

draft

# state of the environment

## 2006-2007

wyong shire council



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# INTRODUCTION

Welcome to Wyong Shire Council's Supplementary State of the Environment Report which covers the period from 1 July 2006 to 30 June 2007. This should be read in conjunction with the 2003-04 Comprehensive SoE Report and the previous supplementary reports.

This report provides an outline of significant changes over the last reporting period (such as new or expanded pressures on the environment, new data indicating an altered state of the environment and new or altered responses or management actions by Council) and updates action towards the management responses identified in the 2003-04 Comprehensive SoE Report.

## Why do we produce the SoE Report?

All Councils are required to produce a comprehensive State of Environment Report (SoE Report) under the NSW *Local Government Act (1993)* every four years. The SoE Report is the annual report card on ecological sustainability and covers environmental protection and management within the Shire. As such it does not always present desirable information. Through the use of consistent indicators and frankness, we as a Council, are able to gain an accurate picture of the health of our environment, which affects the health of our community. We then have a choice to alter our actions and move in a positive direction towards sustainable living.

## Why does it matter if trends get worse or better?

*"...a prosperous and liveable Wyong Shire depends on a healthy environment"*

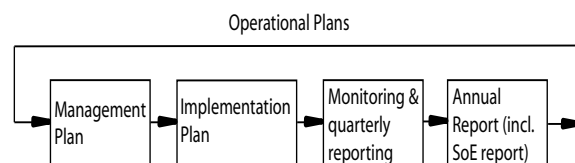
We are all dependent upon the health of our

environment. Our lives, are inseparably linked and dependent upon resources provided by our environment from what we eat and drink to where and how we live. When the environment starts to become degraded, so does our quality of life. We also share Wyong Shire with many unique plants and animals. Ethically, we have a responsibility to current and future generations of all beings, to ensure that everyone has the opportunity to enjoy the same or a better quality of life than we do.

## What change can it make?

State of the Environment reporting is part of a continuous improvement framework. It is a decision-making tool that should help us identify trends and those areas that need attention now and in the future. It should therefore be considered in partnership with Council's Management Plan and other strategic documents, to influence Council and the community's decision making processes.

Where issues are identified in the SoE Report that may require additional or amended actions in the Management Plan, these are initially channelled through the Operational Plans of various Units within Council. Here the issues can be assessed and examined against competing issues and budget constraints before being addressed in the Management Plan. This reporting cycle is illustrated in the diagram below.



Source: Department of Local Government (1999), *Environmental Guidelines* p.4

## How does this document work?

This is a supplementary SoE Report and should be read in conjunction with the 2003-04 Comprehensive SoE. The next comprehensive SoE Report will be prepared in 2008.

The document is separated into 7 chapters covering the following areas:

1. Sustainability
2. Population and Human Settlement
  - 2.1 Population and settlement pattern
  - 2.2 Drinking water use and quality
  - 2.3 Energy
  - 2.4 Transport
  - 2.5 Noise
  - 2.6 Waste management
  - 2.7 Council's waste sewerage system
3. Land
  - 3.1 Highlands and Valley
  - 3.2 Floodplains and Coastal lowland
  - 3.3 Coastline and Wallarah Peninsula
4. Air quality and climate change
5. Water and catchment management
6. Biodiversity
7. Heritage

Each chapter discusses any significant changes relevant to the chapter, during the period July 2006 to June 2007 for Wyong Shire Council. The issues, pressures and responses are outlined in a summary table at the beginning of each chapter. The table uses the model of state-pressure-response from the SoE Report Guidelines (Department of Local Government, 1999).

**State:** The state is a description or analysis of the current condition and where information is available, projected condition of the environment.

**Pressure:** Pressures are human activities that impact either positively or negatively on the immediate environment and natural surroundings.

**Response:** Responses identify and describe the response of Councils, government agencies, industry and communities to the pressure on and state, of the environment.

**Projection:** The likely state of the environment if the responses are maintained and/or implemented.

The state, as defined in the previous year's SoE Report is noted for comparison. Where data was not available it is indicated as n/a. Projected change based on implementing current actions is also indicated in the summary table. Our responses (current actions) are evaluated at the end of the chapter, including additional actions for Council's consideration in planning and development of the Management Plan. The change is given a rating selected from the descriptions below.

|                   |            |        |            |
|-------------------|------------|--------|------------|
| <b>State</b>      | Declining  | Stable | Improving  |
| <b>Pressure</b>   | Decreasing | Steady | Increasing |
| <b>Response</b>   | Poor       | Fair   | Good       |
| <b>Projection</b> | Declining  | Stable | Improving  |

# CHAPTER 1

## SUSTAINABILITY

### Introduction

Wyong Shire Council works to ensure that its operation and activities are sustainable. Sustainability means managing our development by doing more with less; making sure we don't exhaust our resources or degrade the environment; and being proud of what we leave behind.

The following table summarises the issues, pressures and responses to Council governance under the headings of sustainability, policy and

environmental education. These elements provide an insight to Council's operations in terms of sustainability. Ideally, the process of review will assist in promoting and guiding change.

| Sustainability At A Glance |                |                |                |  |
|----------------------------|----------------|----------------|----------------|--|
| Model                      | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>              | Declining      | Declining      | Declining      | Wyong Shire continues to experience high population growth of approximately 1.3% per annum (based on Estimated Residential Population figures 2001 & 2006 preliminary). Population growth, and the associated development pressures, is therefore a key issue for our environment.   |
| <b>Pressure:</b>           | n/a            | Increasing     | Increasing     | Wyong Shire is facing the challenges associated with rapid growth and urban development. Other issues for sustainability include our potable water supply, energy use, waste generation, noise, land degradation and soil loss, air quality and climate change, aquatic systems (lakes, rivers, wetlands and oceans), biodiversity and heritage. All these are under increasing pressure due to population growth and development. |
| <b>Response:</b>           | n/a            | Fair           | Fair           | A significant proportion of Council's budget is spent directly on managing aspects of our environment or on activities that may (without adequate protection) impact on, pollute or degrade the environment.<br><br>Key objectives for sustainability need to be embedded into Council's Management Plan.  |

| Sustainability At A Glance     |                   |                   |                   |  |
|--------------------------------|-------------------|-------------------|-------------------|--|
| Model                          | Rating<br>2004-05 | Rating<br>2005-06 | Rating<br>2006-07 | Comment  |
| <b>Sustainability (cont)</b>   |                   |                   |                   |  |
| <b>Projection:</b>             | n/a               | Stable            | Stable            | It is likely that Councils will soon be legislatively required to adopt sustainable practices. Alternatively, Council has the opportunity to embrace this change and shape the direction of how sustainability is embedded into Council operations. The seed funding grant mentioned in the response section, provides Council with the mechanism to commence this process.  |
| <b>Policy</b>                  |                   |                   |                   |  |
| <b>State:</b>                  | n/a               | Improving         | Improving         | Commonwealth and State legislation requires local government to address sustainability issues, including ecologically sustainable development.   |
| <b>Pressure:</b>               | n/a               | Increasing        | Increasing        | Mandatory measures are being placed upon local government by the Federal and State governments to move towards sustainability. This will continue to increase over the coming years.   |
| <b>Response:</b>               | n/a               | Fair              | Fair              | <p>The organisational performance of Council is pivotal in setting a best practice example for the rest of the community. This means that current practices should not lead to a reduction in environmental values and should enhance the total quality of life now and in the future.</p> <p>Council strategies, activities and funding to protect and manage the environment can be found in the annual Management Plan.</p> <p>Council services could be complemented by expanding our current Management Plan activities in line with ecologically sustainable development principles.</p> |
| <b>Projection:</b>             | n/a               | Stable            | Stable            | <p>It is likely that Councils will be regimented to adopt sustainable practices in the future.</p> <p>Refer to projection section above.</p>   |
| <b>Environmental Education</b> |                   |                   |                   |  |
| <b>Stable:</b>                 | n/a               | Stable            | Stable            | Council employs a full time Environmental Officer (Education) and four funding dependant part time Water Officer (Education) to develop and deliver education programs to the community.   |
| <b>Pressure:</b>               | n/a               | Increasing        | Increasing        | As environmental pressure increases, there is a growing need for environmental education both within Council's organisation and the community to raise awareness and encourage sustainable behaviour.  |

| Environmental Education |     |           |           |   |
|-------------------------|-----|-----------|-----------|---|
| <b>Response:</b>        | n/a | Good      | Good      | Council continues to be involved in a range of educational programs and initiatives to educate school groups and the community on the importance of our environment and how it relates to our quality of life. These are highlighted throughout the SoE Report as they relate to the relevant chapters (e.g. water education in Chapter 5, and biodiversity focussed actions in Chapter 6). |
| <b>Projection:</b>      | n/a | Improving | Improving | Council's continuing community work provides residents and visitors with the opportunity to make changes towards a more sustainable future. Incremental change can assist the shift along the path of sustainability.   |

## Council's Management Plan – where do we want to be?

Three key objectives in Wyong Shire Council's Management Plan 2007-08 are to:

- Enhance the quality of life of the Shire's residents;
- Strengthen the Shire's economic base and provide sustainable employment opportunities;
- Protect and enhance the Shire's natural qualities and move towards true ecological sustainability.

Sustainability underpins all of these objectives and is fundamentally about the ability to provide choices to future generations of Wyong Shire.

Sustainability requires us to better understand the systems that support what we do – and the need to take a broader view in our decision making to recognise that our day-to-day activities can simultaneously affect our economy, environment and community.

Ecologically sustainable development (ESD) means:

*'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased (National Strategy for ESD)'.*

Local councils are collectively one of the largest environmental managers in the country, through their maintenance of parks and bushland, their work in planning and development and their activities as land developers and managers.

Council strategies, activities and funding to protect and manage the environment can be found in the annual Management Plan. The main objectives from Council's Management Plan are reflected in the relevant chapters of the SoE Report.

Social research (including Council's Community Plan and Cultural Plan) has shown that many people move to Wyong Shire because of its environmental features (that is, beaches, lakes, bushland, visual amenity). Quality of life research completed in May 2007 (partnership between Wyong Shire and Gosford City Councils and the CSIRO) has highlighted that the built and natural environments are important influences on quality life in the Central Coast. This work indicated that a good balance of social, environmental and economic sustainability is needed for a good quality of life both now and into the future. Maintaining and increasing community cohesion and community-level problem solving was also considered critical for the future sustainability of the region.



## Education

Education, in the broadest sense, is an essential tool for achieving sustainability. People all around the world recognise that current economic development trends are not sustainable and that public awareness, education, and training are key to moving society toward sustainability (McKeown, 2004) and longer term behavioural change. Council has recognised this by employment of a full time Environmental Officer (Education), and four funding dependant part time Water Officers (Education) to develop and deliver a range of educational programs and initiatives to educate school groups and the community on the importance of our environment to our quality of life.

Council is continuing the development of a holistic Education Strategy to increase the scope of education throughout the Shire and provide long term direction for Council's operations in community education. This strategy encompasses education for sustainability covering a variety of priority areas which project plans have been developed. It will consider the principles of the International Decade of Education Plan (2007-2010), Learning for Sustainability and Council's Management and Operational Plans, including community development principles that encourage community engagement and positive celebration of community achievements. A gap analysis has been undertaken to look at priority areas and timeframes for the development of programs to address the priority issues.

A key way of delivering sustainability principles is through school programs, higher education, non-formal education and community-based learning activities. In this regard, Council has recognised the importance of regional education programs in encouraging behaviour change, and works in partnership with Gosford City Council in developing and implementing regional education programs. Council's environmental education programs are reflected throughout the SoE Report as they relate to the various chapters (e.g. water education in Chapter 5, and biodiversity focussed actions in Chapter 6, waste education in Chapter 2). Focusing on the "next generation" with this approach does mean there's a lead time in changes to behaviour and attitudes, however it also means that sustainability becomes the "norm rather than the exception".

Council also continues to develop partnerships with other environmental educators and has recently become a member of the NSW Chapter of the Association for Environmental Education.

### Little Green Steps - Development of a 'how-to' Training Manual

- Little Green Steps is an early childhood sustainability program coordinated by Gosford and Wyong Councils.
- It is funded from the NSW Department of Environment and Climate Change - 'Our Environment It's Living Thing Program'
- The program commenced in 2004 and has experienced a keen interest from a cross section of people working in both the environment education and early childhood sector.
- Gosford and Wyong Council are currently developing a 'how to manual' called '**Climbing Little Green Steps**'.
- This easy to read and informative manual is nearing completion, and will be a valuable resource for other councils ( particularly childcare centres) seeking to introduce sustainability programs.
- Staff from the education sectors at Wyong Council in partnership with Gosford Council has been involved in Little Green Steps from its outset and was instrumental in setting up the original program in 2004. Council staff coordinated the production of Climbing Little Green Steps and has promoted the benefits of working on sustainability programs in early childhood to professionals at a number of conferences, seminars and workshops over the past few years.



## SUSTAINABILITY ST. IT'S A VILLAGE OUT THERE

- Wyong Shire Council in partnership with Ashfield, Blacktown, Blue Mountains, Holroyd, Penrith, Willoughby and Wollongong Councils have secured funding through the NSW State Government's Environmental Trust Program.
- Sustainability Street is an exciting new project that encourages local residents to take action to create healthier, safer and more environmentally friendly neighbourhoods.
- The word 'street' is just concept, a metaphor and refers to any geographically or socially connected group of people. A Sustainability Street community could be made indeed of people from down the street and across the road, or it could be made up of people from an existing group.
- Supported by Wyong Shire Council, Vox Bandicoot and the NSW Environmental Trust, two streets have been selected and offered the skills and knowledge they will need to convert their local area into the most sustainable local environment and community.
- The 2 successful groups are The East Budgewoi Community and The Wadalba Association. Both groups have begun mapping out their programs which will roll out over the next 12 months.
- Throughout the project it will also be possible for residents to join in the fun and learn from the Sustainability Street experience, nourishing a positive and support community culture at a local level.
- Council has negotiated with two of the unsuccessful applicants to work in partnership with Council to mentor our "streets" and other school projects. There is a wealth of experience in the community about how to live sustainably (e.g. ideas include community vegetable gardens, gardens at home, water monitoring and savings plans, energy reduction, biodiversity education, native gardens at home and raising awareness in their own communities).
- A third "**Street**" is to be funded by Mars Food (previously Masterfoods). As part of their community support (and partnership with Council's Education Unit (Community Development), Mars Food has provided grant money to fund a street to be hosted by the Gravity Youth Centre at Lakehaven. The training component of Sustainability Street will focus on Water, Waste and Energy savings for both the Gravity Centre and also for the homes of those involved. Two projects are proposed: a bush tucker garden (sponsorship being sought through the Youth Arts Project) and the Healing Garden (sponsored by Mars).

## Funding

### Education Programs

Council employs a full time Environmental Officer (Education) and four funding dependant part time Water Officers (Education) to develop and deliver education programs to the community.

The majority of the education programs implemented by Council are funded from external sources, often with strong community volunteer involvement. Some of these education programs require matching funding from within Council's budget.

However, education of both the broader community and within council itself requires greater budget allocation within the organisation. This is often difficult due to tight budgetary constraints placed on Council operations every financial year.

### Urban Sustainability Program - Sustainability Decision Making Framework

In May 2007, Council was successful in receiving a Seed Funding Grant for \$20,000 from the NSW Environmental Trust Urban Sustainability Program. The funding is to assist Council in development of a decision making framework, which will provide direction and leadership for Council to move towards a more sustainable future for Wyong Shire. Council is also contributing to the project by way of cash and in-kind contributions within the Natural Resources Unit budget.

The development of sustainability principles is a fundamental first step to form the basis of such a plan/framework. The focus of phase 1 is primarily within Council and will be undertaken during the 2007-08 reporting period.

In July 2007, several internal and external round-table sessions were held focusing on the role of sustainability at Wyong Shire Council, achievements and challenges, and eventually a set of draft guiding principles. The outcome of the round-table sessions will be the development of a report that provides a summary of the discussions, recommendations and list of sustainability principles, identification of gaps in current information and recommendations for a way to progress the broader project.

It is anticipated that subsequent grant applications would be submitted to the NSW Environmental Trust for the ongoing development and implementation of the sustainable decision-making framework.



*Community Biodiversity Forum*



*Pugsley the Ecidna from Taronga Zoo*

## Council responses to Sustainability issues

| Response                     | Action to date  | New actions for Council's consideration  |
|------------------------------|---|--|
| <p><b>Sustainability</b></p> | <p>Council carries out a range of projects and programs and has modified many of its current practices with the aim of slowing environmental decline and moving towards a more sustainable future.</p> <p>In terms of the effectiveness of these actions, our current situation is less than what is needed to stop the decline in the Shire's state of the environment in a broad range of areas.</p> <p>Council received a \$20,000 Seed Funding Grant from the NSW Environmental Trust Urban Sustainability Program to assist in the development of a sustainability plan (also referred to as a sustainable decision-making framework).</p> | <p>Develop an integrated decision-making framework to improve our sustainability performance and link to existing Council plans and strategies, including the Management Plan.</p> <p>The initial process occurred in early July 2007 and involved internal and external roundtable sessions, a sustainability survey circulated across Council and a report.</p> <p>The program will require budget allocation or the submission of grant applications to have continuing external funding.</p>                                       |
| <p><b>Policy</b></p>         | <p>Key environmental projects and activities undertaken by Council include:</p> <ul style="list-style-type: none"> <li>• Coastal Hazard Management;</li> <li>• Estuary Management Plan;</li> <li>• Waste Management and Recycling programs;</li> <li>• Sensitive Areas Strategy;</li> <li>• Effluent re-use program;</li> <li>• Purchase of green electricity;</li> <li>• Water sensitive urban design in new developments;</li> <li>• Integrated water cycle management;</li> <li>• Construction of fishways on Wyong River and Ourimbah Creek; and</li> <li>• Ongoing streambank rehabilitation.</li> </ul>                                   | <p>Incremental change can be achieved through the following key actions:</p> <ul style="list-style-type: none"> <li>• The integration of sustainability strategies, policies and actions with those of landuse, such as transport, urban settlement and urban refurbishment.</li> <li>• Specific funding arrangements, such as a special rates levy for the environment or general funding as part of the Council's budget can aid in leveraging State and Federal funds given many grant schemes require co-contributions.</li> </ul> |

| Response                              | Action to date   | New actions for Council's consideration  |
|---------------------------------------|--|--|
|                                       | <p>Council initiatives commenced during the 2006-07 reporting period:</p> <ul style="list-style-type: none"> <li>• An Energy Savings Action Plan was completed by Council and submitted to DECC (formerly DEUS) for review. An Energy Management Review Team has been established.</li> <li>• Greenfleet program - Council has committed to increase the proportion of renewable energy purchased through the Program.</li> <li>• Initiated green purchasing of stationary within Council.</li> </ul> <p>Updates on these projects are provided in the relevant sections of the SoE Report.</p>  |  |
| <p><b>Environmental Education</b></p> | <p>Key environmental education activities undertaken by Council include:</p> <ul style="list-style-type: none"> <li>• 2006 Wyong Shire Council Primary Schools Environment Competition</li> <li>• PACT - Central Coast Platypus Awareness and Conservation Team</li> <li>• Decade of Education for Sustainable Development (DESD) 2005-2014</li> <li>• 2006 Round 2 Federal Government Community Water Grants</li> <li>• Little Green Steps Program</li> <li>• Central Coast Marine Discovery Centre</li> <li>• Waterwatch</li> <li>• The Regional Preschools Water Education Program</li> <li>• Central Coast Watertight Program</li> <li>• Wyong Shire Council Education Strategy</li> <li>• Green Living Program</li> <li>• Sustainability Street (The Wadalba Association, East Budgewoi Community and Gravity Youth Centre)</li> <li>• Membership of the NSW Chapter of the Australia Association for Environmental Education</li> <li>• The Keep Australia Beautiful Waterwatchers Program in Primary Schools</li> <li>• National Events like Clean up Australia Day and National Tree Day</li> <li>• Environmental Education Forums</li> <li>• Central Coast Youth Project (partnership with CEN and GCC)</li> </ul> <p>Updates on the education programs are provided in the relevant sections of the State of the Environment Report.</p> | <p>Continue to engage the community and visitors in awareness raising and lifestyle issues that help to look after our local environment.</p> <p>Consider increasing spending on grass roots projects and community environmental education programs, from Council's section budgets.</p> <p>Continue to develop and implement the Education Strategy.</p> <p>Encourage mentoring in the community in education for all ages e.g. education/marketing initiatives for major projects such as those identified in the Estuary Management Plan.</p> <p>Continue to maximise external funding opportunities (where available), however greater internal budget commitment is required across Council, to enable ongoing support of broader education programs (ie internal and external).</p> |

# CHAPTER 2

## POPULATION & HUMAN SETTLEMENT

### Introduction

This chapter reports on a number of aspects relating to the urban environment in Wyong Shire. These include:

- 2.1 Population and settlement patterns
- 2.2 Drinking water use and quality
- 2.3 Energy
- 2.4 Transport
- 2.5 Noise
- 2.6 Waste management
- 2.7 Sewage and waste management systems:
  - Council's sewerage systems
  - Liquid trade and hazardous waste
  - On-site sewage management.



*The Entrance  
The Entrance Channel, Tuggerah Lake*

### 2.1 Population and Settlement patterns

| Population And Settlement Patterns At A Glance |                |                |                |   |
|--|----------------|----------------|----------------|---|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| <b>State:</b>                                  | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>• The state of the environment is declining as a result of increasing population pressure.</li> <li>• The estimated residential population of Wyong Shire at June 2006 was 144,297 (preliminary).</li> <li>• The projected population for 2031 is 212,000.</li> </ul>  |
| <b>Pressure:</b>                               | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>• The Shire is continuing to grow, therefore the pressure is still increasing, but at a slower rate than the 2005-06 SoE reporting period.</li> <li>• For the period 2001 to 2006 the average annual growth rate for Wyong Shire was 1.3% compared with 0.8% for NSW (based on Estimated Residential Population figures 2001 &amp; 2006 preliminary).</li> <li>• Population growth has placed considerable pressure on social and physical infrastructure, the natural environment and the local economy.</li> </ul> |



| Population And Settlement Patterns At A Glance (cont) |                |                |                |  |
|---|----------------|----------------|----------------|--|
| Model   | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| Pressure:<br>(cont)                                   |                |                |                | <ul style="list-style-type: none"> <li>Unemployment rates on the Central Coast of 6.6% remain above the State average of 5.3%.</li> <li>The continued rate of development adds pressure to natural environment.</li> </ul>   |
| Response  | n/a            | Fair           | Fair           | <p>The Metropolitan Strategy is the NSW Government's key planning document for Sydney. To complement this, a draft Regional Strategy for the Central Coast was released in September 2006. This identified that Wyong Shire would have an additional population by 2031 of 41,250. This document is currently being revised to 70,000 (based on the provisions of <i>WaterPlan 2050</i>).</p> <p>Together with the State Government, Wyong Council need to manage this expected growth strategically. Documents such as Council's Residential Development Strategy (2002) continue to guide the release of land for residential development in the Shire.</p> <p>However, ongoing population growth continues to place pressure on the coast and our ability to be economically, socially and environmentally sustainable as a region.</p> |
| Projection  | Declining      | Declining      | Declining      | It will continue to be difficult to adequately manage the environment in the face of increasing population pressure.   |

## Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for urban quality are:

- A better society – enhance the quality of life of the Shire's residents
- Sustainable urban development.

