rangers advising complainants to try and discuss the matter with neighbours prior to Council intervention.

Key findings

Complaints about noise pollution have been decreasing steadily since 1999-2000, although there was a slight rise in numbers during 2003-2004. It is not known whether the general decrease over time may be due to a more tolerance among the community or an actual decrease in noise due to education, development controls and enforcement.

Barking dogs are the main source of noise complaints, however the number of complaints has also been decreasing, particularly over the last three years. This may be attributed to Council Rangers advising complainants to try and discuss the matter with neighbours prior to Council intervention.

Air

Local and Regional Air Quality

Graph 3 shows the trend in air quality over the past four years in the Illawarra Region. The graph is the “Air Quality Headline Sustainability Indicator” used for State of the Environment Reporting. It utilises data from the Department of Environment and Conservation’s Regional Air Monitoring Program. As there are no air monitoring stations within the Kiama Municipality, data from the nearest stations at Albion Park and Wollongong were utilised. The graph relates to the percentage of samples obtained that were in the “low” category for each station, according to the Regional Pollution Index.

The sustainable zones, as defined by the baseline data in 1999-2000, is any value above 94.67% for Albion Park and 95.49% for Wollongong. For both stations, these values have not been reached since 1999-2000, but the current trends show a move towards sustainability, with the Albion Park Station actually sitting within the sustainable zone.

When compared to Regional Pollution Index data from central east Sydney in 2002-2003, air quality was better in the Illawarra Region. While the percentage of RPI readings in the “low” range was 92.59% at Albion Park and 91.64% in Wollongong, the percentage in central east Sydney was only 82.64%.

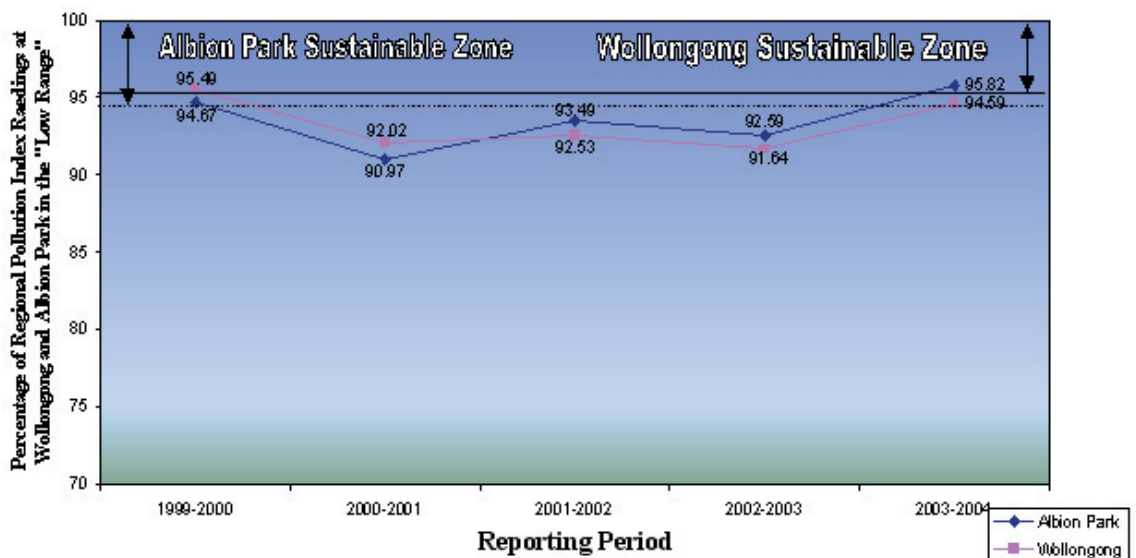


Figure 4: Headline Sustainability Indicator - Air Quality

It should be noted that the analysis for the Albion Park station for the 2002-2003 period is based only on readings from 12 November 2002 - June 2003, as the station was not taking readings prior to this date due to vandalism.