The following table outlines new council actions and efficiency targets in 2005-06 for the management of urban quality within the Shire.

**Table 2.1.1 Management Plan Actions for Urban Quality**

| Urban Quality - What were the Actions   | Evaluation and outcomes   |
|---|---|
| Revise Landscape Policy and Guidelines.   | To be considered for inclusion in Legal & Policy's work program. Priority and timing to be determined.  |
| Commence review of the Residential Development Strategy.  | Extensive analysis and review of existing and potential population commenced. Will guide the revision of the RDS.   |
| Review Chapter 66 of the DCP to provide subdivision standards that allow for an appropriate mix of housing types, encourages job creation and provides for quality development. | Revised draft Chapter 66 completed in June 2007. Due for public exhibition in the latter half of 2007.<br>Reviews of Chapters 64, 58 & 14 of the DCP are also complete. |

## State

Over the past 25 years, Wyong Shire has changed from a holiday and retirement area to an urban fringe area of Sydney. At June 2006, the estimated residential population (preliminary) of Wyong Shire was 144,297 (Table 2.1.2). For the period 2001 to 2006 the average annual growth rate for Wyong Shire was 1.3% compared with 0.8% for NSW (based on ERP figures 2001 & 2006p). The average annual growth rate for 2005-06 was approximately 2% compared with 1.1% for NSW continuing a slowing in rate of growth that has been evident for the past seven years.

**Table 2.1.2 Estimated Resident Population 1996 to 2006**

| ERP                  | 1996      | 1997      | 1998      | 1999      | 2000      | 2001      | 2002      | 2003      | 2004      | 2005      | 2006(p)   |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Wyong LGA</b>     | 120,185   | 123,042   | 125,820   | 128,737   | 132,240   | 135,598   | 138,085   | 140,189   | 141,543   | 142,817   | 144,297   |
| <b>Gosford LGA</b>   | 150,220   | 152,619   | 154,145   | 156,512   | 158,674   | 160,760   | 162,031   | 162,419   | 162,587   | 162,843   | 163,469   |
| <b>Central Coast</b> | 270,405   | 275,661   | 279,965   | 285,249   | 290,914   | 300,116   | 300,116   | 302,608   | 304,130   | 305,660   | 307,766   |
| <b>NSW</b>           | 6,204,728 | 6,276,961 | 6,339,071 | 6,411,370 | 6,486,213 | 6,575,217 | 6,634,110 | 6,682,053 | 6,720,791 | 6,768,941 | 6,827,694 |

Source: ABS Regional Population Growth, Cat. No. 3218.0 (February 2007)

(p) = preliminary figures

**Table 2.1.3 Projected Population Growth to 2031**

| Year     | Wyong   | Gosford | Central Coast |
|----------|---------|---------|---------------|
| ERP 1996 | 120,185 | 150,220 | 270,405       |
| ERP 2001 | 135,598 | 160,760 | 296,358       |
| ERP 2006 | 144,297 | 163,469 | 307,766       |
| 2011     | 166,090 | 172,540 | 338,630       |
| 2016     | 179,400 | 179,730 | 359,130       |
| 2021     | 193,640 | 187,080 | 380,720       |
| 2026     | 207,830 | 194,230 | 194,230       |
| 2031     | 220,140 | 201,440 | 421,580       |

Source: ABS Regional Population Growth, Australia Cat No 3218.0 (Feb 2007)

Transport and Population Data Centre - Dpt of Planning 2004

The above projected population growth figures were prepared by the Department of Planning (then DIPNR) based on the 2001 Census. These projections estimate that by 2031 the Central Coast will have a population of 421,580 with Wyong Shire accommodating 220,140 people and Gosford City accommodating 201,440 people. These projections appear optimistic given the preliminary figures from the 2006 Census information (Australian Bureau of Statistics). The Shire's population forecasts are to be reviewed and updated using ABS 2006 Census data.



Looking south east from the Charmhaven area.



## Pressure

The majority of the population resides in large urban clusters close to the Tuggerah Lakes with smaller population pockets spread throughout the Shire. Warnervale/Wadalba is expected to be the greenfields growth area for Wyong Shire over the next 20 years, eventually housing about 40,000 people and providing employment for many Central Coast residents through initiatives such as the proposed Wyong Employment Zone and Warnervale Town Centre.

The State Planning document “Metropolitan Strategy” is the NSW Government’s 25 year plan for Sydney (2005). It requires the development of regional strategies to assist local Council’s planning for population growth and the associated development pressures (including local employment opportunities and the provision of services and facilities). The Metropolitan Strategy identified the Central Coast having land resources to support a further 100,000 people by 2031.

A draft Regional Strategy for the Central Coast (*draft Central Coast Regional Strategy*) was released in September 2006 which provides direction for population growth and servicing provision on the Central Coast. The draft Strategy stated a lower population target by 2031 than the Metropolitan Strategy partly linked to pressure on the water supply system. This will include a revision of the projected population figures to ensure consistency with the recently adopted WaterPlan 2050. The projected population figures in this document are 405,540 people on the Central Coast by 2031 and 480,000 by 2050.

Continuing development increases urban sprawl resulting in greater dependence on private transport, increasing urban stormwater runoff and associated pollution, increasing energy use, fragmentation of natural bushland, a loss of biodiversity and increased pressure on the social fabric and infrastructure. There is a backlog in the provision of community facilities, human services and access via comprehensive intra-regional public transport.



*A typical street in a new subdivision*

Council’s have a key role in ensuring that development in their local area is ecologically sustainable. Environmental management has changed significantly over the years such that development controls now limit to some degree the environmental impacts associated with these activities or offer opportunities for innovative solutions and initiatives.

Overall well-being and quality of life are linked to the ability of people to participate in community life and daily activities, feel connected and have a strong sense of place. These all require due consideration in development planning in order to build an integrated and self-sustaining community in Wyong Shire.

Table 2.1.4 shows the number of development approvals across Wyong during the 2006-07 reporting period compared to the previous year.

**Table 2.1.4 Number of Development Approvals throughout 2006-07**

|                  | 2004/2005 | 2005/2006 |
|------------------|-----------|-----------|
| Commercial       | 317       | 275       |
| Industrial       | 78        | 70        |
| Residential*     | 1,940     | 1,677     |
| Land Subdivision | 101       | 102       |

\* residential figures include dwellings, residential flat buildings, dual occupancies and residential alterations and additions

## Part 3A “Call-ins” by the Minister for Planning of the Environmental Planning and Assessment Act 1979

Several large proposals have been removed from Council’s decision making process and are being considered by the State Government under Part 3A of the *Environmental Planning and Assessment Act 1979*. These are summarised below.

| Title                         | Summary of Proposals  | Date   | 2006-07 update   | Council’s role   |
|-------------------------------|---|--|--|--|
| <b>Wyong Employment Zone</b>  | Proposed industrial land release at Warnervale. The total study area is approx. 750 hectares. The rezoning proposes 330 hectares of industrial zoned land, to provide for over 6000 new local jobs and 345 hectares of primarily for conservation land to protect a regional wildlife corridor linking the state significant Porters Creek wetland to Buttonderry Creek and 75 hectares for associated drainage infrastructure. | Called-in 3 July 2006. Prior to this time the project was being dealt with through the standard rezoning process at Council. | A State Significant Site Study has been prepared to support the proposal. The Minister is currently reviewing the Study (and accompanying technical reports). Once these reports have been reviewed the proposal will be placed on public exhibition.  | The State Significant Site Study was prepared by Council and a technical consultant on behalf of Council.    |
| <b>Warnervale Town Centre</b> | Proposed new town centre in the Warnervale growth precinct.   | Called-in 28 June 2006. Prior to this the project was being dealt with through the standard rezoning process at Council.     | <p>A report was completed by Peter Seamer (Expert appointed by the Minister for Planning) in September 2006, which looked at all 3 possible locations for the town centre core.</p> <p>The report recommended that planning for the town centre continued using the top of the hill location.</p> <p>The DoP (City Centres Task Force Team) are finalising the Draft DCP and amendment to the Major Projects SEPP.</p> <p>Once the planning controls and other associated documents have been finalised they will be released for public exhibition, which is anticipated to be late 2007.</p> | Council has been involved in reviewing of draft documents and providing input into the planning of the town. |

| Title  | Summary of Proposals   | Date  | 2006-07 update  | Council's role  |
|--|--|---|---|---|
| <b>Rosecorp proposals</b>  | <p>Two proposed residential land releases.</p> <ol style="list-style-type: none"> <li>1. Catherine Hill Bay - Total site area is approx. 374h. The proposed residential land release includes 60h of land, accommodating 600 dwellings.</li> <li>2. Gwandalan - Total site area is approx. 18h. The proposed land release for this site includes 18h of land, accommodating 220 dwellings.</li> </ol>  | Minister declared the project was subject to Part 3a on 11 December 2006. | <p>Initial exhibition was between 3 Jan and 2 March 2007.</p> <p>In summary, significant issues were identified in Rosecorp's original proposal concept plan. A revised concept is being formalised to be re-exhibited.</p> | <p>Council has been involved in providing details of key issues and assessment requirements which may be included in the Director general's requirements for Rosecorp's proposed concept plans and project applications.</p> <p>Council will not be the approval authority for this application.</p>        |
| <b>Coal and Allied</b>   | <p>Three proposed residential land releases.</p> <ol style="list-style-type: none"> <li>1. <i>Gwandalan</i> (Wyong Shire LGA). The proposed land release for this site includes 80h of developable land, accommodating 700 lots.</li> <li>2. <i>Nords Wharf</i> (Lake Macquarie LGA). Total site area is approx. 136h. The proposed land release for this site includes 9h of developable land, accommodating 90 lots.</li> <li>3. <i>Middle Camp</i> (Lake Macquarie LGA). The proposed land release for this site includes 50h of developable land, accommodating 300 lots.</li> </ol> | Minister declared the project was subject to Part 3a on 19 June 2007.     | A proposed concept plan and project application involving residential development within these areas is being formalised in preparation for exhibition.   | <p>Council has been involved in providing details of key issues and assessment requirements which may be included in the Director general's requirements for Coal &amp; Allied proposed concept plans and project applications.</p> <p>Council will not be the approval authority for this application.</p> |
| <b>Key Site at The Entrance</b><br><br>(Corner The Entrance Rd & Marine Pde) | Mixed use development  | 12 July 2007  | Council has provided input into the Director-General Requirements for the development application.  | <p>Council has been involved in providing details of key issues and assessment requirements which may be included in the Director general's requirements for Coal &amp; Allied proposed concept plans and project applications.</p> <p>Council will not be the approval authority for this application.</p> |

## Development Assessment Initiatives

Central Coast industries conserving our water  
– Drinking Water section of this chapter.  
Biodiversity initiatives – Chapter 6

### Delta Water Reclamation Plant

The Delta Electricity Water Reclamation Plant (WRP), proposed at the Mannering Park Sewerage Treatment, was granted Development Consent on 2 July 2007. The WRP will produce approximately 1.6 Mega litres (ML) of reclaimed water per day and produce 0.2ML of reject water per day. The proposed plant will draw treated effluent from Mannering Park

Sewerage Treatment Plant will assist in reducing Delta's demand on the Central Coast potable water supply. Reclaimed water produced by the WRP will be pumped via an underground pipeline to Vales Point Power Station where it will be polished further using a reverse osmosis process prior to feeding the demineralised water plant at the power station. The pipeline and reverse osmosis plant components of the Vales Point Power Station Reclaimed Water Scheme were subject to a separate environmental assessment and approval process under Part 5 of the Environmental Planning and Assessment Act 1979. The proposal is subject to finalisation of a water supply agreement between Council and Delta Electricity.

## BASIX UPDATE

**BASIX** stands for Building Sustainability Index

### Purpose

The BASIX Program requires design elements in homes to reduce energy consumption and water use between 10-40%. The targets are region and postcode specific and vary according to construction type. Reduction targets for detached housing in Wyong Shire will be 40% for both energy consumption and water usage. BASIX was introduced by NSW Department of Planning on July 1 2005 and effectively replaces the initiatives introduced and applied by Council under DCP 2005 Chapter 100, (dating back to January 1 2003). A BASIX certificate is required as proof the design elements have been installed.

### Success of the PROGRAM

The State Government has stated that the scheme had already saved enough water and energy to fill 1,100 Olympic swimming pools and take 13,400 cars off the road. By 2014-15 BASIX will save an estimated 28 billion litres of water and 800,000 tonnes of carbon emissions each year. In addition, home owners living in BASIX compliant homes will be saving up to \$600 each year on their water and energy bills.

### Application of BASIX in Wyong Shire

BASIX was applied to different types of residential development from the following dates:

|                   |  |
|-------------------|--|
| July 2005 .....   | All single residential building in NSW                           |
| October 2005..... | All multi-unit residential buildings in NSW                      |
| July 2006 .....   | Energy target for single dwellings increased from 25% to 40%     |
|                   | BASIX receipts required after Occupation Certificates are issued |
|                   | Water saving measures extended to all multi unit developments    |

Previously, Council has monitored the potential water savings based on the number of rainwater tanks installed for new dwellings. However, since the introduction of BASIX a larger range of options are available to meet the BASIX water saving targets. Therefore, installing a rainwater tank is no longer the only way a dwelling could meet the BASIX targets and no longer an accurate gauge of the savings to date. BASIX also identifies "optional development", which as the name suggests, do not have to apply BASIX - it is optional.

To address this gap, Council has undertaken a review of Chapter 100 in DCP 2005 to cover "optional developments" (as defined under BASIX). For further detail, see "Amendments to DCP2005" section of this chapter.

### Next Steps

From July 2007, the BASIX building sustainability index scheme will expand to include more home renovations. This means that the requirement for a BASIX certificate will be extended to alterations and additions over \$50,000.



## Truck wash facility

In September 2006, Council finalised the approval of a large truck wash facility in the Warnervale Business Park. As a significant water user, the applicant was encouraged to consider water reuse options and agreed to install a 48,000 L rainwater tank and water recycling technology to reduce demand on Council's potable water supply and reduce ongoing water bills for the company.

Incorporating these measures permitted Council to recalculate developer contributions applicable under the Water Management Act 2003. This has resulted in a reduction of approximately \$29,000 payable by the applicant. This flexible approach to innovation and initiative continues to be applied to large development applications (where appropriate). It is estimated that the average daily potable water consumption has been reduced by approximately 25% between November 2006 to April 2007 (ie when the water tanks became operational). This reduction has also been at a time when the business was expanding (ie washing more trucks).



*Truck wash facility*

## WYONG COUNCIL INITIATIVES

Wyong Council continues to develop, and implement, a range of programs and strategies to work towards a more sustainable future. For example, Council's Residential Development Strategy (2002) continues to guide the release of land for residential development in the Shire. Key objectives include the increase in the quality and diversity of development which is environmentally, economically and socially sustainable. A review of this document is likely to occur as part of the comprehensive LEP review.

With a 69% increase in the median house price in the Wyong Shire from 2001 to 2005 and almost 60% of low to medium income earners in housing stress, Wyong Shire Council has made the move to see what strategies it can pursue to address the housing affordability issue. Having a significant number of the population in housing stress has implications beyond the people with the high housing costs. It will have negative impacts on the local economy, community life and the healthy functioning of all families.



A Local Housing Strategy "Promoting Choice" has been developed to inform Council, the State Government, the business sector, the non-governmental sector and the wider community on the current housing situation in the Shire. Presently in draft form, the document makes recommendations regarding on-going sustainable strategies to protect existing housing diversity and choice and promote and produce new housing choice options, including affordable housing.

Council is also working in partnership with CSIRO and Gosford Council to conduct a collaborative research project linking quality of life and sustainability on the Central Coast. A quality of life framework has been developed to analyse, interpret and recommend improvements to existing data collections and identify key quality of life issues and their links to regional issues (social, economic and environmental). The key is to provide meaningful and robust measures of how sustainability issues affect people's quality of life. The quality of life framework provides Council with a sound scientific basis to measure and monitor quality of life. During the 2007-08 SoE reporting period, data from the 2006 Census and a quality of life survey will be used to establish a baseline for quality of life measures. This data set will be used to guide planning and decision making.

As mentioned in Chapter 1, Council received a Seed Funding Grant for \$20,000 from the NSW Environmental Trust Urban Sustainability Program. The funding will assist Council in the development of a decision making framework, which will provide direction and leadership for Council to move towards a more sustainable future for Wyong Shire (ie social, environmental and economic sustainability). Council is also contributing to the project by way of cash and in-kind contributions within the Natural Resources Unit budget.

See also biodiversity chapter.

## AMENDMENTS TO DEVELOPMENT CONTROL PLAN 2005

### Chapter 7 Wyong Town Centre

This chapter is to be reviewed to update provisions within the DCP to consider any key principles proposed by the heritage consultant working with Council on the redevelopment of the Wyong Town Centre. It will also need to look at how to ensure the heritage character of the Town Centre is maintained (also discussed in Chapter 7 of this Report).

### Chapter 109 - West Wyong Area

Has also been completed and adopted during the 2006-07 reporting period. This provides a framework for the preparation of a masterplan for the West Wyong Area.

### Chapter 100 – Quality Housing

The Building Sustainability Index (BASIX) identifies “optional development”, which as the name suggests, do not have to apply BASIX – it is optional. To address this gap, Council has undertaken a review of Chapter 100 in DCP 2005 to cover these “optional developments” (as defined under BASIX).

The key amendments made to Chapter 100 Quality Housing are as follows:

1. Recognition of the NSW Government's BASIX Program
2. Introduction of water and energy efficiency measures for developments NOT covered by BASIX
3. Revised provisions reflecting the previously approved amendments to DCP 2005: Chapter 14 – Tree Management for tree removal (the “3 metre rule”), and existing practices for waste control and identification signage requirements on building sites
4. Sustainability initiatives
5. Changes to definitions and submission requirements

The amendments are primarily to introduce water efficiency measures to minor dwelling additions, swimming and spa pools, to recognise and define the water and energy efficiency measures introduced by the NSW Government through the BASIX program and to address waste control and sustainability issues in housing design. They form part of Council's response to the prolonged drought affecting the Central Coast Region and Australia as a whole, which currently places the region in a critical water supply situation.

### SEPP 71 – Coastal Protection

The inception of SEPP 71 has had minimal impact on development proposals in the Shire apart from requiring a referral to Department of Planning for some types of development.

### SEPP 14 – Coastal Wetlands

There were no applications affecting SEPP 14 wetlands in the past 12 months.



*Old Court House, Wyong*



*Turpin Building, Wyong*

## JUNE LONG WEEKEND STORM 2007

During the Queen's Birthday long weekend (8-11 June 2007), the Central Coast experienced one of the most severe storm events in over 30 years.

A disaster recovery centre was set up at Wyong Shire Council Chambers to provide a one-stop shop for local residents needing support and assistance, including emergency accommodation. State and local government authorities banded together to assist local residents at the central location of the Council chambers for over 2 months.

In total Wyong Council had about 270 staff working around the clock over the long weekend and in the weeks following the storm. This included customer service staff who answered emergency calls for assistance from residents 24 hours a day, rangers who helped police with evacuations and other issues, maintenance staff, trade people, stores officers and many others.

In summary:

- Customer Service staff took nearly 5,000 telephone calls from residents trying to deal with the storm impacts
- Water & Sewer staff repaired and maintained water and sewer pipes damaged by fallen trees and provided generators to some sewage treatment plants, as well as providing portable toilets
- Depots provided all Council's major machinery and trucks to help with recovery operations including backhoes, excavators, generators and other equipment.
- Staff carried out mechanical and electrical repairs to major machinery and vehicles used by Wyong Council, the Rural Fire Service (RFS) and State Emergency Service (SES) – including water affected trucks, chainsaws, generators and other equipment.
- Staff serviced and repaired about 80 chainsaws a day over three days, and also sourced additional chainsaws, generators and other equipment to meet demand.
- Charmhaven depot was one of the few sources of fuel in the region.
- Council's stores office provided batteries, torches and other supplies to the SES, RFS, NSW Police and others.
- Over 290 tonnes of greenwaste has been taken to Buttonderry tip free of charge.
- Over 165 tonnes of storm damaged household waste has been taken to Buttonderry tip free of charge.

The General Manager said, "this has really been a time when everyone across the Central Coast community has pulled together and helped each other out wherever possible".



## 2.2 Drinking Water Use and Quality

| Drinking Water Use And Quality At A Glance |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model                                      | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>                              | Declining      | Declining      | Stable         | <ul style="list-style-type: none"> <li>• Council continued to achieve 100% compliance with the National Health and Medical Research Council and NSW Dept of Health guidelines in 2006-07.</li> <li>• June rainfall lifted total storage in Central Coast's water storage to 22% of capacity (July 2007).</li> <li>• Council is now able to import up to 30ML/day from the Hunter system.</li> <li>• Water extractions continue to occur during periods of reduced stream flows in both Wyong River and Ourimbah Creek.</li> <li>• The effects of continuing bore water extraction require ongoing monitoring.</li> </ul>   |
| <b>Pressure:</b>                           | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>• The Shire currently has an estimated residential population of 144,297 (June 2006 preliminary).</li> <li>• Below average rainfall at Mangrove Creek Dam for 11 of the past 15 years has resulted in the worst water supply drought in the Shire's history.</li> </ul>   |
| <b>Response:</b>                           | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>• Upper Ourimbah Creek fishway was completed in July 2007. The new fish passage removes the barrier imposed by the placement of the weir and enables native fish such as Australian Bass to move upstream for spawning. See Chapter 5 for further detail.</li> <li>• The preferred options of Waterplan 2050 have been adopted.</li> <li>• During the 2006-07 reporting period approximately 4856 rainwater tanks were installed in established homes under the rebate incentive program.</li> <li>• During the 2006-07 reporting period 257 homes installed water efficiency refit kits.</li> <li>• Development approval for a permanent desalination plant was granted by Department of Planning in July 2007 however, rainfall in June has delayed the need for this option.</li> <li>• A 450-billion litre dam proposal was announced by NSW State Government in Dec 2006 to 'drought proof' the Lower Hunter and the Central Coast until at least 2075.</li> </ul> |
| <b>Projection:</b>                         | Declining      | Declining      | Stable         | <ul style="list-style-type: none"> <li>• Implementation of preferred options in Waterplan 2050 and IWCM will ease the pressures currently imposed by increasing population and low rainfall.</li> <li>• Stabilisation of the drinking water supply issue will be dependent upon continual monitoring and adaptation to decreasing rainfall anticipated as a result of climate change.</li> </ul>   |

## Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for water supply are:

- Infrastructure - to support the Shire's social economic and environmental aspirations.
- Sustainable urban development.

The following table outlines new council actions and efficiency targets in 2005-06 for the management of urban quality within the Shire.



Mangrove Creek Dam

**Table 2.2.1 Management Plan Actions for Water Supply**

| Water Supply - What were the Actions  | Evaluation and outcomes |
|---|-------------------------|
| Continuing implementation of best practice methods to achieve productivity improvements with the regulatory environment.  | Ongoing                 |
| Finalise WaterPlan 2050 including liaison with the community.   | WaterPlan 2050 adopted  |
| Continue community programmes through: Schools, Water week, community days, residential retrofits of water efficient devices and Water Management Plans for major users | Ongoing                 |
| Monitor and selectively extend alternative water resource substitution programmes including rainwater tanks, effluent reuse, groundwater and stormwater harvesting      | Monitoring ongoing      |

The majority of Wyong's water supply is sourced from Wyong River and Ourimbah Creek. These stream flows are supplemented with water releases from Mangrove Creek Dam via transfers from Gosford and the Hunter.

Rainfall in the catchment areas of Wyong Shire has been below average for 11 of the last 15 years which has resulted in the worst water supply drought in the Shire's history. The major pressure

arises from the need to provide a secure potable water supply for the Shire's growing population. Rainfall data in Table 2.2.2 shows the variation in rainfall in the coastal catchment as compared to Mangrove Creek catchment and the specific contribution of the June rainfall event. The June rainfall meant that water has once again been able to be drawn from the streams, enabling storage in Mangrove Creek Dam to increase.

**Table 2.2.2 Central Coast Annual and Comparative Rainfall Data**

| Period   | Rainfall (mm) |            |              |
|--|---------------|------------|--------------|
|  | Gosford       | Norah Head | Mangrove Dam |
| This year to 2nd July                          | 1315.6        | 1083.4     | 904.4        |
| Long Term Average for period (January to June) | 811.8         | 754.3      | 565.3        |
| Month of June 2007                             | 643.2         | 574.2      | 447.8        |
| Long Term Average for month of June 2007       | 121.5         | 126.5      | 70.2         |

Gosford-Wyong Councils' Water Authority (2007)

## WaterPlan 2050

In July 2007, the Gosford/Wyong Council's Water Authority adopted the long-term water supply strategy WaterPlan 2050. The recommended strategy is based on managing demands on the water supply system through improved per capita efficiency, together with improving the yield of the system and providing a flexible toolbox of additional water sources as they are required in the future. The top three key elements of the recommended WaterPlan 2050 are:

- Building a link between Mardi Dam and Mangrove Creek Dam to improve the harvesting and storage of water from the Wyong River and Ourimbah Creek catchments. This would overcome the current limitation in storing available water when Mardi Dam is full.
- Building a new pump station at the Lower Wyong River weir to increase the harvesting of water from Wyong River through an ability to transfer greater volumes to Mardi and Mangrove dams during high flows.
- Continue to implement demand management activities to reduce water wastage around local homes, businesses and organisations to deliver a permanent change in how people use and value water.

The remaining key elements may be viewed in the Plan document available on the GWCWA website: [www.gwcwater.nsw.gov.au/](http://www.gwcwater.nsw.gov.au/)

Council's demand management measures have reduced average annual residential property water consumption from 221 kL/annum in 2000-01 before restrictions, to 155 kL/annum (2006-07). This can be compared further with the NSW median annual residential water consumption of 193kL/property which has fallen from 330kL/property over the past 15 years. Conservation measures include:

- water use restrictions
- requiring industry and commerce to prepare water management plans to achieve water efficiencies
- reducing system leakage and other losses
- installing water tanks, water efficient fittings and washing machines (with rebates for residents)
- reclaimed sewage effluent to off-set potable water use
- bore water to off-set potable water use
- regulated requirements to achieve water efficiencies in new developments as BASIX.

In December 2006 Council began to import 16ML/day drinking water through a newly constructed pipeline from the Hunter system. The pipeline now has the potential to transfer up to 30ML/day. This transfer system also allows for water to be transferred back from the Central Coast into the Hunter system in times of high stream flow.

As part of its drought contingency plan, Wyong and Gosford Councils are currently using groundwater to supplement potable water supplies. Production bore fields are operating at Ourimbah, Mardi, Braithwaite Park, Mangrove Weir, Somersby Water Treatment Plant, Narara and Woy Woy. The total daily median yield is 9 ML/day.

In Wyong Shire, approximately one million litres of water is currently being sourced daily from groundwater and is pumped into Mardi Dam prior to treatment and use as potable water. To meet continuing criteria for licensing, extensive monitoring of the groundwater bores is required to ensure the yields remain sustainable and are not adversely impacting surrounding water tables or relevant water dependant ecosystems.

Implementation of Level 3 and Level 4 water restrictions in June and October 2006 respectively, were targeted to achieve a reduction in water consumption of approx 30 and 32% respectively. Water restrictions under Level 3 were successful in reducing water consumption by about 30%, while Level 4 exceeded the target by achieving a 34% reduction in water consumption.

## Water Saving Incentive Programs

During the 2006-07 reporting period, approximately 4856 rainwater tanks were installed in established homes and businesses under the rebate incentive program. Unfortunately, of these only 170 were internally fitted to provide rainwater to service toilets and washing machines. Externally fitted Rainwater tanks offset potable water usage outside for watering gardens, washing cars and boats, however, during times of water restrictions they do little to reduce the potable water supply demand. Rainwater tanks can be connected to toilets and washing machines to not only provide better savings in the short term while dam storages are low, but also provide a better long-term benefit to the water supply system by reducing future demand.

Council rebates of up to \$500 are available for residents and businesses connected to the town supply for the installation of rainwater tanks.

A new rebate program established by the NSW Government from July 2007 provides a rebate of up to \$500 for installation of rainwater tanks. An extra

\$500 is paid for a toilet connection with a further \$500 for a washing machine connection.

Combined with continued rebates of between \$300-500 offered by Council these new rebates may provide the incentive for more residents to install internally fitted rainwater tanks in the future.

A further 257 homes installed water efficiency REFIT kits that will reduce demand by a further five million litres and reduce greenhouse gas emissions by 1400 tonnes per year. REFIT kits consist of water and energy saving devices such as low flow shower heads which can reduce consumption costs by up to \$150 per year.

Council is also providing incentives to residents connected to the town supply to install water efficient washing machines and NSW Health accredited greywater treatment systems. A \$200 rebate is paid for washing machines that are four star or five 'A' or above and purchased new on or after 24 May 2006 and be for personal use, while residents who wish to install greywater treatment systems can receive a rebate of up to \$1000. Systems must be approved by Council.

As part of the Integrated Water Cycle Management Program being undertaken, Council continues to extend its treated effluent re-use program. For more detail see the Sewerage section in this chapter.

### Tillegra Dam Proposal

In December 2006, the NSW State Government announced its intention to build a 450 billion litre dam at Tillegra on cleared grazing land on the upper Williams River in the Hunter. Its plan, announced in the NSW State Plan is intended to 'drought proof' the Lower Hunter and the Central Coast until at least 2075.

At this stage the Tillegra Dam proposal remains an option within WaterPlan 2050. Investigations will continue to evaluate the benefits and costs.

### Green Globe Awards

Wyong Council in the past has been recognised as one of the top ten best performing utilities for water supply and sewerage by the Department of Energy, Utilities and Sustainability (DEUS). In 2003-04 and 2004-05 Council was awarded the Green Globe award for utilities demonstrating a consistently high level of performance across a wide range of performance indicators, including implementation of sound water conservation and drought management. Council is still awaiting the outcome of the 2005-06 awards by DEUS.

### Rainwater Tanks on Council Properties

During the 2006-07 reporting period Council implemented a programme to provide water efficient facilities in Council buildings and Caravan Parks. 49 rainwater tanks were retrofitted at 30 sites in Stage 1 including depots, preschools etc. Stage 2 will see the rainwater tank programme extended to Senior Citizens Centres, Surf Life Saving Clubs.

### Rainwater Tanks in Schools

In 2006-07 Council installed nine 10,000L rainwater tanks in schools throughout the Shire, bringing the total number installed to 26. Tank water is used to irrigate gardens and also to operate aquaculture and agricultural activities. The tanks are also used as a focal point to educate students and school communities on the benefits of waterwise initiatives.

### Rural Fire Stations

As at 30th June 2007 Rainwater tanks were installed at 30 rural fire stations across the Shire. Each tank has a 12,000 litre capacity.



Rainwater tanks

### Central Coast Industries Conserving Our Water

A number of Central Coast businesses responded to the continuing drought conditions by undertaking water savings initiatives. Many nurseries, turf growers and swimming pool builders took part in Council's water banking scheme to buy and replace water drawn from the town water supply.

#### **Delta Electricity**

Delta Electricity has commissioned a large scale water recycling plant at Vales Point Power Station, using treated effluent from Mannering Park Sewerage Plant. Along with other measures such as using seawater instead of drinking water in cooling systems, the recycling plant has the potential to save the equivalent of the annual water use of 2500 Central Coast homes.

#### **Mingara Recreation Club**

Mingara Recreation Club is able to continue watering its athletics track using stormwater harvested from the adjacent constructed wetlands. Additionally, Council has assisted Mingara to pipe water from the existing wetland pumping station to the pool complex where it is treated by filtration and disinfection for use in back-washing filters and topping up the 50 metre and hydro-therapy pools. The new filtration and top-up system saves about 15 million litres of town water a year.

#### **Sara Lee**

Sara Lee is implementing a plan to recycle industrial wastewater at its Lisarow plant. Approximately 22 million litres of town water will be saved by treating recycled factory wastewater containing sugars and fats for re-use in refrigeration units and toilets.

For further information on water quality, water extractions and other pressures on the creeks and lakes refer to Water & Catchments - Chapter 5.





## 2.3 Energy

| Energy At A Glance |                |                |                |   |
|--------------------|----------------|----------------|----------------|---|
| Model              | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| State:             | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Overall consumption of energy is increasing leading to an increase in greenhouse gas emissions.</li> <li>Council's own electricity consumption has continued to decline since 2003. However this is not due wholly to energy efficiencies.</li> <li>The other main environmental impact of energy use is urban air pollution (see Chapter 4).</li> </ul>   |
| Pressure:          | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Increasing population and higher per capita consumption are expected to increase energy consumption in NSW by 2% per annum over the short to medium term.</li> <li>The increase in energy demand leads to increasing greenhouse emissions.</li> </ul>  |
| Response:          | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>The NSW Government requires LGA's with a population over 50,000 people to develop Energy Savings Action Plans (ESAP).</li> <li>BASIX - The Building Sustainability Index was introduced in 2004 (See Population and Settlement section of this Chapter).</li> <li>Council has submitted its Energy Savings Action Plan and is implementing Actions identified in the Plan.</li> <li>Wyong Shire Council currently purchases 6% renewable energy through Green Power but has committed to increasing the proportion of renewable energy it purchases.</li> <li>Council continues its commitment to streetlight energy efficiencies and improvements with its membership to Streetlighting Improvement Program Group.</li> </ul> |
| Projection:        |                | Declining      | Declining      | <ul style="list-style-type: none"> <li>Increasing community awareness of the climate change issue has heightened Council's commitment to implementing energy and greenhouse reduction strategies.</li> </ul>  |

### Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07 under Air and Climate, our objectives for energy are:

- A better environment - protect and enhance the Shire's natural qualities

and move towards true ecological sustainability.

- Air quality ensures the health of current and future generations..

The following table outlines the 2006-07 council actions for the management of air and climate within the Shire.

**Table 2.3.1 Management Plan Actions for Air & Climate**

| Air & Climate - What were the Actions  | Evaluation and outcomes   |
|--|---|
| Complete the Energy Saving Action Plan   | Plan completed and submitted to DECC (formally DEUS) for review.        |
| Commence implementation of cost-effective actions identified in the Energy Action Plan | Implementation has commenced, Energy Management Review Team established |

Demand for electricity in NSW continues to grow at around 2% per annum (ABARE 2005). This is due to increasing population, high economic growth and high wages leading to behavioural and lifestyle changes which increase consumer demand and consumption habits. Much of this electricity is generated by the burning of fossil fuels in coal fired power stations. Hence, there are significant environmental impacts to consider such as increasing greenhouse gas emissions, air pollutant loads and the use of large quantities of water. Any effort to reduce our greenhouse emissions needs to be taken on three levels –

- (i) reduce our energy consumption and hence the amount of emissions we produce. Just consider, in NSW, the number of households with air conditioners rose from 31% in 1994 to 54% in 2005, while the ownership of dishwashers also jumped from 25% to 43% over the same period.
- (ii) increase the proportion of, and the demand for, renewable energy sources contributing to the generation of electricity.
- (iii) seek to offset or ameliorate the emissions we do contribute by planting trees to absorb some of the excess carbon escaping into the atmosphere.

Wyong Council is committed to improving its energy efficiency and reducing its contribution to greenhouse gas emissions through the use of reduce, renew and offset strategies.

### Council Initiatives

Management and operational actions were identified in Council's Energy Savings Action Plan which was submitted to DECC (previously DEUS) in March 2007. The Plan collated baseline data from which the top ten sites for energy consumption were identified. It was found that two thirds of Council's energy consumption is a result of production and delivery of water supply and sewerage treatment. Council will focus improving energy efficiency through design solutions when routine upgrades and overhauls of Council's assets and infrastructure occur. Additionally, opportunities will be sought to modify existing Council infrastructure (such as air conditioning, lighting and business equipment in the main buildings) to incorporate energy efficiency principles. During the 2006-07 reporting period the following management measures have been initiated:

- establishment of an Energy Management Review Team which includes staff from Water and Sewer and Natural Resources sections of Council.

- development of an energy management policy that will include targets to improve energy efficiencies across the organisation.

The following table refers to electricity consumed by Council's 29 major energy consuming facilities. These are referred to as the contestable sites. During the 2006-07 reporting period Council's energy consumption has once again decreased, continuing a trend since 2003-04. This is thought to be due to less water being pumped from pump stations supplying water to Mardi Dam for treatment during the continuing drought conditions.

**Table 2.3.2 Wyong Council Electricity Consumption for Large sites 2004- 06**

| YEAR    | ENERGY USED (kWh) | CHANGE |
|---------|-------------------|--------|
| 2004/05 | 25,697,082        | 0.0%   |
| 2005/06 | 25,127,409        | -2.2%  |
| 2006/07 | 24,165,304        | -3.85  |

While Wyong Council does not yet have a comprehensive greenhouse reduction strategy, it has initiated a number of in-house energy/cost reduction programs to reduce the amount of energy used in some of its operational practices which has subsequently reduced its greenhouse gas emissions.

To further reduce its greenhouse gas contribution, in January 2007 Council made a commitment to increasing the proportion of renewable energy it purchases. For non water and sewer related energy use it has increased the proportion from 6% to 25% by 2008 and for water and sewer related energy use from 6% to 10 % by 2008. By 2020, it has committed to a further increase up to 50% for non water and sewer related energy use, and for water and sewer, an increase up to 15%.



## 2.4 TRANSPORT

| Transport At A Glance |                |                |                |  |
|-----------------------|----------------|----------------|----------------|--|
| Model                 | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>         | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Private transport is heavily relied upon by Central Coast residents.</li> <li>The number of new passenger vehicles registered on the Central Coast increased by 0.4% during 2006-07. There was a 5.3% decline in commercial vehicle registrations.</li> <li>Transport is the second largest source of greenhouse gas emissions.</li> </ul>  |
| <b>Pressure:</b>      | Increasing     | Increasing     | Increasing     | <p>Factors which contribute to a less sustainable trend in transport include:</p> <ul style="list-style-type: none"> <li>low local employment opportunities</li> <li>the dispersed pattern of urban development, presenting a challenge to providing a cohesive public transport network</li> <li>rural residential development encouraging higher car use</li> <li>Insufficient coverage and unreliability of public transport options increases private car dependence.</li> </ul>   |
| <b>Response:</b>      | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>Council currently awaits a decision from the State Government on approval of the Wyong Employment Zone to attract additional industry and employment opportunities to Wyong.</li> <li>Council has continued to implement a number of initiatives to reduce the environmental impact of its vehicle fleet.</li> <li>Council has joined the Greenfleet program to offset the greenhouse emissions from its vehicle and transport fleet.</li> <li>During the 2006-07 reporting period a total of 5123 metres of cycleway was constructed to increase walking and cycling opportunities.</li> <li>Council continues to be involved with the Central Coast Transport Working Group.</li> <li>Council continues to liaise with the Ministry of Transport changes to bus servicing arrangements on the Central Coast. The Ministry has advised Council that the Central Coast will be given high priority in its review of the bus servicing.</li> <li>The Ministry is trialling a cinema bus for youth in the Budgewoi area.</li> </ul> |
| <b>Projection:</b>    | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Our present transport system is not sustainable and will remain in decline while we continue our dependency on private motor vehicles.</li> <li>Local work opportunities will help to reduce the needs for residents to travel outside of the Shire to find work may reduce the need for private transport.</li> <li>Wyong Shire has the opportunity to make a marked</li> </ul>  |

| Transport At A Glance (cont) |                |                |                |  |
|------------------------------|----------------|----------------|----------------|--|
| Model                        | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| Projection:                  | Declining      | Declining      | Declining      | <p>contribution to transport efficiency and energy use through urban design.</p> <ul style="list-style-type: none"> <li>Revitalisation strategies for The Entrance/Long Jetty, Toukley and Ourimbah will discourage the need for extensive travel. These will provide alternate transport options and encourage increased development near existing activity nodes such as shops, railways and bus links.</li> </ul> |

## Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for public transport are:

- A better society – enhance the quality of life of the Shire's residents
- An affordable public transport system that provides good access to facilities and services and an efficient link to both across the Shire and to Sydney.

The following table outlines the 2006-07 council actions for the management of public transport.



**Table 2.4.1 Management Plan Actions for Public**

| Public Transport - What were the Actions  | Evaluation and outcomes  |
|---|--|
| Participate in committees with private bus companies and relevant governments.  | Ongoing  |
| Continue an ongoing advocacy programme including representations to Members of Parliament, submissions to government and participation in committees. | Ongoing  |
| Process the development application for the new railway station/interchange at Warnervale.  | Development application with Council, pending submission of a Species Impact Statement for the <i>Rutidosia heterogama</i> under the <i>Threatened Species Conservation Act 1995</i> |
| Ensure principle of integration of transport and town centre facilities and services is achieved in master planning of the New Warnervale Town Centre | Warnervale Town Centre is currently being assessed by the NSW Department of Planning under Part 3A. Council will have the opportunity to review the masterplan once it is complete.  |
| Promote establishment of a group to replace the Central Coast Transport taskforce.  | Working group established.   |

## Transport

Transport plays a key role in our day to day activities. It allows us to access jobs, education, markets, leisure and other services. The transport sector is NSW's second-largest source of greenhouse gas emissions, contributing 13.7% of the State's total and around a fifth of all NSW energy-related emissions. Road transport has by far the largest share of the transport emissions at 91.4%, followed by civil aviation (5%), marine (1.8%) and railways (1.7%) (AGO 2006, cited in NSW SoE 2006).

Transport is not without environmental and health impacts. It relies heavily upon fossil fuels, contributes toward air pollution and produces greenhouse gases. Transport is the second-fastest growing source of NSW greenhouse gas emissions and continues to be a significant source of particles, as well as oxides of nitrogen and volatile organic compounds (NSW SoE 2006). NSW State of the Environment Report (2006) states that motor vehicles are the major source of air pollution in Sydney accounting for:

- 71% of the emissions of oxides of nitrogen (NO<sub>x</sub>)
- 38% of volatile organic compound (VOC) emissions
- 12% of fine particulate emissions.

Healthwise, air pollution due to transport activities has been found to contribute to respiratory and cardiovascular diseases and early mortality. Transport also impacts on the urban amenity through the incidence of accidents, congestion and noise.

The dispersed pattern of settlement around Tuggerah Lakes and the lack of effective public transport systems mean that Shire residents rely heavily on private transport to travel between destinations around the Central Coast and to and from Sydney and Newcastle. Wyong Shire is struggling to keep up with the increase in travel demand due to population increase, continuing low local employment opportunities and the dispersed pattern of urban development in the Shire.

The number of new passenger vehicles registered on the Central Coast increased by 0.4% during 2006-07. This compared with a 4.4% increase statewide and is up from a 2.8% decline last year, when it was combined with commercial vehicles (Central Coast Research Foundation (2007)). The NSW SoE (2006) reports that CityRail data indicates high fuel prices may be prompting more people to use public transport. The slight increase in passenger vehicle registration is thought to suggest

that the market has started the process of adjusting to higher fuel prices and indicates an increase in consumer demand for new motor vehicles. It is too early to tell whether the trend to public transport usage will continue.

On the other hand new commercial vehicle registrations are down 5.3% (NSW down 8.2%). The Central Coast Economic Indicator Report (March 2007) suggests this is a reflection of broader market trends such as business profitability and trading and that registrations may remain low until business trading conditions and consumer confidence improve (Central Coast Research Foundation (2007)).

### Transport Action Plan - Implementation

As stated in the 2005-06 SoE, a working group consisting of Roads and Transport Authority officers, Directors and Senior Engineers from both Gosford and Wyong Councils has been established to assess the RTA's priorities. The last meeting was held in July 2007. Projects are being prioritised based on accidents, traffic volumes, delays and Level of Service. Further work is required on some projects in order to assess their priorities.

The RTA is finalising plans for Pacific Highway, Tuggerah Stage 2 (Mildon Road to Johnson Road). \$12 million has been allocated in the State Budget for these works. Preliminary works for Stage 2 have commenced. The RTA anticipates calling tenders by the end of 2007 for construction of the roadworks.