Vehicles

Emissions from motor vehicles are a major pressure on air quality. The 2003 Annual Average Daily Traffic recorded on the Princes Highway at Bombo (station 07.804) was 29,713, which is an increase of 945 from the 2000 figure of 28,768 (Roads and Traffic Authority, 2004). A large proportion of this figure would be through traffic.

Table 5 shows the number of vehicles registered in the Kiama Municipality each year between 1998 and 2003. There has been a steady increase of vehicles registered (RTA, 1999, 2000, 2001, 2002, 2003, 2004). According to the 2001 Australian Bureau of Statistics Census of Population and Housing, the annual population growth rate between 1996-2001 was approximately 1.26%, which is less than the annual growth in registered cars.

Table 5: Number of vehicles registered within the Kiama Municipality

Year	Number of 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%
Total increase 1998-2002	2,094		15.0%
Average Annual Increase	418.8		2.8%

When comparing the number of registered vehicles per capita for the year 2001 (when the last population census was undertaken), residents of the Kiama Municipality have a higher per capita ratio of vehicles than both Shellharbour and Wollongong LGA's, but a lower ratio than Shoalhaven LGA (see Table 6). The difference in public transport infrastructure in these areas is a likely contributor to these figures.

Table 6: Number of Vehicles per Capita for Illawarra Local Government Areas

Local Government Area	Number of registered vehicles per capita
Wollongong	0.65
Shellharbour	0.69
Kiama	0.75
Shoalhaven	0.89

Global Air Quality - Greenhouse Gas Emissions

As part of the Cities for Climate Protection Program, Council has conducted an extensive inventory and forecast of the greenhouse gas emissions of Council and the community of Kiama. The inventory was conducted for the base financial year 2001-2002 for Corporate (Council) and for the calendar year of 1996 for Community emissions. Milestone 1 also included a forecasting component, with calculations of emissions in the forecast year (2010) based on a 'business as usual' scenario for Council operations.

a) Corporate Emissions Analysis

Figure 5 shows the corporate emissions generated from each sector during the inventory year of 2001-2002 and the forecast year of 2010. The overall greenhouse gas emissions of Council in 2001-2002 equated to 7,741 tonnes of carbon dioxide.

The dominant sector of emissions is from Council owned buildings, which contributed 42.9% of emissions. Contributions from the other sectors were waste (14.7%) and vehicle fleet (21.1%) and streetlights (11.3%). Overall, Corporate emissions are forecast to increase by 19.1% by the year 2010 under the 'business as usual' scenario.

b) Community Emissions Analysis

Figure 6 shows the community emissions generated from each sector during the inventory year of 1996 and the forecast year of 2010. The overall greenhouse gas emissions of the community of Kiama Municipality equated to almost 145,547 tonnes of carbon dioxide.

The dominant source of these emissions was from the residential sector (32.7%) and the transportation sector (31.6%). Contributions from the other sectors were industrial (13.5%) and waste (11.4%) and commercial (10.8%). The emissions from the Municipality of Kiama are forecast to increase 47.4% by the year 2010, under the 'business as usual' scenario, with the greatest growth in emissions predicted to occur in the transportation, residential, and commercial sectors.

Key Findings

According to the Regional Pollution Index, air quality generally declined between 1999-2003, but improved during the last 12 months. However, air quality is a better in the Illawarra when compared to central east Sydney, where in 2002-2003, the number "low" readings was nearly 10% less.

The average annual percentage increase in registered cars in the Municipality between 1998-2002 was higher than the annual population growth. Kiama residents have more registered vehicles per capita than Shellharbour and Wollongong LGA's, but less than Shoalhaven LGA, which may be a result of the amount of public transport available in each area.

The dominant sector of emissions is from Council owned buildings, which contributed 42.9% of emissions and the dominant source of these emissions was from the residential sector (32.7%) and the transportation sector (31.6%). Overall, Corporate emissions are forecast to increase by 19.1% by the year 2010 and emissions from the Municipality of Kiama are forecast to increase 47.4% under the 'business as usual' scenario.

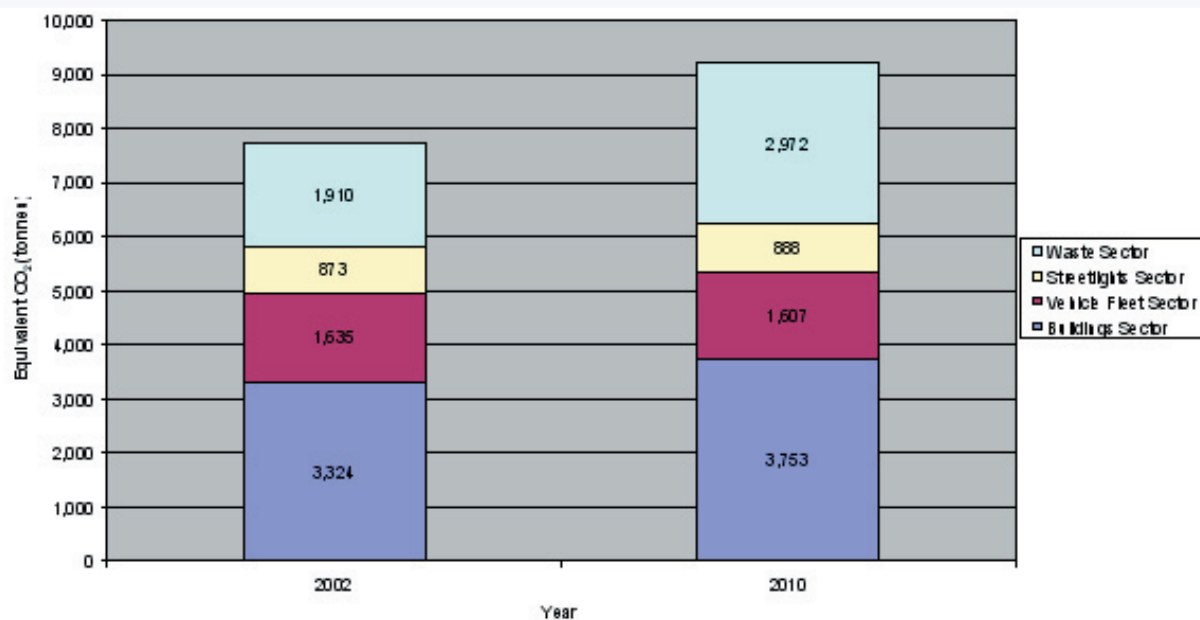


Figure 5: Council Greenhouse Emissions 2002 and Forecasted Emissions 2010

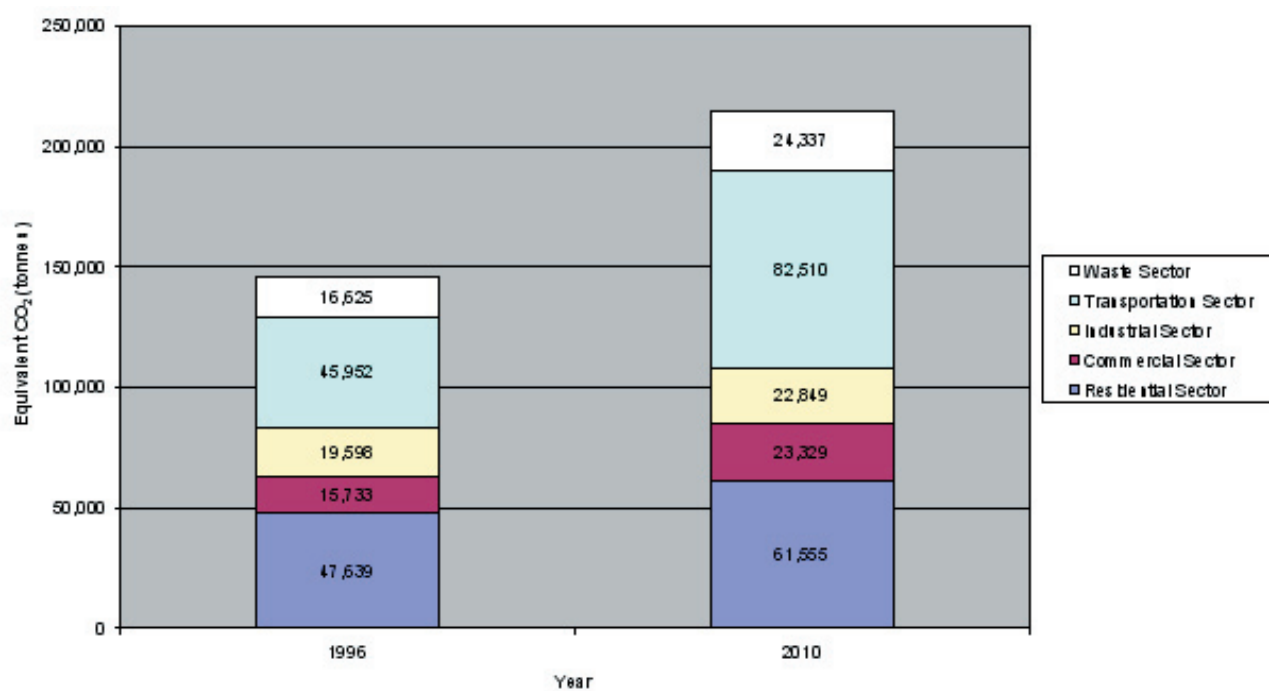


Figure 6: Community Greenhouse Emissions 1996 and Forecasted Emissions 2010

Biodiversity

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

Biodiversity is considered at three levels (Commonwealth of Australia, 1996):

- Genetic diversity, which is the variety of genetic information that organisms contain;
- Species diversity, which is the variety of species;
- Ecosystem diversity, which is the variety of habitats, biotic communities and ecological process.

Ecological Communities

Under the NSW Threatened Species Conservation Act 1995, Kiama Local Government Area is identified as containing the following Endangered Ecological Communities, including one community listed during the reporting period:

- Illawarra Lowland Grassy Woodlands;
- Sydney Coastal Estuary Swamp Forest Complex;
- *Melaleuca armillaris* Tall Shrubland in the Sydney Bioregion;
- Illawarra Sub-Tropical Rainforest in the Sydney Basin Bioregion; and
- Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions.

The most recently listed community, 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 (Kevin Mills and Associates Pty Limited, 2003). However, the SEPP No. 26 mapping of this community is not exhaustive and stands of the Littoral Rainforest Endangered Ecological Community may occur at locations not mapped.

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 Pty Limited 2003).

Flora

According to the Atlas of NSW Wildlife (National Parks and Wildlife Service), there are 153 known flora species within the Kiama Local Government Area. Of these, there are seven plant species 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). These plant species are also listed as threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999).

Table 7: Threatened Flora Species

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

Fauna

There are 303 known fauna species within the Kiama Local Government Area (NSW NPWS). Of these, 30 animal species 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).

Wetlands

According to the Vegetation Study conducted by Kevin Mills and Associates Pty Limited (2003), 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 2003).