The RTA is still working on the alternative routes suggested from the public exhibition for the Pacific Highway through the Wyong Township.

The RTA is also finalising plans for the Pacific Highway, Ourimbah Stage 2 (Glen Road to Burns Road). \$10 million has been allocated in the State Budget for these works. Preliminary works and calling of tenders for the roadworks should occur by the end of 2007.



Wyong Rd (Cobbs Rd) Tuggerah

## Improved Bus Services

Council continues to lobby the Ministry of Transport for it to have proper consultation with Council whilst it is preparing changes to bus servicing arrangements on the Central Coast. Meetings were held in March and June 2007 with senior staff from the Ministry. It is understood that there will be ongoing discussions with Council staff. The Ministry has verbally advised that the Central Coast will be given high priority in its review of the bus servicing. It is hoped that the Ministry will be able to have public consultations by the end of next year. However, The Ministry of Transport Local and Community Transport representative for the Central Coast has been transferred to Grafton.

Council continues to be involved with the Central Coast Transport Working Group. The last meeting was held on 22 March 2007.

The Ministry is trialling a cinema bus for youth in the Budgewoi area. A daily service will be provided between Budgewoi and Tuggerah on Fridays during school holidays. The Ministry is requesting applications for other similar disadvantaged groups for services that could be trialled.



Busways

## Council's Vehicle Fleet

This year Wyong Council increased its private and light commercial fleet to 292 vehicles from last year's 275. There has been a slight decrease in the number of four cylinder cars requested by staff. Of the 168 private vehicles in the council fleet, only 30% are now four cylinder compared to 33% last year. Council is currently implementing a new pricing strategy designed to increase the percentage of four cylinder and LPG vehicles in the light vehicle fleet. Currently 59% of the fleet is comprised of these two fuel types, also up from 54% from last year.

During the 2006-07 reporting period Council's Plant and Fleet Unit implemented strategies to bring its fleet maintenance operations to a standard consistent with national best practice. Strategies implemented which have the potential to improve environmental outcomes include involvement in the RTA Clean Fleet program. In seeking accreditation for the program, Council will continue to address the following issues:

- Clean fuel. Implementing measures to ensure fuel is free of contamination and meets fuel quality standards.
- Recycling. Items such as tyres, lubricants and scrap metal are disposed of in a manner to facilitate their recycling.
- Engine settings. Ensuring engines are maintained to meet manufacturer's specifications, particularly fuel pumps and injection timing.
- Maintenance schedules and methods. Periodic Maintenance Schedules and tasks adhered to.
- Fault identification and repair. Provide for the identification, assessment and action on reported faults e.g. increased fuel consumption/emissions.

Council is still proposing to undertake a trial of biodiesel in a selection of Council trucks.



## Greenfleet Program

During the 2006-07 reporting period, Wyong Council joined the Greenfleet program to offset the greenhouse emissions from its vehicle and small plant fleets. The initiative will require the planting of over 18,000 trees per annum and will sequester 4824 tonnes of CO<sub>2</sub>e from the atmosphere. Though there is no requirement in the program to do so, Council is aiming to maximise local planting opportunities with a view to complementing restoration/rehabilitation programs already in progress. Preliminary plantings will commence on the Tuggerah Reserve (Pioneer Dairy) site in late 2007. Greenfleet offers opportunities to offset individual car or fleet carbon emissions. More information can be found on the Greenfleet website: <http://www.greenfleet.com.au/>



*Tree Planting*

## Cycleways Program

Council continued its rolling program of cycleway development throughout the Shire during the 2006–07 reporting period. A total of 5123 metres of cycleways was constructed as follows:

- Two hundred metres of 'off road' cycleway were constructed along Wilfred Barrett Drive at Noraville and North Entrance. Council will continue the cycleway at this location over coming years to complete the link from North Entrance to Toukley. Timing for completion will be dependent on external grants by state and federal governments;
- 1439 metres of 2.5 metre shared path cycleway constructed under the foot pavement program and 1216 metres along existing local roads at various locations; and
- 2268 metres of cycleway was constructed in new residential subdivisions.



## NSW Bike Week

To encourage the uptake of more sustainable transport options and the health benefits of cycling, Wyong Shire Council participated in NSW Bike Week this year. The event, called 'Bike Brunch 2006' offered free healthy breakfasts to participants in a tour of the Shire's cycleways which incorporated the provision of road safety information. Bike Brunch 2006 was conducted on the October Long Weekend in 2006 starting from Saltwater Creek Park in Long Jetty. There were approximately 350 participants from all age groups.



*Cycling to work*



*Some of the off-road cycleway which has been constructed at North Entrance*

## 2.5 NOISE

| Noise At A Glance  |                |                |                |  |
|--------------------|----------------|----------------|----------------|--|
| Model              | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>      | Stable         | Stable         | Stable         | Wyong Shire does not generally, have a significant noise problem.  |
| <b>Pressure:</b>   | Increasing     | Increasing     | Increasing     | Increasing vehicular traffic will increase noise over time.  |
| <b>Response:</b>   | n/a            | Good           | Good           | Council responds to noise complaints and requires noise buffers in new developments to ensure acceptable noise standards.              |
| <b>Projection:</b> | Stable         | Stable         | Stable         | It is anticipated that ultimately noise levels will increase, although DECC (EPA) guidelines will continue to be met in the near term. |

### Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for noise are:

- A better society enhance the quality of life of the Shire's residents
- Maintain current, acceptable noise levels.

The following table outlines the 2006-07 council actions for the management of noise within the Shire.



*Barking dogs are often the main source for noise complaints*

**Table 2.5.1 Management Plan Actions for Noise**

| Noise - What were the Actions   | Evaluation and outcomes  |
|---|--|
| All new residential rezonings include an assessment of potential impacts and any ameliorative measures required are adopted | Plan completed and submitted to DECC (formally DEUS) for review. |
| Investigate noise complaints  | Complaints are investigated as required.                         |

### Noise

Major transport corridors (freeways and railway) are managed by the State Government. Council continues to address local noise issues such as dogs, motors and events as they arise. In 2006-07 Council received 503 noise complaints of which 484 were for barking dogs.

Four noise pollution incidents were reported to the DECC/EPA Environment Line where the EPA, rather than Council was the Appropriate Regulatory Authority (ARA) for the incident. Generally Councils

will not have a role in managing or responding to these reports but upon request DECC/EPA will provide the data for SoE reporting.

Council requires noise buffers in new developments to ensure acceptable noise standards and it must be anticipated that noise levels will increase across some areas of the Shire as development pressure continues. For further information on noise refer to the 2003-04 SoE Report.

## 2.6 WASTE

| Waste At A Glance  |                |                |                |  |
|--------------------|----------------|----------------|----------------|--|
| Model              | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>      | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>A 17kg per capita (or 2%) decrease in total solid waste to landfill during the 2006-07 reporting period (based on a population of 151,428 taken from the Social Atlas).</li> <li>The material diverted from land fill (and recycled) per person in Wyong Shire during the reporting period 2006-07 decreased by 7%.</li> <li>In summary, there has been,               <ul style="list-style-type: none"> <li>a 4.6% increase in the amount of municipal (household) waste landfilled per person;</li> <li>a 5.9% decrease in the commercial and industrial waste landfilled per person;</li> <li>a 17.7% decrease in building materials landfilled per person;</li> <li>a 23% decrease in the amount of building materials recycled; and</li> <li>a 29% decrease in scrap metals collected for recycling.</li> </ul> </li> </ul> |
| <b>Pressure:</b>   | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Increasing population places increasing pressure on Council's municipal waste system.</li> <li>The amount of solid waste generated depends on a range of factors with community attitudes and values, socio-economic make-up of the community, the practices of businesses and the health of the economy being the most significant.</li> </ul>   |
| <b>Response:</b>   | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>In Wyong Shire, the disposal rate is much lower than the national average of 1.1 tonnes per capita, most likely due to the kerbside recycling service.</li> <li>A methane extraction (and possibly utilization) system will be installed at Buttonderry in 2007/08 to capture greenhouse gases emitted from the tip and provide a green energy source.</li> <li>The Buttonderry Facility is closely monitored by Council for any potential groundwater and surface water contamination.</li> <li>An independent customer survey conducted in 2005 rated Wyong Council's waste and recycling service as satisfactory or better by 96% of residents.</li> </ul>   |
| <b>Projection:</b> | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Improved infrastructure is required to encourage commercial and industrial recycling.</li> </ul>  |



## Council's Management Plan – Where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for infrastructure are:

- Infrastructure – to support the Shire's social, economic and environmental objectives
- Provide an economically and ecologically sustainable waste management system for the Shire

### Evaluation of Objectives and Targets

The indicators collected by Wyong Council for waste and recycling are adequate to show the major trends. However, the current tools and targets for waste reduction are not adequate and require greater assistance from the State government if progress is to be made.



*Aerial view of Buttonderry Tip*

**Table 2.6.1 Management Plan Actions for Waste Management**

| Waste - What were the Actions  | Evaluation and outcomes   |
|--|---|
| Award waste collection contract.   | Completed - 95% satisfaction level  |
| Conduct two chemical collections   | Completed   |
| Undertake an educational campaign to increase the yield of all recyclable materials to further reduce waste to landfill.<br><br>Upgrade the entry and drop off area at Buttonderry Waste Management Facility to improve the level of service faster through put and safer operation for customers. | Completed<br><br>The e-lane has been constructed and is now fully operational. The transfer and entry area will be completed in April 2008. |
| Implement permanent supervision of all drop-off areas to ensure appropriate Occupational Health and Safety controls are maintained and income is protected.  | Completed   |
| Award green waste processing contract.   | Completed - 50% diversion of domestic waste   |
| Undertake routine environmental audits of the Buttonderry Waste Management Facility.   | Implemented   |
| Complete construction works on Bateau Bay closed landfill.   | Rehabilitation of Bateau Bay landfill is scheduled for completion in April 2007   |
| Commence investigation and detailed designs for the closed Mardi landfill.   | Preliminary investigation has been completed, detailed investigation is currently under way.  |
| Implement education and enforcement campaigns in accordance with the Litter Management Plan  | This is the responsibility of Environmental Education section.  |

In Australia, waste is categorised into three distinct waste streams depending on the source of the waste:

1. municipal (mainly household),
2. commercial and industrial (C&I), and
3. construction and demolition (C&D).

Australia's per capita waste disposal rate is estimated to be 1.1 tonnes per year, the second highest among the OECD countries and surpassed only by the United States. Wyong Shire's waste disposal rate is 0.84 tonne per capita per annum. This is most likely due to the comprehensive kerbside recycling service available in the Shire and the domestic and commercial green waste processing operations.

Waste production and disposal may place the following pressures on the environment:

- Loss of natural resources contained in the waste;
- Energy costs of waste transportation, disposal, recycling and composting;
- Loss of habitat to landfill excavations;
- Land contamination and sterilisation;
- Stormwater pollution;
- Surface and groundwater pollution;
- Odour and particle air pollution at landfill site;
- Generation of greenhouse gases;
- Noise, odour, littering and other impacts on local amenity; and
- Contamination of bushland from illegal dumping.

The following two tables show that during the reporting period 2005-06, total solid waste landfilled per person in Wyong Shire increased by 80 kilograms per capita (10%) and materials diverted from landfill decreased by 4%. In summary, there has been

- a 4.6% increase in the amount of municipal waste landfilled, per person;
- a 5.9% decrease in the commercial and industrial waste landfilled, per person;
- a 17.7% decrease in building materials landfilled per person;
- a 23% decrease in the amount of building materials diverted from landfill and recycled; and
- a 29% decrease in scrap metals diverted from landfill and recycling.



*Illegal dumping in bushland*

**Table 2.6.2 Solid Waste Landfilled 1997-98\* and 2003-07**

| Year                  | Municipal |               | Commercial & Industrial |               | Building & Demolition |               | Total landfilled |               |
|-----------------------|-----------|---------------|-------------------------|---------------|-----------------------|---------------|------------------|---------------|
|                       | tonnes    | Kg per person | tonnes                  | Kg per person | tonnes                | Kg per person | tonnes           | Kg per person |
| 97/98*                | 73,823    | 593           | 48,296                  | 388           | no data               |               | 122,120          | 981           |
| 03/04                 | 55,341    | 390           | 42,887                  | 302           | 20,655                | 146           | 118,883          | 838           |
| 04/05                 | 60,047    | 414           | 43,581                  | 300           | 10,027                | 69            | 113,654          | 783           |
| 05/06                 | 61,001    | 411           | 55,269                  | 373           | 11,695                | 79            | 128,039          | 863           |
| 06/07                 | 65,136    | 430           | 53,160                  | 351           | 9,808                 | 65            | 128,105          | 846           |
| %Δ<br>05/06-<br>06/07 |           | +4.6%         |                         | -5.9%         |                       | -17.7%        |                  | -2%           |

\*1997-98 is the benchmark year as Council's recycling and green waste system was introduced in this period.

**Table 2.6.3 Material Diverted from Landfill Each Year, 1997-98\* and 2003-07**

| Year                  | Domestic recycled |               | Composted |               | Bricks, concrete, tiles |               | Metals recycled |               | Total tonnes diverted |               |
|-----------------------|-------------------|---------------|-----------|---------------|-------------------------|---------------|-----------------|---------------|-----------------------|---------------|
|                       | tonnes            | Kg per person | tonnes    | Kg per person | tonnes                  | Kg per person | tonnes          | Kg per person | tonnes                | Kg per person |
| 97/98                 | 5750              | 46            | 5605      | 45            | 0                       | 0             |                 |               | 11355                 | 91            |
| 03/04                 | 10800             | 76            | 37754     | 266           | 13382                   | 94            | 2098            | 15            | 64034                 | 451           |
| 04/05                 | 11325             | 78            | 35265     | 243           | 8841                    | 61            | 1860            | 13            | 57291                 | 395           |
| 05/06                 | 10804             | 73            | 37396     | 252           | 5716                    | 39            | 2429            | 17            | 56408                 | 380           |
| 06/07                 | 11,991            | 79            | 35310     | 233           | 4500                    | 30            | 1868            | 12            | 53667                 | 354           |
| %Δ<br>05/06<br>-06/07 |                   | +8%           |           | -7.5%         |                         | -36%          |                 | -29%          |                       | -7%           |

\*1997-98 is the benchmark year as Council's recycling and green waste system was introduced in this period.

The amount of solid waste generated depends on a range of factors with community attitudes and values, socio-economic make-up of the community, the practices of businesses and the health of the economy being the most significant ones.

The decrease in the amount of solid waste landfilled is mainly due to lower quantities of commercial, building and demolition waste received at the Buttonderry Waste Management Facility. The reduced amount of building and demolition waste reflects subdued building activity as seen in the reduced number of development applications approved by Council during the reporting period. The amount of household waste received reduced slightly by 3% but the amount of council waste generated increased by sharply by 139% in 2006-07. This increase is mainly due to material being received as mixed Council waste which was received in the past as Virgin Excavated Natural Material (VENM). The Department of Environment and Climate Change has tightened the criteria for VENM with the result that this material can now only be received as mixed waste. Despite the fact that the amount of Council waste received sharply increased, this is a small proportion of the total waste and the overall amount.

In the same period, a decrease of 26 kilograms (7%) per person in the amount of material recycled or composted was experienced. While the quantities of dry recyclables collected have slightly increased, the amount of green waste processed has decreased. There has also been a 21% decrease in the amount of concrete and a 25% decrease in the

amount of scrap metal received at Buttonderry for recycling. Since 03/04 the facility has experienced a constant decrease in the amount of concrete received. The quantities of scrap metal received have been fairly stable for many years, however a sharp decrease was observed in 06/07. This is most likely due to increases in the world scrap metal prices which provide an incentive for this material to be taken to scrap metal recyclers in return for payment.



*Bulk metal recycling*

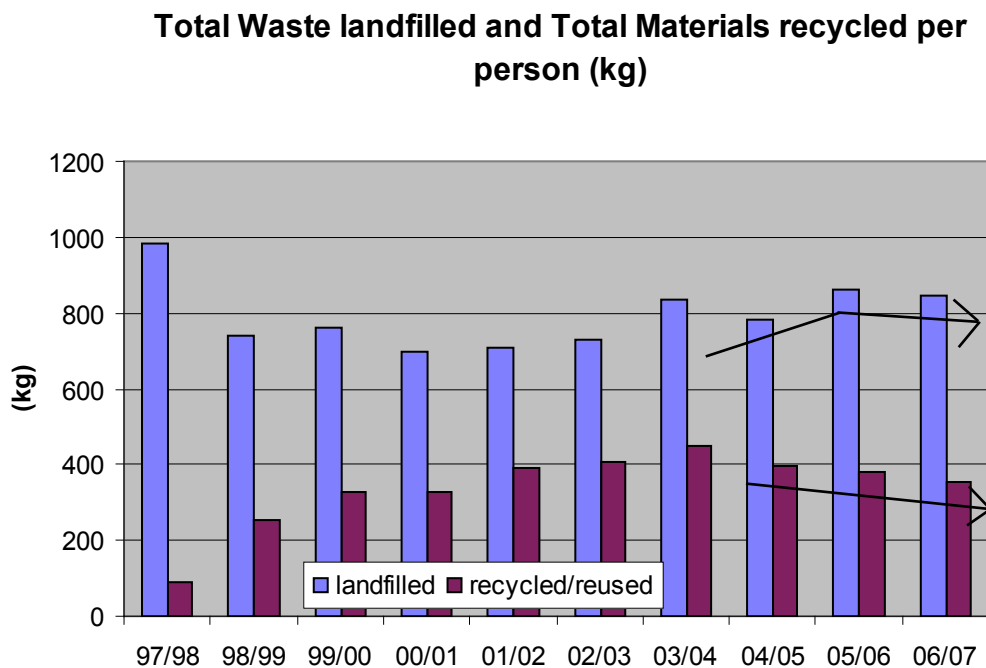


*Bulk concrete recycling*

## Total Waste Landfilled and Recycled per person

The graph next page illustrates the overall trend of increasing landfill materials per person and decreasing recycled materials per person. This has implications for Council and the community's sustainable resource management in the longer term as the gap between the two is increasing.

**Figure 2.6.1 Total Waste landfilled and recycled per person**



## Commercial and Industrial Waste

The quantities of commercial and industrial waste landfilled has remained relatively unchanged between 1997-98 and 2004-05 (i.e. the total amount has risen in line with population growth). During the 2006-07 reporting period, the quantity of commercial waste received decreased by 6% per person. There is considerable scope for this waste sector to avoid, reduce and recycle waste. Reasons for poor recycling of commercial and industrial waste in the Shire may include:

- The lack of an infrastructure on the Central Coast for commercial recycling
- The cost of recycling

Both of these issues require state or national government action. The creation of an infrastructure for commercial recycling requires assistance from the State Government. While Wyong's municipal

recycling system introduced in 1998 is very effective in reducing domestic waste, it does not appear to be suitable for commercial and industrial businesses. Commercial recyclable materials are generally produced at large quantities or are oversized (eg. cardboard) and hence the use of household recycling bins is not suitable. Under the next waste collection and recycling contract (which commenced in February 2007), provisions will be made to extend recycling services to businesses and industries.

While Council has the power at the development approval stage to specify consent conditions in relation to waste minimisation, it has been cautious to condition development applications to require a site specific recycling system in the absence of regional collection and processing infrastructure.

With the introduction of the new waste collection and recycling service, this position should be reconsidered as designated recycling bins can be provided and the collection service in general will be more flexible.

The Waste Avoidance and Resource Recovery Act, 2001 provides for the introduction of Extended Producer Responsibility (EPR) Schemes in NSW. EPR schemes extend manufacturers' and suppliers' responsibility for their products to the post-consumer stage of the product's life cycle. The Department of Environment and Climate Change has released the Extended Producer Responsibility Priority Statement 2004 which outlines a number of products or wastes of concern suited to management by EPR schemes in NSW. It identifies 16 wastes of concern and nine wastes for priority focus in 2004: computers, televisions, used tyres, nickel cadmium batteries, plastic bags, agricultural and veterinary chemicals, agricultural and veterinary chemical containers, mobile phones and batteries, and packaging waste.

The Priority Statement has put the industries producing these wastes on notice that they need to reduce the amount and/or impact of these products in the waste stream. The implementation of the statement may be a tool to reduce the municipal but also the commercial and industrial waste stream.

## Building waste

Building waste is the smallest component of the three waste streams, but there are options to recycle much of this material. Building waste includes timber, concrete, bricks, tiles, gyprock etc. Most of these products can be easily recycled and recycling infrastructure exists already. The low recycling yields for these materials are due to the fact that when they are received at Buttonderry tip, they are received as mixed building waste. In order to recycle these products effectively, they should arrive at the tip already sorted (ie source separated). Differential pricing exists at Buttonderry, whereby mixed waste attracts the highest charge and source separated recyclable materials no charge or a lower charge. It appears that the current differential pricing structure in place provides insufficient incentives for demolition companies to sort the materials before they take them to the tip.

## Council activities

The following table shows the amount of waste to landfill generated from Council activities/work.

**Table 2.6.4 Waste to landfill**

| Year    | Total Council Waste To Landfill (tonne) | Council Waste per capita (kg) |
|---------|---|-------------------------------|
| 1997-98 | 18650                                   | 150                           |
| 1998-99 | 11293                                   | 89                            |
| 1999-00 | 6282                                    | 48                            |
| 2000-01 | 3194                                    | 24                            |
| 2001-02 | 2116                                    | 16                            |
| 2002-03 | 1970                                    | 14                            |
| 2003-04 | 3375                                    | 24                            |
| 2004-05 | 5514                                    | 38                            |
| 2005-06 | 4166                                    | 28                            |
| 2006-07 | 9961                                    | 66                            |

Examples of Council operations that generate waste material include:

- Parks and reserves maintenance and construction (including clippings, prunings, beach wrack, dredging material and GPT refuse);
- Road and drainage construction and maintenance (clean fill, soil, acid sulphate soil, vegetation concrete, hotmix, other building materials);
- Electrical, plumbing, carpentry, mechanical and stores services at depots (including oils, tyres, solvents, timber PVC, cardboard, cabling, surplus goods);
- Sewerage treatment works (biosolids, primary screening grit);
- Administration (paper and other stationery, redundant computer equipment);
- Caravan parks (similar to domestic waste stream);
- Community and childcare centres, libraries, council halls, swimming pools (food and litter, nappies, redundant books); and
- Construction and maintenance of community facilities (building materials, paints).