Table 8: Threatened Fauna Species

Common Name	Species Scientific Name	Legal Status TSC Act 1995	Legal Status EPBC Act 1999
Threatened Mammals			
Australo-African Fur-seal	<i>Arctocephalus pusillus</i>	Vulnerable	
Common Bent-wing Bat	<i>Miniopterus schreibersii</i>	Vulnerable	Conservation Dependent
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable	
Eastern Pygmy Possum	<i>Cercartetus nanus</i>	Vulnerable	
Grey Headed Flying Fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	Vulnerable	Vulnerable
Long-nosed Potoroo	<i>Potorous tridactylus</i>	Vulnerable	Vulnerable
Southern Brown Bandicoot	<i>Isodon obesulus</i>	Endangered	Endangered
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	Vulnerable	Vulnerable
Yellow-bellied Glider	<i>Petaurus australis</i>	Vulnerable	
Threatened Birds			
Australasian Bittern	<i>Botaurus poiciloptilus</i>	Vulnerable	
Barking Owl	<i>Ninox connivens</i>	Vulnerable	
Black Bittern	<i>Ixobrychus flavicollis</i>	Vulnerable	
Black-browed Albatross	<i>Diomedea melanophrys</i>	Vulnerable	
Eastern Bristlebird	<i>Dasyornis brachypterus</i>	Endangered	Endangered
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable	
Ground Parrot	<i>Pezoporus wallicus</i>	Vulnerable	
Olive Whistler	<i>Pachycephala olivacea</i>	Vulnerable	
Pied Oystercatcher	<i>Haematopus longirostris</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
Turquoise Parrot	<i>Neophema pulchella</i>	Vulnerable	
Wandering Albatross	<i>Diomedea exulans</i>	Endangered	Vulnerable
Sooty Owl	<i>Tyto tenebricosa</i>	Vulnerable	
Powerful Owl	<i>Ninox strenua</i>	Vulnerable	
Threatened Amphibians			
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	

Bushfire

Table 9 shows the number of vegetation fires that were recorded by the Kiama/Shellharbour District Rural Fire Service (includes Shellharbour Local Government Area). The high number of fires in 2001-2002 represents the severe bushfire season that occurred during that summer, including the Christmas fires.

Table 9: Number of Vegetation Fires

Vegetation Fires	2000-2001	2001-2002	2002-2003	2003-2004
Number of Fires	76	154	46	62

A vegetation mapping project, including mapping of bushfire hazard zones, is currently under-way. This will assist in bushfire planning and reduce the risk of bushfire impact on assets.

Key Findings

There are four endangered ecological communities, seven threatened plants and 30 threatened animals known to occur in the Kiama Municipality. Having an accurate map of the communities is crucial so as to adequately provide protection during the development process.

The number of vegetation fires was high in 2001-2002, due to the severe bushfire season that summer. Having bushfire hazard zones mapped accurately will enable better bushfire planning and reduce the risk of bushfire impact on assets.

Waste

Since the Closure of the Gerroa Waste Disposal Depot in October 2003 Kiama Municipal Council now only operates one waste disposal facility: the Minnamurra Waste Disposal and Recycling Centre.

The Minnamurra Waste Disposal and Recycling Centre is located in an 'Environmentally Sensitive Area' and has been operating for about 40 years in accordance with licensed conditions imposed by the Department of Environment and Conservation (DEC). The facility includes a Materials Recovery Facility for the sorting of recyclable materials from the domestic recycling collection service. The facility also includes a Revolve Recycling Centre incorporating green waste mulching and compost processing; scrap metal, waste paper, oils and glass recycling; and a second hand good reuse centre.

Waste Generation

Figure 7 shows on the total tonnes of waste that went to landfill per capita each year since 1999-2000. The population figures are based on the population data until 2001, then the projected population for 2002 and 2003 (since the last census count), according to the Australian Bureau of Statistics Census of Population and Housing.

This graph is the "Waste Headline Sustainability Indicator" used for State of the Environment Reporting and shows a move away from the "sustainable zone". 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 all reporting period since the baseline year, although during this last reporting period there has been a significant move towards that sustainable zone.



Figure 7: Headline Sustainability Indicator – Waste

The amount of waste received at Council's waste facilities that was recycled/reused or sent to landfill is shown in Figure 8. The proportion of waste that was recycled or reused increased significantly from 57.6% in 2001-2002 to 68.9% in 2002-2003 and 66.0% in 2003-2004.