A large proportion of the waste generated by these activities is composted or recycled.



Although the amount of waste to landfill has significantly reduced since Council's recycling and green waste systems was introduced in 1998-99, the figure for the 2006-07 reporting period is the highest since 1998-99.

### Methane gas capture at Buttonderry tip

The Buttonderry Waste Management Facility is closely monitored by Council staff for any potential groundwater and surface water contamination. Monitoring is also undertaken at the closed landfill at Bateau Bay. Investigations for environmental risks and hazards has commenced at the closed landfill at Mardi in 2006-07. Monitoring has been scheduled for Gwandalan and Tumbi closed landfills for 2007-08.

Landfills are significant generators of methane gas. Even in the most thoroughly lined and sealed sites, some gases will be released to the atmosphere. Landfill gas is a by-product of the microbiological decomposition of organic waste under anaerobic conditions. Landfill gas consists of a range of gases with methane making up between 45 -55 %. At present methane generated within the closed and operational landfill cells dissipates uncontrolled into the atmosphere which contributes to the greenhouse effect and global warming.

A methane gas extraction system is to be installed at Buttonderry in 2007-08 to minimise the escape of greenhouse gases and to provide a green energy source. The gas harvested has the potential to be used for electricity generation. Methane modelling undertaken during 2004/05 estimates that in 2006 there may be as much as 1226 m<sup>3</sup>/hr of landfill gas available from the site which could be captured and sold commercially. As the site is continuing to accept waste, the forecast increases slowly to 1266 m<sup>3</sup>/hr in 2008.

### Waste levy

Council is required to pay a waste levy for every tonne of waste landfilled to the Department of Environment and Climate Change (DECC). The purpose of the levy is to discourage the disposal of waste and provide incentives to increase recycling and waste avoidance. In 2005, the DEC announced an increase of \$6.00 per tonne for the next 5 years until 2010-11 in addition to the scheduled annual increase of \$1.50 per tonne to the waste levy commencing in 2006-07. The purpose of the additional increase of \$6.00 per tonne is to fund the City and Country Environment Restoration Program. The levy was \$23.10 per tonne in 2006-07 and will increase to \$31.60 in 2007-08. It is estimated that the waste levy payable in 2010-11 will be in the order of \$10 Million.



*Rubish at Buttonderry Tip*



*Compactor at Buttonderry Tip*

## 2.7 SEWERAGE & WASTE MANAGEMENT SYSTEMS

This sub chapter reports on Council's sewerage system, liquid trade and hazardous waste and on site sewerage management systems.

| Sewerage Systems At A Glance     |                |                |                |  |
|----------------------------------|----------------|----------------|----------------|--|
| Model                            | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>                    | Stable         | Stable         | Stable         | <ul style="list-style-type: none"> <li>Council operates and maintains over 1,200 kilometres of sewers, 140 pumping stations and six sewerage treatment plants.</li> <li>There were less reportable instances of sewage overflows in 2006-07.</li> <li>Wyong's rate of sewer chokes in 2006-07 was comparable to 2005-06. increased.</li> </ul>   |
| <b>Pressure:</b>                 | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>System overloads occurred as a result of the June 2007 rainfall event, however these were outside of the control of Council.</li> <li>The effects of the drought and the increasing age of the pipes will in future contribute to the number of sewer chokes.</li> </ul>  |
| <b>Response:</b>                 | n/a            | Fair           | Good           | <ul style="list-style-type: none"> <li>Council is addressing sewer blockages by undertaking an ongoing program of replacing root damage pipes.</li> <li>During the 2006-07 reporting period Council recycled 897ML/a as part of its treated effluent re-use program.</li> <li>Monitoring of the ocean outfalls continues to ensure the long-term sustainability of the program.</li> </ul> |
| Liquid Trade And Hazardous Waste |                |                |                |  |
| <b>State:</b>                    | Stable         | Stable         | Stable         | <ul style="list-style-type: none"> <li>Council has a new liquid trade waste policy which was implemented on July 1, 2006. This policy is a requirement by the Department of Water and Energy</li> </ul>  |
| <b>Pressure:</b>                 | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>The pressures relating to liquid trade and hazardous waste refer to the risks of accidental or illegal discharges into the Shire's sewerage system, aquatic systems and water bodies rather than appropriate disposal.</li> </ul>   |
| <b>Response:</b>                 | n/a            | Good           | Good           | <ul style="list-style-type: none"> <li>Council monitors liquid trade waste dischargers for compliance with their Liquid Trade Waste approval acceptance limits.</li> </ul>   |

| Sewerage Systems At A Glance (cont) |                |                |                |   |
|-------------------------------------|----------------|----------------|----------------|---|
| Model                               | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| <b>On-Site Sewerage Management</b>  |                |                |                |   |
| <b>State:</b>                       | n/a            | Stable         | Stable         | <ul style="list-style-type: none"> <li>The issues relating to on-site sewage systems (OSSM) have not altered since the last comprehensive State of the Environment Report in 2003-04.</li> <li>In 2006-07 there were 3083 OSSM licences in Wyong, with 91 new on-site sewage systems approved.</li> <li>405 systems were inspected, identifying a failure rate of 33%. Council officers ensured all defective systems were rectified.</li> </ul>                |
| <b>Pressure:</b>                    | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Failure of on-site sewer systems poses a threat to local streams</li> </ul>  |
| <b>Response:</b>                    | n/a            | Good           | Good           | <ul style="list-style-type: none"> <li>Inspections continue to monitor performance and offer assistance to ensure all systems perform satisfactorily.</li> <li>The Hunter and Central Coast councils continued to meet quarterly on the On Site Sewerage Management Committee to discuss and make representations to the NSW Department of Health, NSW Department of Local Government, industry representatives and public and private stakeholders.</li> </ul> |
| <b>Projections:</b>                 | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>As sewerage infrastructure continues to age, the potential for failure increases.</li> <li>Potential for groundwater pollution from nutrients increases as rural residential development continues in the catchment.</li> </ul>  |

## Council's Sewerage System

### Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for Council's sewerage system are:

- Infrastructure - to support the Shire's social economic and environmental aspirations.
- A cost effective sewerage service that meets customer service standards and conforms to health and environmental requirements.

The following table outlines the 2006-07 council actions for the management of Council's sewerage system.

**Table 2.7.1 Management Plan Actions for Sewerage Systems**

| Sewerage system - What were the Actions  | Evaluation and outcomes |
|--|-------------------------|
| Continuing implementation of best practice methods to achieve productivity improvements within the regulatory environment. | Ongoing                 |

Wyong Shire Council operates and maintains over 1,200 kilometres of sewers, 140 pumping stations, six sewerage treatment plants (STPs), located at Bateau Bay, Wyong South, Charmhaven, Mannering Park, Gwandalan and Toukley, and two ocean outfalls located at Norah Head and Wonga Point in Bateau Bay.

The types of pressures which affect the sustainability of Council's operation of sewage treatment and disposal have not changed since 2003-04. For this reason, only changes to the volumes or frequency of breakdowns are reported here. Population increase results in increasing total volume of sewage requiring treatment, thereby increasing operational costs and environmental pressures. A total volume of sewage however, is not a reliable indicator of population pressure as it can be affected by many unquantifiable factors such as rainfall events or industrial discharges. Hence, it is not reported in this SoE Report.

There were less reportable instances of sewage overflows in 2006-07 resulting in raw sewage or treated sewage effluent overflowing to the environment. These mainly occurred as a result of broken mains or system failures such as power disruption. The most significant system overload occurred as a result of the June 2007 rainfall event, however this was outside the control of Council and measures were implemented as quickly as possible to minimize the impact.

Planned upgrades for further increases in effluent treated for re-use include:

- Toukley STP - from 3.6 ML/d to 7.2 ML/d
- Bateau Bay STP - from 1.8 ML/d to 3.6 ML/d
- Vales Point Power Station – 0.7 ML/d, this is the expected usage by 2008
- Munmorah Power Station – 0.4ML/d, possible future use.

Charmhaven STP, Wyong South STP, Mannering Park STP and Gwandalan STP currently have the capacity to produce 288 KL/Day of recycled water. There is no plan at this stage to upgrade these plants.

During the 2006-07 reporting period the following amounts of treated sewage effluent have been delivered for a variety of irrigation purposes.

**Table 2.7.2 Effluent reuse for irrigation**

| Sewerage Treatment Plant | Kilolitres of effluent recycled 2005-06 | Kilolitres of effluent recycled 2006-07 |
|--------------------------|---|---|
| Bateau Bay               | 228,456 kL                              | 192,435 kL                              |
| Charmhaven               | 4,018 kL                                | 13,284 kL                               |
| Wyong South              | 5,243 kL                                | 14,404 kL                               |
| Mannering Park           | 153 kL                                  | 1,083 kL                                |
| Toukley                  | 503,150 kL                              | 675,646 kL                              |
| Gwandalan                | 40                                      | 337                                     |
| <b>TOTALS</b>            | <b>741,738</b>                          | <b>897,597</b>                          |

Uses include:

- Golf course irrigation - Tuggerah Lakes, Toukley & Magenta Shores
- Bowling Club Irrigation -Toukley Bowling Club, Toukley RSL Bowling Club, Bateau Bay Bowling Club
- Irrigation of municipal & private sports fields eg. Council & School ovals
- Toilet flushing in all municipal facilities within the service area
- Residential dual reticulation supply eg. Magenta Shores
- Caravan Parks.

The Shire's sewerage treatment plants produce "wet sludge cake", which is dewatered to typically contain 14-15% of solids. Table 2.7.2 shows the volumes of dewatered dry sludge produced which Australian Native Landscape incorporate into compost.

**Table 2.7.3 Dry sludge recycled through the Australian Native Landscape Supplies**

| Treatment Plant | Tonnes of sludge produced |
|-----------------|---------------------------|
| Bateau Bay      | 285                       |
| Charmhaven      | 290.4                     |
| Gwandalan       | 11.3                      |
| Mannering Park  | Nil                       |
| Toukley         | 32                        |
| Wyong South     | 443                       |

## Ocean Outfalls

Sewage effluent discharges from the Norah Head and Bateau Bay outfalls continued to meet DECC volume and quality licence requirements during 2006-07 with the exception of one instance of non-compliance of pH at Bateau Bay. Immediate follow-up and re-testing of this incident resulted in full compliance and did not reveal any process failure. Average daily discharges of treated sewage compared to the DECC licence, during 2006-07 are given in the table below:

**Table 2.7.4 Ocean outfall discharge**

| Outfall     | Actual average daily discharge | DECC/EPA licensed average daily discharge |
|-------------|--------------------------------|---|
| Norah Head  | 25,439 KL                      | 35,000 KL                                 |
| Wonga Point | 5,966 KL                       | 25,000 KL                                 |

For over a decade Council has commissioned independent consultants to monitor its ocean outfall sites for impacts of its operations. So far all reports have indicated there are no identified impacts that can be discerned beyond the natural variability of the marine organisms present.

## Liquid Trade and Hazardous Waste

**Liquid trade wastes** include all liquid waste from properties. It does not include sewage of a domestic nature. Applicants are required to obtain Council's approval to discharge liquid trade waste into the sewerage system. Liquid waste unsuitable for disposal into Council's sewerage system must be disposed at DEC approved sites outside Wyong Shire.

**Potentially hazardous wastes** include any waste defined as 'dangerous goods' such as explosives, gases, and toxic and corrosive substances; medical and pathological by-products including sharps; any radioactive waste; and any declared chemical waste that is not permitted to be disposed of to a landfill site. These wastes are not permitted to be disposed of through the Shire sewerage system and hence proper disposal procedures are required through private DECC approved contractors.

The pressures relating to liquid trade and hazardous waste refer to the risks of accidental or illegal discharges into the Shire's sewerage system, aquatic systems and water bodies rather than appropriate disposal.

Council has a new liquid trade waste policy which was implemented on July 1, 2006. This policy is a requirement by the Department of Energy, Utilities and Sustainability. A copy of the new policy is available on Council's web site ([www.wsc.nsw.gov.au](http://www.wsc.nsw.gov.au)).

The previous two Categories A and B have now been changed to Classifications A, B and C. The old Category A is now Classification C and the old Category B has now been divided into Classifications A and B with A being the least likely to cause damage to Council's sewerage system or environmental pollution.

The current status in liquid trade waste discharge approvals and volumes are as follows:

**Table 2.7.5 Liquid trade waste discharge by classification**

| Classification  | Number licensed | Discharge volume |
|---|-----------------|------------------|
| <b>A.</b> Small dischargers (e.g. hairdressers, restaurants & cafes)  | 504             | >60,000kL/year   |
| <b>B.</b> Medium dischargers (e.g. service stations covered forecourt, photographic waste, panelbeating)      | 114             | >11,000kL/year   |
| <b>C.</b> Large dischargers (e.g. food processing factories, wholesale butcher, engine/gearbox reconditioner) | 24              | >300,000kL/year  |

Wyong Shire Council Trade Waste officers manage the licensing of businesses discharging trade waste to the sewerage system. Council's Trade Waste Officers will shortly have the authority to enforce Protection of the Environment Operations Act 1997 in the Shire and respond to illegal discharges, issue prevention and clean up notices and impose fines for the breach of this Act. Currently this is undertaken by Environmental Officers of Council's Regulation and Compliance Section.



*Hazardous waste*



## On-Site Sewage Management

The issues relating to on-site sewage management systems (OSSM) have not altered since the last comprehensive State of the Environment Report in 2003-04. Failure of on-site sewage systems has the potential to pollute and hence they continue to pose a threat to the ecological health of local streams and wetlands.

During the 2006-07 reporting period there were 3083 OSSM licences in Wyong, with 91 new on-site sewage systems approved (Table 2.7.6). 405 inspections were undertaken to assess the performance of the variety of systems, identifying a failure rate of 33%. Council officers ensured all defective systems were rectified.

The Hunter and Central Coast councils continued to meet quarterly on the On Site Sewerage Management Committee to discuss and make representations to the NSW Department of Health, NSW Department of Local Government, industry representatives and public and private stakeholders. The committee convenes to strategise, formulate technical information, educate and produce policy to promote consistency across the region.

Over the past twelve months the committee has:

- Arranged and convened an industry forum in which a number of representatives from both the public and private sector attended and discussed technical and legislative requirements dealing with the installation and operation of on-site sewerage management systems;

- Formulated a working paper dealing with wet weather storage of treated effluent and the sizing of absorption trench and evapo-transpiration areas;
- Commenced the construction of a web page on the Hunter Regional Organisation of Councils (HROC) web site to explain the purpose of the committee and use the site as a central location to enable easy access to adopted documents;
- Made representations to the Department of Local Government (NSW) (DLG) including a detailed submission regarding the improper installation of effluent disposal areas;
- Requested that the Department DLG (NSW) in conjunction with NSW Health investigate a legislative solution to the improper installation of effluent disposal areas;
- Discussed domestic greywater re-use, with the view of drafting a regional policy;
- Formulated a Safe Work Method Statement for the undertaking of inspections of effluent treatment systems; and
- Elected Wyong Council's representative as chair of the committee.

**Table 2.7.6 Numbers of applications made to Council to install septic systems**

| Financial Year | Aerated Systems (AWTS) | Septic Tank Soil Absorption Systems (SAS) | Pump-out Systems | Composting Systems | Soil Mound Systems |
|----------------|------------------------|---|------------------|--------------------|--------------------|
| 06/07          | 75                     | 9   | 1                | 5                  | 1                  |
| 05/06          | 17                     | 13  | *                | *                  | *                  |
| 04/05          | 60                     | 15  | *                | 2                  |                    |
| 03/04          | Not available          |   |                  |                    |                    |
| 02/03          | Not available          |   |                  |                    |                    |
| 01/02          | 85                     | 35  | 4                | 2                  | *                  |
| 00/01          | 34                     | 4   | *                | *                  | *                  |
| 99/00          | 114                    | 17  | *                | 1                  | 1                  |
| 98/99          | 84                     | 9   | 2                | 2                  | *                  |
| 97/98          | 88                     | 28  | 6                | 1                  | *                  |
| 96/97          | 86                     | 15  | 5                | 1                  | *                  |
| 95/96          | 103                    | 45  | 7                | *                  | *                  |

## Council responses to Population and Settlement issues

| Response          | Action to date   | New actions for Council's consideration  |
|-------------------|--|--|
| <b>Population</b> | Integrate landuse planning policies towards sustainability.  | Greater integration of land use/development and infrastructure policies and strategies with environmental policies and strategies would help reduce conflicts  |
|                   |  | Data from the 2006 Census is being released in August and November 2007. This data will be analysed and a comprehensive socio-demographic profile will be provided on-line at a Shire and suburb level.  |
|                   | Council continues to work towards improving our social, economic and environmental position through implementation of strategies identified in Council's Management Plan, Community Plan and Cultural Plan.  | <p>Council is reviewing its Community Plan in 2007/08. The purpose of the Community Plan is to clearly identify:</p> <ul style="list-style-type: none"> <li>• Who makes up our community?</li> <li>• What is important to our community (i.e key social challenges and opportunities)</li> <li>• How can Council and others improve our quality of life?</li> </ul> <p>The Community Plan is integrally linked to the State of the Environment Report.</p> |
|                   | Council is planning for a Performing Arts Centre in Wyong to support the diversity of performing arts activity and to extend and raise the standard of arts practice in the Shire. Culture and cultural experiences reflect and celebrate the uniqueness of the community and contribute to a sense of identity. | Active community participation in arts practise is an essential component of a healthy and sustainable society.  |
|                   | Council continues to provide demographic information to a large number of government and non-government agencies, community and business groups to assist in their planning. Population and household forecasts have been prepared for each social planning district to 2031.                                    | Wyong Council will have a draft Local Housing Strategy finalised by October 2007 that will be followed by a public exhibition period of 28 days. Subsequent to public comment, the draft Strategy will be amended and brought before Council for adoption in December.   |
|                   | Council is working in partnership with CSIRO and Gosford Council to conduct a collaborative research project linking quality of life and social sustainability on the Central Coast. A framework has been developed to measure quality of life across seven life domains.  | <p>Council is investing in the collection of subjective quality of life data which will be analysed in conjunction with relevant objective data to establish a baseline measure of quality of life.</p> <p>Better triple bottom line assessment will produce a more balanced outcome between social, economic and environmental issues. Policy for ecological sustainable development. (see Chapter 1)</p>   |

| Response                            | Action to date  | New actions for Council's consideration   |
|-------------------------------------|---|---|
|                                     | Every NSW Council will be required to prepare a new principal LEP for their area, within the next 5 years, standard LEP template.   | Council should utilise this opportunity to set out local planning controls that address specific issues to Wyong Shire.   |
| <b>Drinking water use and qual-</b> | <p>Adopted WaterPlan 2050</p> <p>Alternative water supplies developed to supplement existing supplies:</p> <ul style="list-style-type: none"> <li>• Hunter transfer scheme,</li> <li>• groundwater supplies.</li> </ul> <p>Continues to promote demand measures such as water tanks and refit kits to reduce average annual residential water consumption.</p> <p>Management Plans for non-residential customers.</p> <p>The threat of permanent desalination plants eased through a major rainfall event in June 2007.</p> | <p>Implementation of preferred options identified in WaterPlan 2050 will provide a path to a sustainable water supply.</p> <p>Promote incentives to increase the installation of internally fitted water tanks to reduce the real demand on the potable water supplies beyond that which is consumed externally.</p> <p>Continue to seek funding opportunities for stormwater harvesting projects.</p>  |
| <b>Energy</b>                       | <p>Council's Energy Savings Action Plan submitted to DECC (formally DEUS).</p> <p>Energy Management Review team set up to develop energy efficiency policy targets and key performance indicators (kpi's).</p> <p>Council continues its commitment to streetlight energy efficiencies and improvements with its renewed membership to the Streetlighting Improvement Program Group.</p> <p>Council has committed to increase the proportion of renewable energy purchased through Green Power.</p>                          | <p>Implementation Actions identified in the Plan by:</p> <ul style="list-style-type: none"> <li>• imbedding energy efficiency into Council operations through kpi's for the major energy consumers.</li> <li>• developing an energy and greenhouse reduction strategy to incorporate reduction measures for Council activities currently contributing to greenhouse emissions.</li> </ul>   |
| <b>Transport</b>                    | <p>Council is proposing to develop the Wyong Employment Zone to attract additional industry and employment opportunities to the Wyong Area.</p> <p>Council continued its rolling program of cycleway development throughout the Shire to encourage walking and cycling.</p> <p>Council lobbies the Minister of Transport to improve bus services to the Central Coast.</p> <p>Council joined the Greenfleet program to offset the greenhouse emissions from its vehicle and transport fleet.</p>                            | <p>Strategic urban design in the Shire focusing on centralisation and the development of town centres such as The Entrance/Long Jetty, Toukley and Ourimbah will contribute to more energy efficient and ecologically sustainable transport and will allow more people to live and work in a localised area.</p> <p>Continue to lobby for a more comprehensive bus service to link with rail connections and serve broader community needs.</p> |

| Response                                | Action to date   | New actions for Council's consideration   |
|---|--|---|
| <b>Noise</b>                            | The issues relating to noise have not altered since the last comprehensive State of the Environment Report in 2003-04  |   |
| <b>Waste management</b>                 | <p>There is considerable scope for the commercial and industrial waste sector to avoid, reduce and recycle waste. Reasons for poor recycling of commercial and industrial waste in the Shire may include:</p> <ul style="list-style-type: none"> <li>• The lack of an infrastructure on the Central Coast for commercial recycling.</li> <li>• The cost of recycling.</li> </ul> <p>Under the next waste collection and recycling contract, provisions will be made to extend recycling services to business and industries. The service can provide 240 litre recycling bins that can be serviced on an as needs basis. However, the variety of bin types and collection methods required to provide the most flexible system for commercial customers is prohibitive for a domestic waste collection and recycling contract.</p> | <p>Longer term targets include the need to:</p> <ul style="list-style-type: none"> <li>• Divert 50% of domestic waste from landfill by 2010.</li> <li>• Operate better than average cost/tonne benchmark for material landfilled.</li> <li>• Remediate Mardi landfill by 2011, Gwandalan landfill by 2013, and Bellevue Tree Tip by 2014.</li> <li>• Installation of methan extraction and collection system at Buttonderry.</li> <li>• Reach decision on the timing of an alternative waste technology plant</li> <li>• Installation of power generation unit.</li> </ul> <p>Develop new waste avoidance and reduction measures including extension of the recycling scheme to include suitable infrastructure to accommodate and encourage commercial and industrial recycling. Such a program is likely to attract State government support and assistance.</p> <p>Revisit the conditions for development applications to require a recycling system in light of the new waste collection and recycling service.</p> |
| <b>Council's sewerage system</b>        | <p>Council responds to system failures as they occur.</p> <p>Council has established a series of effluent reuse schemes capable of replacing 897ML/a potable water, for non potable uses.</p>  | <p>Adequate investment in infrastructure to reduce incidence of system failure.</p> <p>Investigate further opportunities to increase demand for recycled effluent including local industrial users with high water usage. Ways that might make distribution pipeline networks more accessible may be worth considering.</p>   |
| <b>Liquid trade and hazardous waste</b> | The issues relating to liquid trade and hazardous waste have not altered since the last comprehensive State of the Environment Report in 2003-04   |   |
| <b>On-site sewage management</b>        | The issues relating to on-site sewage systems have not altered since the last comprehensive State of the Environment Report in 2003-04   |   |

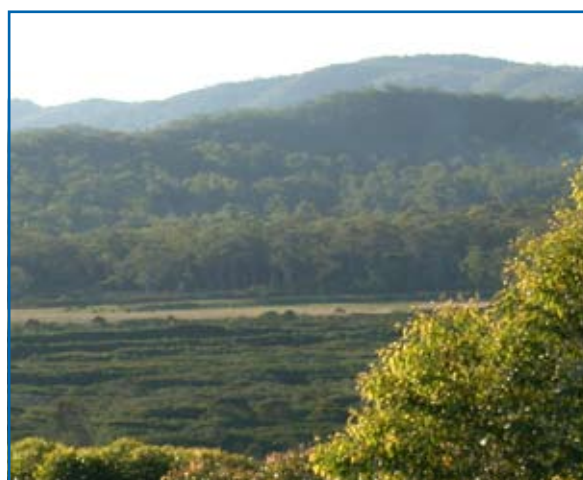
# CHAPTER 3

## LAND

### Introduction

This chapter reports on land management issues by the six major landscape regions in Wyong Shire (comprehensively detailed in the 2003-04 SoE Report). These comprise:

- 3.1 Highlands and Valleys;
- 3.2 Floodplains and Coastal lowland;
- 3.3 Coastline and Wallarah Peninsula.



### Council's Management Plan - where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for land are:

- A better environment – protect and enhance the Shire's natural qualities and move toward true ecological sustainability
- Human settlement, primary production and other land use take place while ensuring sustainability of soil, water and ecosystem resources.

**Table 3.1 Management Plan Actions for Land**

| What were the 2006-07 Actions  | Evaluation  |
|--|---|
| Prepare revised erosion and sedimentation policy on erosion and sedimentation.                     | Draft to be completed by December 2007  |
| Develop guidelines for the implementation of the erosion and sedimentation policy                  | Guidelines will be commenced once the policy review is complete.  |
| Complete preparation of the Coastline Management Study and Draft Plan.                             | The Coastline Management Study and Draft Plan are currently being undertaken. Presently, Council is awaiting advice from DECC regarding an appropriate method for evaluating the hazards along Wyong's beaches. It is anticipated the Draft Plan should be prepared by August 2008. |
| Monitoring of industrial and commercial activities in accordance with environmental audit program. | Program ongoing   |



### 3.1 Highlands and Valleys

| Highlands And Valleys At A Glance |                |                |                |  |
|-----------------------------------|----------------|----------------|----------------|--|
| Model                             | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>                     | Stable         | Stable         | Stable         | At least 65% of Wyong Shire soils continue to be protected by some form of native bushland cover including forestry, National Parks and natural bushland. Many of these areas occur in the valleys and highlands. It is in these areas and other vegetated areas such as wetlands and restored stream banks where valleys soils are not declining.   |
| <b>Pressure:</b>                  | Increasing     | Increasing     | Increasing     | Pressures in the highlands and valleys include: <ul style="list-style-type: none"> <li>• sedimentation;</li> <li>• soil and streambank erosion (due to clearing and domestic stock intrusion);</li> <li>• fertiliser, sewage and chemical pollution of creeks;</li> <li>• grazing and farming practices (such as cattle or turf farms);</li> <li>• mining (gas and coal resources).</li> </ul> |
| <b>Response:</b>                  | n/a            | Fair           | Fair           | Wyong Shire Council, in conjunction with rural landowners and local Landcare groups, rehabilitated over one kilometre of streambank this year (in the areas of Cedar Brush creek, Ravensdale, Palm Grove and Mardi). For more details, see Chapter 5.  |
| <b>Projection:</b>                | n/a            | Stable         | Stable         | The Wyong Coal Project "Wallarrah No.2" should be monitored in the next reporting period.  |

#### The Highlands and the Valleys

The highlands is the area in the south and west of the Shire which forms higher hills and plateaus. Large areas are protected by State Forest (Ourimbah and Wyong) and Conservation Lands. There are also farms and orchards around Kulnura, and rural residential areas around Glenning Valley and Fountaindale.

The valleys are primarily the areas west of the F3 freeway on either side of the freshwater sections of Ourimbah Creek, Wyong River and Jilliby Creek. The valleys include the water supply catchment for the Shire's drinking water. Catchment management initiatives are discussed in Chapter 5.

#### Wallarrah 2 Coal Project Update

As stated in the 2005-06 SoE Report, Kores Australia Pty Ltd (Kores) is the Manager of the Wyong Areas Coal Joint Venture (WACJV) project and is proposing to extract the coal resources in the valleys. The project is known as the Wallarrah No. 2 Coal Project (W2CP).

During the 2006-07 SoE reporting period, planning and studies for the W2CP continued to be prepared. A Preliminary Assessment Report was lodged with the Department of Planning in November 2006, outlining the anticipated issues KORES needed to address in a full project application for approval. Council provided input into this preliminary process to raise key issues with the proposed project.

In June 2007, the Department of Planning established a Strategic Inquiry into Potential Coal Mining Impacts in the broader Wyong LGA. This has delayed the public exhibition of the Environmental Assessment for the current W2CP, but provides a transparent process on broader coal projects proposed in the Wyong LGA that may extend beyond the valleys. It is now anticipated to be completed in December 2007.

For further detail on the W2CP, see [http://www.wallarrah.com.au/project\\_application.html](http://www.wallarrah.com.au/project_application.html)

## 3.2 Coastal Floodplains and Lowlands

| Coastal Floodplains And Lowlands At A Glance |                |                |                |   |
|--|----------------|----------------|----------------|---|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| <b>State:</b>                                | Stable         | Declining      | Declining      | <p>The coastal floodplains surround the lower estuarine parts of Wyong River, Tumbi Creek, Ourimbah Creek and Wallarah Creek and the lowlands are the rolling hills which surround the floodplain.</p> <p>They include the expanding suburbs to the west and north of Tuggerah Lakes such as Mardi, Wyong, Watanobbi, Wadalba, Warnervale, Woongarra, Hamlyn Terrace, Halloran, Kanwal, Gorokan, Charmhaven, Blue Haven, San Remo and Doyalson.</p>   |
| <b>Pressure:</b>                             | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>• Development pressures continue to cause a steady loss of soils and bushland in the lowland and floodplain area.</li> <li>• Altered and increasing stormwater flows threaten natural wetlands and streams.</li> <li>• Large area of the coastal floodplain are covered by the Coastal River Flats and Swamp Sclerophyll Endangered Ecological Communities.</li> </ul>   |
| <b>Response:</b>                             | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>• Council has a policy to minimise development in the floodplain however this is continually placed under development pressure.</li> <li>• Council is encouraging developers to improve water sensitive urban design techniques in the lowland areas through the implementation of DCP2007 Chapters 100 (Quality Housing) and 67 (Engineering Design).</li> <li>• A Water Sensitive Urban Design DCP Chapter and accompanying guidelines and toolkit (similar to the State Government's Managing Urban Stormwater Guidelines) are being prepared by Council and should be ready for exhibition by December 2007.</li> <li>• A broader integrated water cycle management strategy, incorporating significant stormwater harvesting for the Porters Creek floodplain and Lower Wyong River floodplain. Additional flood studies, and floodplain management plans will be undertaken in the near future.</li> </ul> |
| <b>Projection:</b>                           | n/a            | Stable         | Declining      | <ul style="list-style-type: none"> <li>• While the response to the pressures on the coastal lowlands and floodplains is improving, there is still considerable scope for protecting bushland and flood plains through an integrated approach which combines conservation and catchment water cycle planning.</li> <li>• The silting of Tumbi Creek is indicative of what is occurring in other catchments within the Shire. This can be expected to increase in the future, if management practices continue to focus on the symptoms rather than the causes of environmental problems.</li> </ul>  |

## The Coastal Lowlands and Floodplains

The most significant areas of impact on soils are presently in the Coastal Lowlands and Floodplains. The floodplains surround the lower estuarine parts of Wyong River, Tumbi Creek, Ourimbah Creek and Wallarah Creek. This area is fringed by alluvial floodplains containing open water and swamp forest wetlands. In their natural state most of these wetlands would have dried out for periods of time and their plant communities would have adapted to the wet and dry cycles. These wetting and drying cycles are greatly affected by increasing development in the catchment area.

Management of stormwater in the past has altered the wetting and drying cycles of many wetlands and creeks by delivering increased quantities of runoff too frequently to the floodplain. Porters Creek Wetland will receive up to four times the volume of stormwater than it would have before its catchment is fully developed. The ecological implications to these hydrological changes include:

- loss of biodiversity through vegetation changes to altered hydrological regimes and altering the wetting and drying cycles;
- deposition of silt transported from the erosion of the older channels upstream in the Warnervale floodplain;
- altered groundwater recharge in the catchment with the possibility of reduced groundwater flows. (This aspect of wetlands in urban catchments has not been studied in Wyong Shire);
- weed invasion along channels introduced mainly through the stormwater drains leading onto the floodplain. The weeds are transported deep into the wetland displacing the native vegetation; and
- loss of floodplain flood mitigation capacity through soil structure decline and clearing.

## Land Management Initiatives

### Floodplain Studies

Floodplain risk management plans are currently being developed for the Lower Wyong River and Porters Creek. These initiatives incorporate an updating of past flood studies to take into account current projections for climate change scenarios and recent development on the floodplain. Risks are assessed for various flood events as well as the Probable Maximum Flood (PMF) for which safeguards or evacuation procedures are

developed. Current development practices and predicted changes to rainfall patterns and coastal inundation due to climate change will make our floodplains less sustainable for future generations and there is a need for more sustainable practices at present.

### Integrated Water Cycle Management (IWCM)

A broad integrated water cycle management strategy has been developed for both Wyong and Gosford Council areas in conjunction with Plan 2050, a strategic document looking at water supply for the Central Coast for the next 40 years. The IWCM strategy is to guide the integration of water supply, sewer and stormwater strategies for the Shire. The Wyong IWCM Strategy incorporates a significant stormwater harvesting component for the Porters Creek Catchment. This project is continuing with broadscale concept and feasibility studies completed. The stormwater harvesting scheme is centred around facilitating development of the WEZ and Warnervale Town Centre without destroying the Porters Creek Wetland. The project also offers significant water supply at around 5.4 GL/year following full development of the catchment.

### Water Sensitive Urban Design (WSUD)

A Water Sensitive Urban Design DCP Chapter and accompanying guidelines and toolkit are being prepared by Council and should be ready for exhibition around April 2008. The accompanying guidelines and toolkit will be based on the State Government's Managing Urban Stormwater Guidelines which is also in the process of revision but will be applicable to the Wyong Shire. The WSUD DCP Chapter will guide both developers and Council officers in assessing development to install best practice in water sensitive urban design & stormwater management.

### Estuary Management Plan - Lake Research projects

In order to better understand the ecology of Tuggerah Lakes, Council is working with various research partners to examine lake processes and gather information which will help manage the estuary into the future. With the support of an Australian Research Council grant, Council is working with the University of Sydney and a number of other industry partners to examine the impact of seawalls and modified edges on the natural function of the lakes. The project will monitor the impact of modified edges on the benthic organisms (i.e. those that live in the sediment), sediment biochemistry/chemistry, vegetation (i.e. seagrass, macroalgae and wrack) and fouling organisms. The project will continue through 2007 with the outcomes to

be used to help inform better management of the lake edges.

### Dredging of Tumbi Creek

Past development practices in the Tumbi Creek catchment have increased the force of stormwater flows over a number of years, causing significant streambank and bed erosion with the sediment being deposited at the mouth of the creek. The silting of Tumbi Creek is indicative of what is occurring in other developing catchments within the Shire and can be expected in the future, if management practices continue to focus on the symptoms rather than the causes of environmental problems.

During the 2006-07 reporting period, trial dredging was undertaken at the mouth of Tumbi Creek to determine if the method of dredging proposed by the contractor was suitable. Approximately 40-50 cubic metres of material was removed from the channel using a Sea Dump aquatic excavator and dragline. The material was dried on the foreshore and disposed of at Buttoderry Waste Management Facility. Monitoring was undertaken throughout the trial to assess the impact of activities on the surrounding community and environment. Machinery noise was found to exceed acceptable levels and mitigative measures have been devised for subsequent dredging activities. No odour, spoil pH or water quality impacts were detected during the trial. Ongoing monitoring will be undertaken to assess any impacts of subsequent dredging activities on seagrass, macrobenthic assemblages (animals which live in the sediment), saltmarsh, fish, crustaceans and water quality.

Although protection measures were put in place, the trial dredging activities resulted in damage to up to 250 m<sup>2</sup> of saltmarsh vegetation on the foreshore. In response to this, a Saltmarsh Rehabilitation Plan was developed which will see the foreshore regraded to a suitable slope and saltmarsh re-established. The net benefit of this work will be an increased area of saltmarsh community and an opportunity to increase public awareness of these communities through appropriate signage and control fencing. The full-scale dredging is scheduled to commence in July 2007.

Approval was then granted in April 2007 for the full dredging of the creek. As part of the dredging works around 8,000 cubic metres will be removed within the area of the creek mouth (although this change due to the recent storm event). Dredging commenced in June 2007 and will continue until November 2007. Monitoring will also be undertaken during the dredging of the creek to assist in determining the impact of the dredging on

the sensitive estuarine community and Tuggerah Lakes. As the foreshore contains two endangered ecological communities, being Casuarina forest and saltmarsh, these areas will be largely required to be protected during the full dredging works period. Some areas of Casuarina and saltmarsh will be permitted to be removed to allow the movement of vehicles and plant along the foreshore. Some of the removed saltmarsh plants have been taken to Mardi nursery until the completion of works. Upon completion of the works the foreshore area will be required to be rehabilitated. In particular the area located on the eastern bank of the creek will be rehabilitated to create an area of saltmarsh.

### Erosion and Sedimentation Control Audits/ policy review

Erosion and Sedimentation Control Audits are scheduled for July and August 2007. These audits will assess how well individual building lots and subdivisions adhere to Council's Erosion and Sedimentation Control Policy. The audits will inform the review of policy and audit system to be completed by the end of 2007. Guidelines will also be developed to assist with the implementation of the policy.

### Constructed wetlands

Council continues to implement a retrofit program of stormwater treatment devices as well as taking ownership of a number of devices constructed in new release areas. One new wetland was constructed at Finch Place, Bateau Bay (the reserve behind Finch Place). Two large constructed wetlands were built this year as a component of the broader response to integrated stormwater management options and water sensitive urban design (particularly above wetlands).

During the 2006-07 reporting period, the number of constructed wetlands maintained by Council increased from 19 to 22 with \$80,000 spent on maintenance over that period. An additional \$30,000 was spent undertaken crucial restoration works at Nelms Road Constructed Wetland, Blue Haven.

In order to determine how effectively these devices are removing pollutants from stormwater, Council is undertaking an intensive monitoring program which will look at suspended sediment and nutrient removal under a range of weather conditions. The program will be expanded over time to monitor a range of different treatment devices with the information feeding back into improved design.

### 3.3 Coastline and Wallarah Peninsula

The information in this section has been combined to refer to issues that relate to both the general coastline and that area of Wallarah Peninsula that occurs within the Shire. Comments may apply to either or both of these landscape elements as appropriate.

| Coastline And Wallarah Peninsula At Glance |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model                                      | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>                              | Stable         | Stable         | Stable         | <ul style="list-style-type: none"> <li>Wyong Shire's coastline is the narrow strip of rocky headlands, beaches and connecting sand dunes between the ocean and Tuggerah Lakes.</li> <li>The Wallarah Peninsula extends to the northern boundary of the Shire to Lake Macquarie City Council.</li> </ul>  |
| <b>Pressure:</b>                           | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Development pressures continue to place pressure in the coastal areas.</li> <li>As discussed in Chapter 2, the State Government currently has three large residential land release proposals before it:               <ul style="list-style-type: none"> <li>(i) Catherine Hill Bay</li> <li>(ii) Rosecorp</li> <li>(iii) Coal Allied</li> </ul> </li> <li>Predictions of sea level rise and increased storm activity due to global warming suggest there is a risk of continued and increased erosion of the dune and bluff systems in years to come. In 2006-07 a Tsunami warning and large storm event highlight this issue.</li> <li>Investigations into the viability of a desalination plant to supplement town water supplies continue. However, these are now being considered in the context of Council's WaterPlan 2050.</li> </ul> |
| <b>Response:</b>                           | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>Coastcare and Landcare groups continue to undertake valuable dune protection and bushland restoration.</li> <li>The chapter of Council's control plans relating to sedimentation and erosion control is under review to evaluate their effectiveness.</li> </ul>  |
| <b>Projection:</b>                         | n/a            | Stable         | Stable         | <ul style="list-style-type: none"> <li>The Coastline and Wallarah Peninsula will continue to be placed under development pressure.</li> </ul>  |

#### Temporary Desalination Units

As the Central Coast continues to experience the most severe drought on record, dam storage levels continue to fall. New water sources need to be found to supplement our drinking water supply. Temporary desalination is one of many

projects being undertaken to help secure our water supply.

Further detail on Council's Waterplan 2050 is provided in Chapter 2.



## Long Weekend Storm Activity

During the large storm event on the June long weekend 2007, Wyong's beaches escaped significant damage. However, there were a few minor land slips (from a geotechnical perspective) on Wyong's coastal bluffs, particularly Cabbage Tree Harbour.

At Cabbage Tree Harbour, surficial soil slumping occurred causing some back yard structures such as fencing and paving to fall away from one resident's back yard.

Geotechnical experts have stated that the houses on the cliff are safe, however some further back yard structures are not. Work will need to be done to remove these unsafe structures to ensure that no further slips occur. Council continues to monitor the situation and work through all possible options in partnership with the residents, State government and technical consultants, to ensure a safe and practical outcome for the residents and the high hazard landscape.

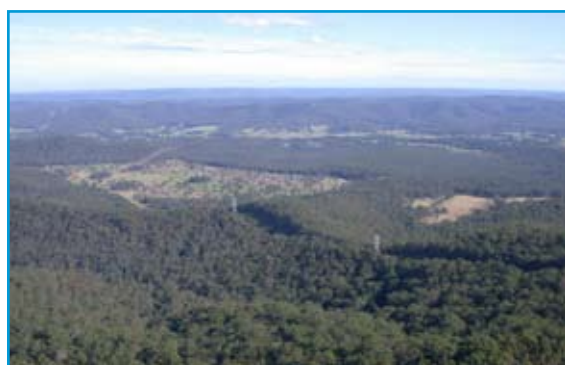
## Council response to Land issues

| Response                                | Action to date  | New actions for Council's consideration   |
|---|---|---|
| <b>High-lands and Valleys</b>           | <p>Council continues to rehabilitate half a kilometre or more each year. Most of this occurs in the water supply catchment, upstream of the weirs.</p> <p>Streambank rehabilitation work plans are currently being developed to identify, prioritise and implement council and community actions.</p>   | <p>Determine the adequacy of rehabilitation program in light of the Catchment Management Authority's 2008 Regional Management Target of 111km for revegetation of streambanks in the Hunter-Central Rivers area, of which Wyong Shire is a part.</p>  |
| <b>Coastal Lowlands and Floodplains</b> | <p>Tumbi Creek dredging trial undertaken.</p> <p>Floodplain Management Plans are currently being prepared by Council for Wyong River, Ourimbah Creek, Tuggerah Lakes and Tuggerah Creek. Studies are currently concentrating on Wyong River and Tuggerah Lakes with funding recently being obtained from Department of Natural Resources for studies on Porters Creek.</p> <p>The Water Sensitive Urban Design chapter of the DCP is currently being drafted by Council</p> <p>Sediment and erosion control audits of domestic construction building sites recommenced throughout 2005-06. Issues relating to the compliance levels of builders on subdivision projects remain unresolved.</p> <p>Acting under the <i>Protection of the Environment Operations (POEO) Act</i>, Council Health officers issued 128 Clean up Notices or warnings in relation to sediment and erosion control on building sites.</p> | <p>Tumbi Creek stream management is required to prevent the high levels of siltation from continuing.</p> <p>Improvement in the Shire's lakes and streams can be expected once funding is forthcoming to implement programs identified within the Floodplain Management Plans. Floodplain management policy is required that pushes for far greater sustainability in lieu of predicted climate change scenarios and past development.</p> <p>Adoption of the DCP chapter and guidelines will help mitigate stormwater impacts of future urban development however, it will take some years to observe the effectiveness of these strategies.</p> <p>Policy review required determining level of commitment and resources to address the effectiveness and shortfall in sediment and erosion control of subdivisions.</p> |

| Response  | Action to date  | New actions for Council's consideration   |
|---|---|---|
| <b>Coastal Lowlands and Floodplains (cont.)</b> | <p>Council is currently developing a stormwater harvesting scheme for the whole of Porters Creek Catchment. The scheme involves:</p> <ul style="list-style-type: none"> <li>extensive water sensitive urban design (WSUD) for new developments</li> <li>retrofit of WSUD elements to existing developments;</li> <li>a significant stormwater harvesting scheme to collect, treat and reuse excess stormwater; and</li> <li>diversion of this stormwater around Porters Creek Wetland to Wyong River to eventually augment the shire's potable water supply by up to 5.4gL/year.</li> </ul> <p>Council has obtained Federal funding of \$2.6 million to support the development of the Stormwater Harvesting Program.</p> | <p>Implementation of this scheme should address the expected increase in stormwater discharged to Porters Creek Wetland and associated impacts from the continued development in the catchment.</p> <p>Concept and feasibility studies have been completed with the program moving to design, risk assessment and environmental impact assessment for the 2007-08 year.</p> |
| <b>Coastline and Wallarah Peninsula</b>         | <p>Valuable dune protection and bushland restoration is being undertaken by Coastcare and Landcare groups.</p> <p>The Coastline Management Study and Draft Plan are currently being undertaken. Presently, consultants are refining the coastline hazard studies.</p> <p>Continued monitoring of development pressure in the northern part of the Shire.</p>  | <p>DEC and Wyong Council continue to collaborate to treat Bitou Bush.</p> <p>Continue to work on the Coastline Management Study as a priority project. (Anticipated completion 2007-2008)</p>   |



Floodplain



Highlands



Coastline

Wyong Shire has many diverse landscapes from the valleys and highlands to its vast coastline.