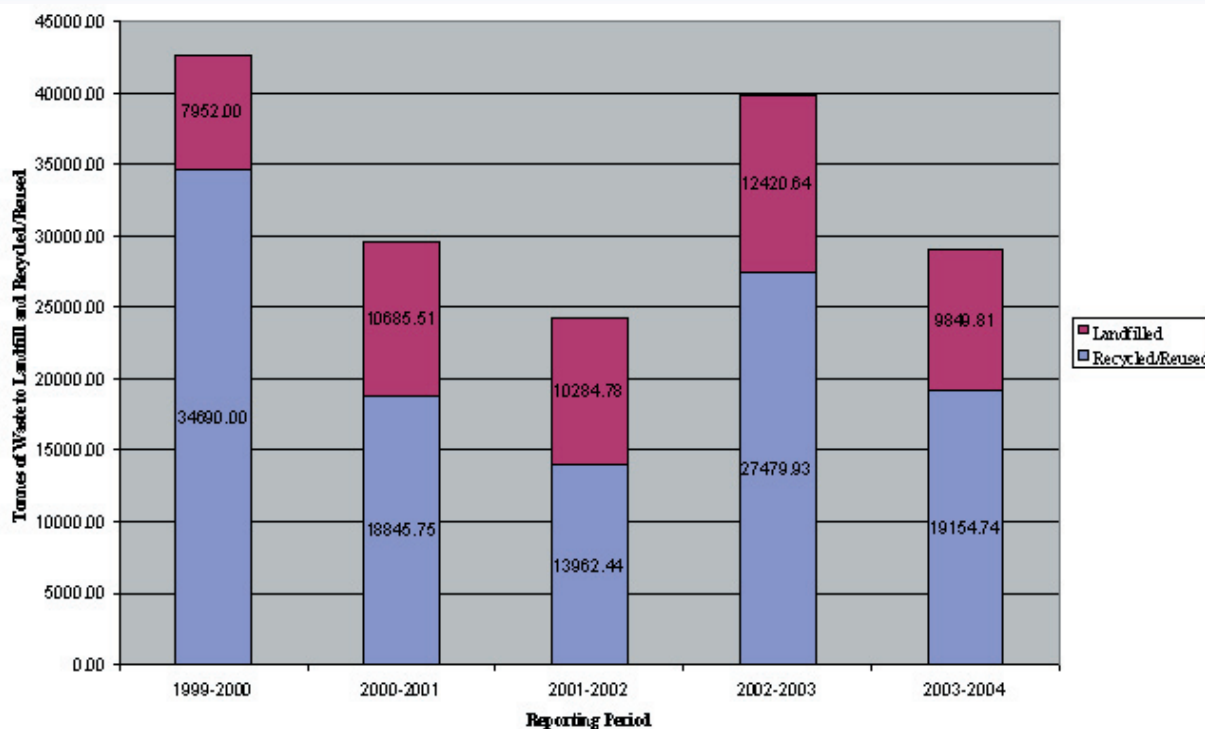


Figure 8: Waste Recycled/Reused and Disposed to Landfill 1999-2003

When compared to New South Wales resource recovery targets (Table 9), Kiama Municipality is performing well. Although Council does not have separate figures for municipal, commercial and industrial and construction and demolition sectors, Council's total of 66.0% resource recovery in 2003-2004 is higher than all NSW sectors' current performance and at or above the 2014 target for the municipal and commercial and industrial sectors.

Table 10: Resource Recovery Targets (Source: Resource NSW, 2003)

Stream	Current Resource Recovery	Aggressive Scenario Recovery 2014
Municipal	26%	66%
Commercial and Industrial	28%	63%
Construction and Demolition	65%	76%

Littering/ Illegal Waste Disposal

Council investigates and cleans up any reports (by either the community or Council staff) of littering and illegal dumping. The number of reports are shown in Table 10, showing an increase in reports since 2000.