# CHAPTER 4

## AIR QUALITY and CLIMATE CHANGE

### Introduction

This chapter reports on air quality and climate change.

| Air Quality And Climate Change At A Glance |                |                |                      |   |
|--|----------------|----------------|----------------------|---|
| Model                                      | Rating 2004-05 | Rating 2005-06 | Rating 2006-07       | Comment   |
| <b>Air Quality</b>                         |                |                |                      |   |
| <b>State:</b>                              | Stable         | Stable         | Stable/<br>Declining | <ul style="list-style-type: none"> <li>Air quality has not previously been a major health issue in Wyong Shire, however, there are early indications that air quality across the Shire may be declining</li> <li>Additional air quality monitoring may provide clearer picture.</li> <li>60 air pollution incidents were reported to the DECC/ EPA Environment Line throughout 2006-07.</li> <li>A total of 27 air quality complaints were received by Council during the 2006-07 reporting period. This included 18 complaints where odour was also an issue of concern.</li> <li>Ambient air pollution data for Wye indicates a continuing upward trend in particulate matter, although NO<sub>2</sub> and SO<sub>2</sub> are well within the standards.</li> <li>Fine particulate matter data averaged over the year exceeds the NEPM advisory reporting guideline of 8µg/m<sup>3</sup>.</li> <li>Central Coast Health air quality data indicated three exceedences in particulate matter air quality levels over the reporting period. This was thought to be due to bushfire or backburning activities.</li> </ul> |
| <b>Pressure:</b>                           | Increasing     | Increasing     | Increasing           | <ul style="list-style-type: none"> <li>Continued demand for electricity generation by power stations fuelled by burning of coal will impact on air quality.</li> <li>Emissions from the energy sector have increased 22% between 1996-2005 (TAI 2006)</li> <li>Transport is a significant source of particulate matter, as well oxides of nitrogen and volatile organic compounds.</li> <li>The Shire residents' increasing dependency on motor vehicles is resulting in increased emissions.</li> </ul>  |

| Air Quality And Climate Change At A Glance (cont) |                |                |                      |  |
|---|----------------|----------------|----------------------|--|
| Model   | Rating 2004-05 | Rating 2005-06 | Rating 2006-07       | Comment  |
| <b>Air Quality (cont)</b>                         |                |                |                      |  |
| <b>Response:</b>                                  | n/a            | Fair           | Fair                 | <ul style="list-style-type: none"> <li>• DECC and Council respond to air quality complaints as they occur.</li> <li>• Council continues to implement its Cycleway Plan to provide alternatives to private vehicle travel.</li> <li>• State Government Amendment to the <i>Protection of the Environment Operations (Clean Air) Regulation</i> to review the adequacy of older emission standards.</li> <li>• Installation of the fabric filters at Vales Point power station is on target to address air quality concerns about visible stack emissions.</li> <li>• Civil works on the Lake Munmorah gas generating power station have commenced.</li> </ul>   |
| <b>Projection:</b>                                | Stable         | Stable         | Stable/<br>declining | <ul style="list-style-type: none"> <li>• The trend is showing increased particulate matter over time. This has implications for future air quality.</li> <li>• Continued monitoring of ambient air quality will reveal any changes to the trend.</li> <li>• An increase in the risk of more bushfires due to climate change could eventually impact on air quality.</li> <li>• Our dependence on private vehicle use may result in poor air quality being a sustainability issue for the future.</li> <li>• Fabric filters at Vales Point will result in a significant decrease in plume visibility and perhaps a small decrease in ambient particulate levels. They will not affect NOx and VOC levels - which are the dominant contributors to ambient concentrations and are transport related emissions.</li> <li>• The proposed coal mine in the Dooralong and Yarralong valleys and its associated infrastructure in the north of the Shire has the potential for coal dust issues to be an issue of concern in the future.</li> </ul> |
| <b>Climate Change</b>                             |                |                |                      |  |
| <b>State:</b>                                     | Declining      | Declining      | Declining            | <ul style="list-style-type: none"> <li>• Levels of greenhouse gases are increasing at double the speed they were in the 1980's (CSIRO 2006).</li> <li>• National greenhouse gas emissions have increased 13% since 1996.</li> <li>• The IPCC 4<sup>th</sup> Assessment Report re-affirms the increasing evidence of global warming.</li> <li>• A CSIRO report (2006) indicates a temperature rise of 0.9°C for NSW, between 1950 and 2003, with more hot days (over 35°C) and nights and fewer cold days/nights.</li> <li>• Australian average temperature for 2006 was cooler than for 2005, the nation's warmest year on record (1.06°C above normal).</li> </ul>  |
| <b>Pressure:</b>                                  | Increasing     | Increasing     | Increasing           | <ul style="list-style-type: none"> <li>• National per capita energy consumption is increasing.</li> <li>• Emissions from the energy sector have increased 22% between 1996-2005.</li> <li>• Transport is the second fastest growing source of greenhouse gas emissions, a major cause of global warming and climate change.</li> </ul>   |

| Air Quality And Climate Change At A Glance (cont) |                |                |                |   |
|---|----------------|----------------|----------------|---|
| Model   | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| <b>Climate Change (cont.)</b>                     |                |                |                |   |
| <b>Response:</b>                                  | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>• Council has adopted a suite of measures to respond at a local scale to climate change:               <ul style="list-style-type: none"> <li>- Develop an over-arching sustainability decision-making frameworks</li> <li>- Initiate a risk assessment process</li> <li>- Implement the Energy Savings Action Plan</li> <li>- Increase proportion of GreenPower purchased</li> <li>- Participate in GreenFleet program</li> <li>- Review environmental planning instruments and policies</li> <li>- Review the Fleet Policy</li> <li>- Undertake an in-house Education and Training program</li> </ul> </li> <li>• The Department of Planning is developing high resolution terrain mapping data for the Hunter and Central Coast to identify the vulnerability of the built environment to various sea level rise scenarios.</li> <li>• The Local Government and Shires Association has developed a Climate Change Mitigation and Adaption Project to assist local governments to respond appropriately to the risks of climate change.</li> <li>• Hunter Central Coast Regional Environment Management Strategy (HCCREMS) has been funded to undertake a workshop series to investigate climate change mitigation and adaptation measures at a regional scale.</li> </ul> |
| <b>Projection:</b>                                | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>• An adaptive response to reduce the impacts of climate change is steadily being addressed by Council.</li> <li>• Strong mitigation measures are necessary if serious consequences are to be avoided or minimised.</li> </ul>  |

## Council's Management Plan - where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for air quality and climate change management are:

- A better environment – protect and enhance the Shire's natural qualities and move toward true ecological sustainability
- Air quality ensures the health of current and future generations.



*Motor vehicles are a major contributor to greenhouse gas emissions.*



**Table 4.1 Management Plan Actions for Air Quality and Climate**

| What were the 2006-07 Actions  | Evaluation   |
|--|--|
| Complete the Energy Saving Action Plan   | Energy Saving Action Plan submitted to DEUS for review               |
| Commence implementation of cost-effective actions identified in the Energy Saving Action Plan        | Implementation commenced. Energy Management Review team established. |
| Monitoring of industrial and commercial activities in accordance with environmental audit programme. | Programme ongoing  |

## Air quality

Air quality has not previously been considered a major concern in Wyong Shire. Local contributions from industry add to pollutant loads from the regional air shed, while urban development and increasing transport demand bring with it added air pollution pressures. Council has received ambient air quality data from Delta Electricity monitoring stations at Wyee and Lake Munmorah since 1993 and from Central Coast Public Health Unit's monitoring station at Tuggerah since 2004-05.

These data give an indication of the volume of fine and coarse particles in the air resulting from local traffic, wind-driven pollution from surrounding areas and proximal urban and industrial areas (e.g. Newcastle) and fallout from the power stations. Trend data is indicating that air quality across the Shire may be declining due to increasing fine particulate matter. It is to be noted that this data is ambient data and therefore it is not possible to determine the exact source of the pollution. However, the northern part of the Shire will be a focus for further industrial and urban development in the future and hence any increase in particulate matter may exacerbate the air quality issue.

In NSW transport is the second fastest growing source of greenhouse gas emissions. Transport is also a significant source of particulate matter, as well as oxides of nitrogen and volatile organic compounds. The latter two combine to the build up of ground level ozone which is known to be harmful to human health (NSW SoE 2007).

60 air pollution incidents were reported to the DECC/EPA Environment Line where the EPA, rather than Council was the Appropriate Regulatory Authority (ARA) for the incident. Generally Councils will not have a role in managing or responding to these reports but upon request DECC/EPA will provide the data for SoE reporting.

During the 2006-07 reporting period 27 air quality complaints were made directly to Council. These

included 18 complaints where odour was also an issue of concern. This compared with five air quality complaints to Council last year.

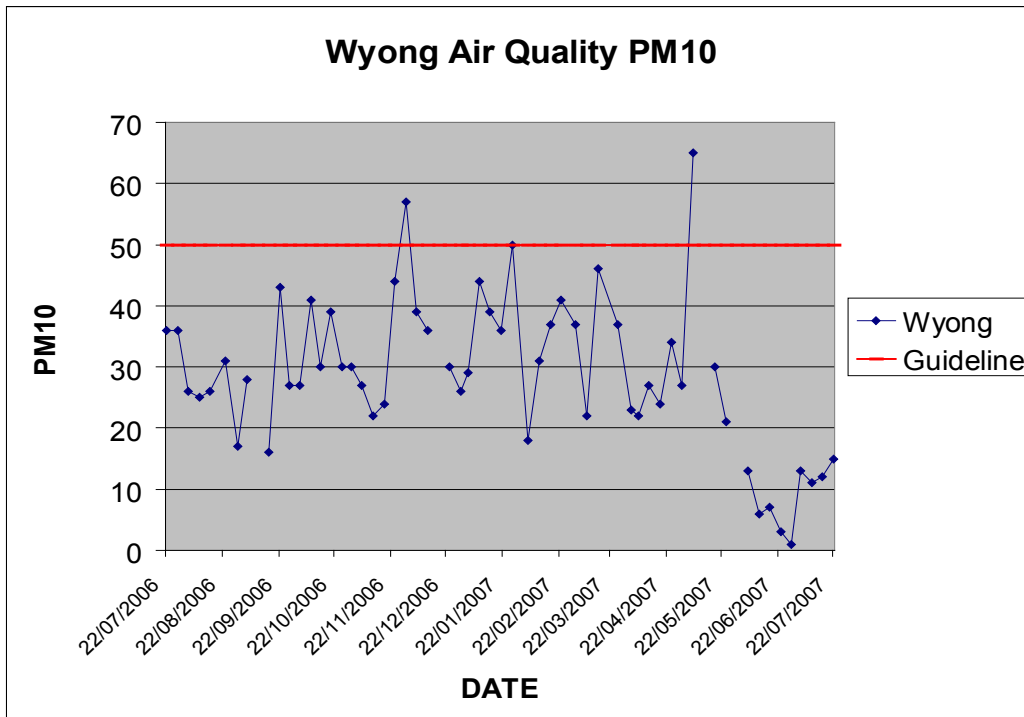
### Central Coast Health Air Quality Monitoring

Central Coast Health has two ambient air quality monitoring stations across the Central Coast which monitor particulate matter (PM<sub>10</sub>) data. Figure 4.1 shows air quality data for the reporting period from the station located at the Tuggerah Treatment Plant.

The monitoring of PM<sub>10</sub> is undertaken jointly by Gosford and Wyong Councils and the Public Health Unit (PHU). The PHU undertakes the monitoring with the cooperation of Newcastle University's Ourimbah campus. The national standard for particulate matter (PM<sub>10</sub>) is 50µg/m<sup>3</sup> over a 24 hour period. The NEPC allows five exceedences per annum. The annual average for Wyong was 28.0µg/m<sup>3</sup>. The maximum 24 hour level was exceeded on three occasions in Wyong during the reporting period. These occurred in November 2006 (57µg/m<sup>3</sup>), January 2007 (50µg/m<sup>3</sup>) and May 2007 (65µg/m<sup>3</sup>). Central Coast Health advises the three recorded exceedences were probably due to the effects of localised bushfire or back-burning as the higher levels were also recorded at the Gosford monitoring station.

Scientific projections for potential impacts of climate change include an increase in the number and intensity of bushfires. Hence, there are implications for a decrease in air quality should this projection prove true.

The National Environment Protection Measure (NEPM) commenced in July 2003 with the purpose of establishing a nation-wide set of acceptable monitoring protocols, standards and goals for ambient air quality. This includes carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), sulphur dioxide, lead and particles as PM<sub>10</sub> (i.e. particles with a diameter of 10 micrometres or less). A recent review of the NEPM has seen an advisory reporting standard included for PM<sub>2.5</sub>. The NEPM guidelines have been applied to the data provided by delta between 1993 and 2006 where possible.



Central Coast Health (2007) pers comm.

**Figure 4.1 Ambient Air Quality monitoring station at Tuggerah Treatment Plant**

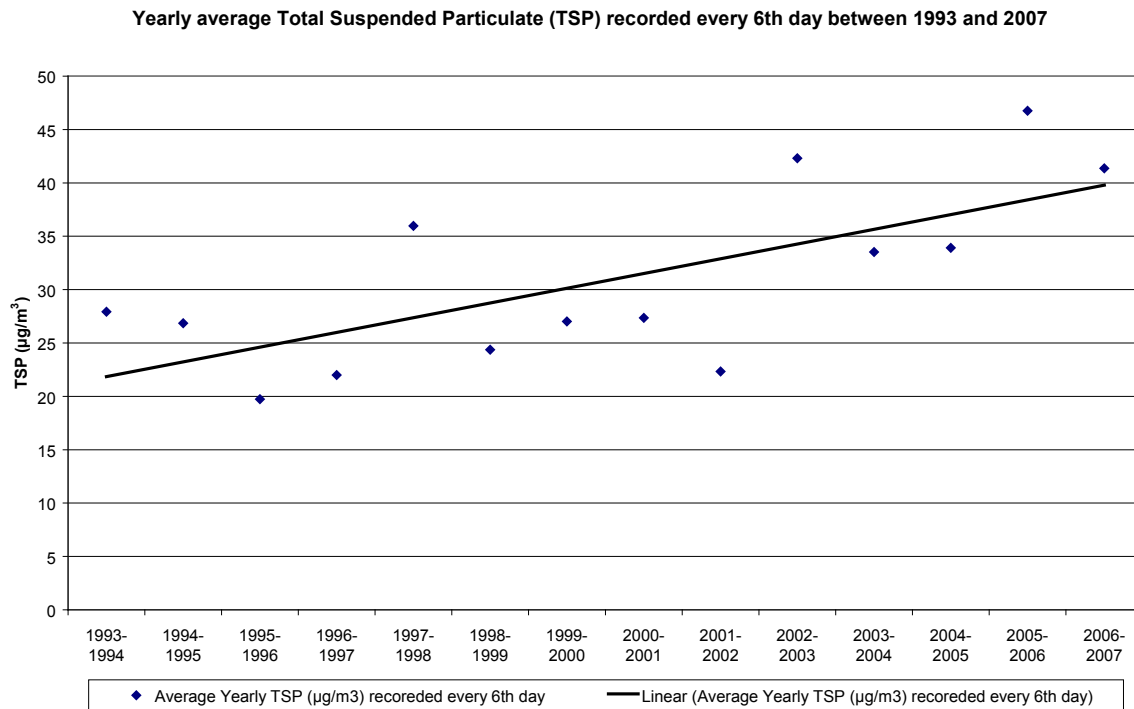
### Electricity Generation

Delta Electricity maintains two coal-fired power stations in Wyong Shire, the first at Vales Point, which is in full-time operation and the second at Munmorah, which is on standby most of the time. Delta provides Council with ambient air quality data collected from monitoring stations at Wyee and Lake Munmorah. These data include total suspended particulate (a combination of both fine and coarse particle pollution), fine particulate 2.5 micrometres (µm) or less in diameter (PM<sub>2.5</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulphur dioxide (SO<sub>2</sub>). Data on oxides of nitrogen (NOx) are also provided however there are no established standards for these data under the National Environment Protection Measure (NEPM).

State of the Environment Report 2006/07

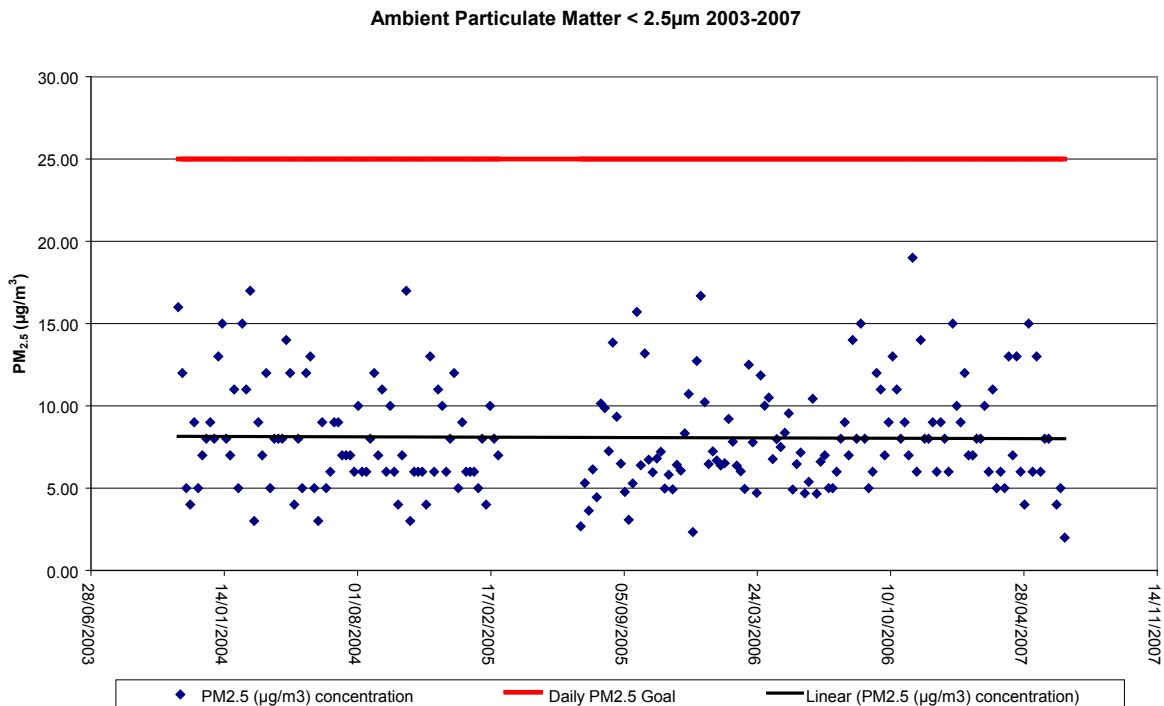
### Air quality at Wyee Ambient Air Quality Monitoring Station

Monitoring of total suspended particulate (TSP) at Wyee has been reported to Council since 1993. In this time there has been a steadily increasing trend in the level of airborne particulate pollution. It is to be noted that this data is ambient data and therefore it is not possible to determine the exact source of the pollution. (Figure 4.2).



**Figure 4.2 Average Yearly Total Suspended Particulate (TSP) recorded at Wyee between 1993 and 2007.**

Ambient fine particulate matter ( $PM_{2.5}$ ) for the Wyee monitoring station has also been provided to Council in recent years following the implementation of the new NEPM advisory reporting guideline. Figure 4.3 indicates a very slight decrease in fine particulates over the past 2½ years. The daily  $PM_{2.5}$  advisory standard ( $25\mu\text{g}/\text{m}^3$ ) was not exceeded on any one day during the 2006-07 reporting period. The daily average level was  $19\mu\text{g}/\text{m}^3$ .



**Figure 4.3 Ambient  $PM_{2.5}$  between November 2003 and June 2007.**

However, averaged over the 12 month period, the PM<sub>2.5</sub> concentration at Wyee was 8.54µg/m<sup>3</sup> which was slightly above NEPM annual advisory standard of 8µg/m<sup>3</sup>. The elevated concentrations, if sustained over the long term, could have implications for air quality in Wyong Shire.

As we continue to establish a more extensive database for fine particulate materials over the coming years we will be able to more clearly identify long-term air quality trends in the Shire.

SO<sub>2</sub> and NO<sub>2</sub> concentrations at Wyee have remained well below the NEPM daily goal since data collection commenced in 1994. Ambient concentrations of these pollutants have remained fairly steady since reporting began with a slight increase in NO<sub>2</sub> observed. Graphs have been excluded this year as the information does not indicate a significant change.

For the 2006-07 reporting period, the yearly average SO<sub>2</sub> was 0.001ppm and remained well below the NEPM guideline of 0.020ppm. A yearly average for NO<sub>2</sub> could not be determined from the data provided.

#### Air quality at Lake Munmorah Ambient Air Quality Monitoring Station

The monitoring station at Lake Munmorah is used to record only SO<sub>2</sub>, NO<sub>2</sub> and NOx. During the 2006-07 reporting period, ambient concentrations of these pollutants remained well below the daily NEPM goal. This continues a steady decline in concentrations of these pollutants since recording began in 1994 and 2000 respectively. The yearly average SO<sub>2</sub> remained well below the NEPM guideline and the NO<sub>2</sub> yearly average could not be calculated from the data provided. Graphs have been excluded this year as the information does not indicate a significant change.

#### Power Station Response

Measures to reduce the environmental footprint of the State's power stations are being addressed through an amendment to the Protection of the Environment Operations (Clean Air) Regulation which introduced a framework to review the adequacy of older emission standards applying to existing industry (NSW SOE 2007).

As a result Delta Electricity, along with other power stations, is undertaking upgrades to its emissions control equipment through introduction of more modern technology (NSW SoE 2007). Delta is installing fabric filters at Vales Point power station. The fabric filters offer a significant improvement for visible dust removal than existing electrostatic precipitators. The \$52 million project is scheduled for completion by December 2007.

High greenhouse gas emissions and air pollutants will always be a consequence of coal burning electricity generation. In order to reduce emissions and the overall environmental impacts of current practices, new power stations will be required to incorporate modern emissions control and cleaner, alternative energy sources (NSW SoE 2007).