The littering reports are not necessarily representative of the actual litter rates as litter is also cleaned up during routine maintenance of beaches and stormwater systems and a proportion of litter washes out to sea before it is able to be retrieved. Littering is generally considered more prevalent during peak holiday periods due to the amount of tourists visiting the area.

Illegal dumping is generally considered a more common issue in remote rural areas, due to the availability of bushland and open space in which to dump rubbish.

Table 11: Reports of Littering and Illegal Dumping

Type of Report	2000-2001	2001-2002	2002-2003	2003-2004
Litter	24*	15	10	16
Illegal Dumping	24*	31	27	24
Total	24	46	37	40

Key Findings

With the closure of the Gerroa Waste Depot and the proposed closure of the Minnamurra Landfill, waste minimisation is an increasingly important issue in the Kiama Municipality.

The proportion of waste being reused or recycled has increased since 2001-2002, which may be attributed to more education and better recycling services available. However, there is still a large amount of waste being sent to landfill each year (9,849.81 tonnes in 2003-2004).

In 2003-2004, the number of reports of littering was similar to 2001-2002, despite the litter education programs, such as Plastics in the Sea, Leave Only Footprints, Kiama Pelican Story and the Catchment Caretakers Programs. While statistics show relatively few reports of littering (only 16 reports in 2002-2003), littering should still be considered an important issues in the Kiama Municipality, especially during peak holiday periods.

Customer Action Requests/Complaints Relating to Pollution

Number of Customer Action Requests and Complaints

Customer action requests (CARS), or complaints, relating to pollution are received by Council and the Department of Environment and Conservation (the DEC addresses matters relating to licensed premises and works undertaken by government authorities). The number of CARS/complaints for water, noise and air pollution since 1999-2000 are shown below in Table 11.

Key Findings

Overall, the number of customer action requests and complaints have increased over the last three years, to reach a five year high. While the most common issue that Council and the DEC are contacted about is noise (with an average of approximately 66% of all CARS/complaints being about noise), the number of noise complaints has generally decreased since 1999. The number of water pollution and air pollution complaints have been increasing, but this may be due to better records of customer action request/complaint data. The main pollution issue that Council is contacted about is barking dogs.

Table 12: Customer Action Requests (CAR)/Complaints Received Relating to Pollution

Type of CAR/Complaint	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
Water Pollution Complaints to the DEC	14	9	8	7	11
Water Pollution CARS/ Complaints to Council	9	5	4	23	18
Total Water CARS/ Complaints	23	14	12	30	29
Industrial Noise Complaints to the DEC	6	2	11	9	15
Industrial Noise CARS/ Complaints to Council	1	3	3	17*	5
Commercial Noise CARS/ Complaints to Council	2	0	1	17*	6
Construction Noise	-	-	-	17*	6
Waste Collection Vehicle Noise	-	-	-	17*	6
Residential Noise CARS/ Complaints to Council (not including animals)	7	9	10	17*	3
Animal Noise CARS/ complaints to Council	63	63	45	37	27
Total Noise CARS/ Complaints	79	77	70	63	68
Rural Odour Complaints to DEC	0	0	4	-	0
Industrial Air Complaints to DEC	3	2	4	5	21
Other Air Complaints to DEC	-	-	2	-	-
Backyard Burning and Solid Fuel Heaters Complaints to Council	2	5	6	15***	6
Commercial Air CARS/ Complaints to Council	0	0	1	15***	0
CARS/Complaints regarding Dust from Building Sites	0	0	1	15***	4
Rural Odour CARS/ Complaints to Council	0	0	0	15***	4
Total Air CARS/Complaints	5	7	18	20	35
Total CARS/Complaints to Council	84	85	71	92	85
Total Complaints to DEC	23	13	29	21	47
Total CARS	107	98	100	113	132

*The breakdown of CARS/complaints to Council for industrial, commercial, residential noise was not available for 2002-2003.

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

***The breakdown of air CARS/complaints to Council (ie burning, commercial, building sites, rural odour) was not available for 2002-2003.

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