Hence, the intention to build a 300 megawatt natural gas-fired plant at Lake Munmorah in 2005 was timely. The new gas-fired electricity generating power station has been approved and the civil work has commenced.



*Delta Electricity*

Air pollution can impact on the health of plants, animals and humans, particularly those who already suffer from respiratory illnesses. Sulphur dioxide, a product of natural and man-made reactions can be corrosive to plant and animal tissues and may exacerbate respiratory conditions. Nitrogen dioxide, a powerful greenhouse gas also acts in the formation of photochemical smog and is a respiratory irritant. Suspended particulate matter, comprising gaseous, solid and liquid particles suspended in the air, can be trapped in the nose and throat or lungs (depending on the particle size) and may irritate these areas. For further information on these pollutants visit <http://www.epa.nsw.gov.au/environ/princairpol.htm>

## Climate Change

Since the previous reporting period in 2005-06, politicians, businesses and the general public have more readily accepted the evidence about climate change. There are three major reasons this has occurred:

1. The Stern Review, by Sir Nicholas Stern, the former World Bank chief economist from the UK who outlined that to delay mitigative and adaptive actions toward climate change would far exceed, on a global scale, the cost of early intervention. Stern indicated that the world's economies could avoid a 20-fold increase in costs if they responded quickly to the threat of climate change.
2. The worldwide release of Al Gore's 'An Inconvenient Truth' – this documentary has done much to bring the issue of climate change into the homes of everyday people to initiate discussion and empower people to make individual changes to reduce their carbon footprints.
3. Public realisation and concern over the effects and implications of the continuing drought here in Australia and the increasing number and intensity of extreme weather events overseas, for example hurricane Katrina.

## Latest Scientific Evidence – The 4<sup>th</sup> IPCC Report

In February 2007 the Intergovernmental Panel on Climate Change (IPCC) released the 4<sup>th</sup> Assessment Report which built on and re-enforced the findings of the Third Assessment Report (TAR) from 2001 and provided greater confidence for future projections and scenarios.

The following table shows the conclusions of current and previous IPCC assessments. The projections outlined in the current Report reflect a greater confidence in observed increases in temperature and the contribution of human activity to the concentration of greenhouse gases in the atmosphere. The top end of the range for projected warming has increased to a 6.4°C increase against 1990 levels (previously 5.8°C) and sea level rise projections have decreased from a top end of 88cm to 59cm by 2095 relative to 1990 sea levels.

|   | 1990   | 1995  | 2001   | 2007   |
|---|--|---|--|--|
| Has the climate changed (recent global warming) | Highly likely (0.6°C since 1880s)  | Yes (0.3-0.6°C since 1880s)   | Yes (0.4-0.8°C since 1880s)  | Yes (0.74°C since 1880s)   |
| Human influence on recent warming               | Unequivocal detection of human influence on climate "not likely for a decade or more." | "Balance of evidence suggests a discernable human influence on global climate." | "... most of the warming observed over the last 50 years is attributable to human activities." | "... most of the observed increase in the globally averaged temperature since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" |
| Projected warming                               | Warming "certain" in years ahead: ~0.2 – 0.5°C/decade (2-5°C by 2100)                  | 1-3.5°C by 2100   | 1.4-5.8°C by 2100  | 1.8°C – 6.4°C by 2100  |
| Projected sea level rise                        | 3-10cm/decade (~30-100cm by 2100)  | 13-94cm by 2100   | 9-88cm by 2100   | 18-59cm by 2100  |



There is concern that the IPCC have reduced sea level rise projections in the current report. CSIRO scientists, studying data from satellites and tide gauges have found that from 1993-2003 the rate of sea level rise was about 3.1mm/year. This is well above the average rate of 1.7mm/year over the 20<sup>th</sup> century and tracks the upper trajectory towards an 88cm rise by 2100 (Rahmstorf, S., Cazenave, A., Church, J.A. et al (2007), cited in ECOS (2007). It is not yet known whether this reflects natural decadal variability or an accelerated rate in sea level rise. The IPCC admit they have not included the full effects of changes in ice sheet flow, believing there was insufficient evidence to support the research. They have placed a 10-20cm caveat on their projections due to the possibility of increasing loss of ice from Greenland and, to a lesser extent Antarctica, bringing them close to the TAR top end projections of 88cm (IPCCa 2007). There is concern that the IPCC projections may be misleading and understate the severity of the issue.

## In Australia

The National Greenhouse Accounts (2005) figures show Australian greenhouse gas emissions decreased slightly during 2004-05 due to a decline in metal production and prescribed burning of savanna and an increase in forest sinks. However, overall greenhouse emissions have increased 13% since 1996 with emissions from the energy sector rising 22% from 1996-2005 (TAI 2007).

## Australian climate is changing

Australian annual mean temperatures have increased by approximately 0.9°C since 1910, consistent with a global mean temperature increase of between 0.7°C and 0.8°C since 1900. Australian average temperature for 2006 was cooler than for 2005, the nation's warmest year on record (1.06°C above normal). Factors such as the El Niño-Southern Oscillation will influence the year to year variability in annual temperatures. This will occur despite the apparent and consistent warming trend in Australian temperatures. The El Niño was the dominant cause of the drought in 2006 in the southeast of Australia. The decline in rainfall was consistent with a 50 year trend for declining rainfall across eastern and southern Australia, while the northwest has seen an increase in rainfall (BOM 2007).

A CSIRO report (2006) indicates a temperature rise of 0.9°C for NSW, between 1950 and 2003, with more hot days (over 35°C) and nights and fewer cold days/nights. It also reported a 14mm/year decline in rainfall per decade for the same

period with the largest declines seen in the coastal area due to an increase in El Niño years during the mid 1970s. The report predicted that by the year 2030:

- NSW is likely to become warmer than it was around 1990
- There will be more hot days over 35°C and fewer frost days below 0°C
- Annual rainfall is likely to decline
- Rainfall runoff and stream flows will be reduced
- Droughts are likely to become more severe
- The risk of bushfires is likely to increase
- Extreme rainfall may become more intense in central and southeast NSW

## Responses

It is now clear that we need to do two things:

1. Begin to plan to adapt to some of the consequences of climate change, and
2. Introduce strategies to minimise the release of greenhouse gases and slow down the rate of global climate change.

Adaptation measures based on a risk management approach will reduce some of the negative social, environmental and economic impacts of climate change. The following are examples of potential adaptation measures:

- Improving water-use efficiency, recycling and public education about water usage
- Implementing early-warning and public communication systems for heat waves
- Designing energy efficient buildings
- Retrofitting old, and designing new, infrastructure to cope with climate change
- Reviewing flood and fire management arrangements
- Reviewing coastal zone management practices
- Maintaining green spaces and ecological refugia in urban areas (CSIRO, 2006)

## Federal Government Response

Federal Government has announced a number of significant climate change adaptation measures during the 2006-07 reporting period. These include:

- establishment of a mandatory national greenhouse gas emissions and reporting system, although uncertainty remains as no set targets for greenhouse gas reduction have been set
- adoption of the Australian Greenhouse Office' National Climate Change Adaptation program

commitment of \$126 million for an Australian Centre for Climate Change Adaptation to help state and local authorities apply assistance to priority areas and

- a \$44 million CSIRO-led Climate Adaptation Flagship to provide detailed research on localised climate changes and alternate energy sources (Ecos 2007)

### State Government Response

The NSW Greenhouse Plan (2005) outlines the NSW response to climate change. The plan focuses on three main areas:

- Awareness raising;
- Adapting to climate change; and
- Reducing emissions.

The Plan, which can be viewed on [www.greenhouse.nsw.gov.au](http://www.greenhouse.nsw.gov.au), outlines the actions required of the Government to meet its long-term reduction targets: the return to year 2000 greenhouse emission levels by 2025, and a 60% cut in greenhouse emissions by 2050. Some of these actions include:

- The NSW Greenhouse Gas Abatement Scheme;
- The Building Sustainability Index (BASIX)
- Native vegetation reforms; and action plans and savings funds for energy and water

During the 2006-07 reporting period the NSW Department of Planning Coastal Branch (with funding from the Department of Environment and Climate Change) has undertaken a pilot study using LIDAR technology to provide high resolution terrain mapping data for the Hunter and Central Coast. The data is being distributed to the relevant LGAs and will be capable of being queried to identify areas vulnerable to a variety of sea level rise scenarios. It has the potential to greatly increase state government and local councils' understanding of the risk of rising sea levels to current and proposed urban infrastructure in low-lying coastal areas. This information may be used in consideration of appropriate adaptation measures to protect important existing infrastructure, such as water and sewer pump stations and pipelines or roads; and to avoid wrongful placement and investment in future infrastructure.

### A Regional or Local Government Response

There have been a number of regional or local government programs instigated during the 2006-07 reporting period:

- The Local Government and Shires Association (LGSA), with funding from the NSW Government have undertaken a Climate Change Mitigation and Adaptation Project. The project has included a gap analysis survey to establish the level of assistance required among local councils to initiate their climate change response. This has been followed by establishment of a steering committee and extensive discussion and research resulting in the development of a web-based Climate Change Action Pack (due for release in August 2007).
- Waverley Council prompted the establishment, through the LGSA, of the NSW Mayoral Agreement on Climate Change. By signing the agreement local councils across NSW agree to "meet or beat" greenhouse reduction targets assigned to Australia by the Kyoto Protocol, by pursuing ambitious targets of up to 30% in their operations and activities.
- The Hunter-Central Coast Regional Environmental Management Strategy (HCCREMS) has developed a climate change program. This includes:
  - a series of climate change forums for its Hunter and Central Coast Councils members and,
  - the undertaking (in collaboration with the University of Newcastle), of a research project which will provide a review of local weather patterns to assist in identifying the potential regional and local scale impacts of climate change in the Hunter, Central and Lower North Coast Region.

The transport sector is the fastest growing source of greenhouse gas emissions and a large contributor to local air pollution.



- Earth Hour - More than 2 million Sydney residents and over 2,000 businesses showed their support for Earth Hour on Saturday March 31 between 7.30 and 8.30 by flicking the switch, turning appliances off stand-by and enjoying an hour of quiet darkness. According to Energy Australia this resulted in an impressive 10.2% drop in energy usage across the CBD and represents a reduction of 24.86 tonnes of carbon dioxide - the equivalent of taking 48,613 cars off the road for an hour. Earth Hour was initiated by WWF-Australia and is the start of an ambitious campaign to cut Sydney's greenhouse gas emissions by 5% by March 2008.

### Wyong Shire Council Response

During the 2006-07 reporting period Council made significant gains in acknowledging and responding to the issue of climate change. In January 2007, Council supported the recommendations of a staff report which outlined the latest research in relation to climate change. It resolved to initiate a response to the threat of projected changes to climate in the coming years. The following actions are currently being undertaken or are proposed to be undertaken progressively over the next three years:

- Develop an over-arching sustainability decision-making framework  
To facilitate better informed decisions on sustainability issues such as adaptation to climate change, energy reduction strategies. See Chapter 1 – Sustainability 'Urban Sustainability Program'
- Initiate a Climate Change Risk Assessment process  
To undertake a risk management approach to identify those areas of Wyong Shire's operation and geography at greatest risk and develop a suitable suite of relevant adaptation measures.
- Implement an Energy Savings Action Plan  
Council submitted its first Energy Savings Action Plan in March 2007. Council has established an Energy Management Review team to administer and prioritise energy reduction actions outlined in the Plan. It has also begun to develop an Energy Management Policy with reduction targets applied to relevant Council facilities based on their energy consumption.
- Increase proportion of GreenPower purchased  
Council has committed to increasing its greenpower contribution for non water and sewer related use from 6 to 25% by 2008 with further increases from 25 to 50% by 2020. Council will increase its greenpower component for the water and sewer

related use from 6 to 10% by 2008 with a further increase from 10 to 15% by 2020.

- Participate in GreenFleet program  
Council is a participant in the Greenfleet program, which is designed to plant trees to offset carbon dioxide emissions for the entire Council fleet, including its small plant and equipment. The Wyong program involves planting of 18,000 trees per year at a cost of \$42,138 pa. The first stage of the program entails planting trees at the Pioneer Dairy site in late 2007.
- Reviews of planning instruments and policies  
To review policies and plans such as Flood Prone Land Development policy, Floodplain Risk Management Plans and Wyong Local Environmental Plan 1991(LEP).
- Review Fleet Policy  
Council is continually seeking ways to increase the proportion of 4 cylinder and LPG cars in its transport fleet and thereby reducing greenhouse emissions. Changes to the Fleet Policy due in July 2007 will encourage further uptake of the smaller vehicles by providing increased monetary incentives.
- Undertake Education/Training  
To engage the community and build their capacity to respond individually and as a community to climate change, e.g. Sustainability St program, Green Living booklets, interactive workshops.



*An integrated system of public transport, walkways and cycleways can help to reduce our reliance on private vehicle use.*

## Council responses to Air Quality and Climate issues

| Response                     | Action to date  | New actions for Council's consideration   |
|------------------------------|---|---|
| <p><b>Air Quality</b></p>    | <p>Council continues to be involved with the Central Coast Transport Working Group regarding implementation of the CC Transport Action Plan, although the predominant focus remains on improving roads rather than public transport.</p> <p>Council responds to complaints as they occur.</p>   | <p>Investigate the feasibility of establishing Council's own air quality monitoring stations across the Shire.</p> <p>Consider the health and air quality benefits of walking and cycling in planning decisions.</p> <p>Focus emphasis on public transport and urban design which reduces our dependence on cars and encourages cycling and walking and other means of transport with more efficient fuels.</p> <p>Consider the excessive noise and health impacts of transport and air emissions when undertaking subdivision design.</p> <p>Ensure air quality is considered if/when any coal mining proposal is presented to Council</p> |
| <p><b>Climate Change</b></p> | <p>See main body of text for details about Federal and State Government climate change initiatives.</p> <p>Council is steadily improving its response to the issue of climate change. Council has adopted the following suite of measures to respond at a local scale:</p> <ul style="list-style-type: none"> <li>• Develop an over-arching sustainability decision making framework</li> <li>• Initiate a risk assessment process</li> <li>• Implement the Energy Savings Action Plan</li> <li>• Increase proportion of GreenPower purchased</li> <li>• Participate in GreenFleet program</li> <li>• Review environmental planning instruments and policies</li> <li>• Review the Fleet Policy</li> <li>• Undertake an in-house Education and Training program</li> </ul> <p>See other initiatives detailed in Transport section of Chapter 2.</p> <p>Council will implement the Energy Savings Action Plan to improve efficiency of the high energy consuming facilities while simultaneously reducing greenhouse gas emissions.</p> <p>The Local Government and Shire's Association's Climate Change Mitigation and Adaptation Project.</p> <p>HCCREMS is undertaking a climate change mitigation and adaptation program at the regional scale</p> | <p>Council can continue to act locally to show community leadership.</p> <p>The potential impacts of climate change on our local communities need to be adequately considered in Council's planning policies, such as the soon to be reviewed LEP.</p>  |



# CHAPTER 5

## WATER and CATCHMENT MANAGEMENT

### Introduction

This chapter reports on water and catchment management issues, in the context of human health and the environment. These comprise wetlands, creeks, lakes and the ocean.

| Water And Catchment Management At A Glance |                   |                   |                   |   |
|--|-------------------|-------------------|-------------------|---|
| Model                                      | Rating<br>2004-05 | Rating<br>2005-06 | Rating<br>2006-07 | Comment   |
| <b>Lakes</b>                               |                   |                   |                   |   |
| <b>State:</b>                              | Declining         | Declining         | Declining         | <ul style="list-style-type: none"> <li>The shallow lakes are the receiving water bodies at the end of the catchment and are under pressure from development (eg siltation in Tumbi Creek).</li> <li>All three swimming locations monitored on Tuggerah Lakes foreshore complied with the National Health Medical Research Council (NHMRC) (1990) swimming water quality guidelines in all seven months of the 2006-07 summer swimming season: Canton Beach in the north, Long Jetty in the south, and The Entrance channel.</li> <li>In Lake Macquarie, three swimming locations were monitored: Summerland Point, Gwandalan and Chain Valley Bay. Summerland Point and Chain Valley Bay both passed the NHMRC (1990) swimming water quality guidelines in all seven months of the 2006-07 summer swimming season. A relatively high level of compliance was also recorded at Gwandalan.</li> <li>Elizabeth Bay, located in the southeast corner of Lake Munmorah, complied with the NHMRC (1990) swimming water quality guidelines in four of the seven months of the 2006-07 summer swimming season.</li> <li>In Lake Budgewoi, the two swimming locations monitored were San Remo in the north and Toukley Aquatic in the south. Toukley Aquatic complied with NHMRC (1990) swimming water quality guidelines in all seven months of the 2006-07 summer swimming season. San Remo complied with NHMRC (1990) swimming water quality guidelines in four of the seven months of the 2006-07 summer swimming season.</li> <li>During the 2006-07 reporting period 38 water pollution incidents were reported to the DECC/EPA Environment Line.</li> </ul> |



| Water And Catchment Management At A Glance (cont.) |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Lakes (cont.)</b>                               |                |                |                |  |
| <b>State:</b><br>(cont.)                           | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>A total of 33 water quality related complaints were received by Council during the 2006-07 reporting period.</li> </ul>   |
| <b>Pressure:</b>                                   | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Increasing population and development pressures in the catchment continue to result in greater stormwater pollution and siltation reaching the lakes.</li> </ul>  |
| <b>Response:</b>                                   | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>The Tuggerah Lakes Estuary Management Plan was adopted in October 2006. Implementation of prioritised actions include: <ul style="list-style-type: none"> <li>- stream bank rehabilitation</li> <li>- stormwater retrofit of urban areas</li> <li>- removal of sea grass wrack along the lakes foreshores</li> <li>- improvement of recreational facilities.</li> </ul> </li> <li>Some early actions, such as saltmarsh regeneration trials have begun due to availability of grant funds totalling \$117,369. These include projects at Tuggerah Bay, Rocky Point and Budgewoi.</li> <li>Council has budgeted \$2.3 million with an additional \$1.75 million through the collection of a Stormwater levy from ratepayers towards implementation of the Plan. Commencement of the implementation has been dependent upon assistance from other levels of government. <i>(In July 2007 the Federal Government provided \$80 million over four years for implementation of the Plan).</i></li> <li>Streambank Rehabilitation Plans for all five major tributaries entering Tuggerah Lakes have been completed. Undertaking identified works will reduce upstream erosion and subsequent sediment transfer downstream.</li> <li>DECC and Council respond to water quality complaints as they occur.</li> <li>Council continues to undertake or support a number of water education programs: <ul style="list-style-type: none"> <li>- Watertight</li> <li>- Waterwatch</li> </ul> </li> </ul> |
| <b>Projection:</b>                                 |                | Improving      | Improving      | <ul style="list-style-type: none"> <li>The health of the lakes is expected to improve in the long term given that funding for implementation of the Estuary Management Plan has been resolved.</li> </ul>  |
| <b>Creeks &amp; Rivers</b>                         |                |                |                |  |
| <b>State:</b>                                      | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>The majority of Wyong's water supply comes from tapping into the natural flows of Wyong Rivers and Ourimbah Creek.</li> <li>The condition of the streams feeding into Tuggerah Lakes is declined due to streambank erosion exacerbated by continuing drought conditions.</li> <li>At the three estuarine sites monitored in the Tuggerah Lakes catchment very low levels of compliance with the NHMRC (1990) swimming water quality guidelines were recorded. Wyong River failed the guidelines in six</li> </ul>   |

| Water And Catchment Management At A Glance (cont.) |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Creeks &amp; Rivers</b>                         |                |                |                |  |
| <b>State:</b><br>(cont.)                           | Declining      | Declining      | Declining      | were recorded. Wyong River failed the guidelines in six of the seven months of the 2006-07 summer swimming season, and Ourimbah Creek and Tumbi Umbi Creek failed the guidelines in all seven months.  |
| <b>Pressure:</b>                                   | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>• Prior to June 2007 rainfall event, the stream flows from Wyong River and Ourimbah Creek were extremely low. With little rain falling in the storage catchments, greater pressure was placed on the streams to supplement drinking water supplies. This meant less water flowing down the streams as environmental flows with potential for detrimental impacts on the ecology of downstream environments.</li> <li>• The Wallarah Project 2 Coal project has the potential to affect the ecology of streams in the water supply catchment, see Chapter 2 for further detail about the project.</li> </ul>   |
| <b>Response:</b>                                   | n/a            | Fair           | Fair           | <ul style="list-style-type: none"> <li>• Council undertook 550m of streambank rehabilitation in the water supply catchment.</li> <li>• An additional 500m was rehabilitated by volunteers and landholders in line with actions outlined in Rivercare Plans.</li> <li>• Streambank Rehabilitation Plans for all five major tributaries entering Tuggerah Lakes - Spring Creek / Wallarah Creek, Wyong River, Ourimbah Creek, Tumbi Creek and Saltwater Creek were completed during the 2006-07 reporting period. A prioritised works program for all major tributaries in the Shire is now being developed.</li> <li>• Investigation of an optimal balance of streamflow extraction rates and environmental flow requirements for Wyong River continues as part of the Water Sharing Plan for Wyong River. The Plan is expected to commence in July 2008. Council is undertaking an Environmental Flow Study to support development of the Plan.</li> <li>• The Ourimbah Creek water Sharing Plan is currently suspended due to arrangements between DNR and Council in response to the ongoing drought and water supply needs of the Central Coast.</li> <li>• During the 2006-07 reporting period an erosion and sediment controls audit was completed for building sites across the shire.</li> <li>• The rock ramp fishway on the Upper Ourimbah Creek weir is now complete.</li> </ul> |
| <b>Projection:</b>                                 |                | Improving      | Improving      | <ul style="list-style-type: none"> <li>• Implementation of streambank works in the catchment under the Estuary Management Plan and improved sediment and erosion controls will improve catchment condition and ultimately water quality and lake ecology.</li> </ul>   |

| Water And Catchment Management At A Glance (cont.) |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Wetlands</b>                                    |                |                |                |  |
| <b>State:</b>                                      | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Council has a number of significant wetlands in the Shire. The condition of these wetlands ranges from excellent to poor depending on the extent to which development and increased stormwater flows has affected them. The state of these wetlands has not changed significantly over 2006-07 reporting period. For further detail on the reasons for wetland decline in the Shire, please refer to the comprehensive State of the Environment Report 2003-04.</li> </ul>  |
| <b>Pressure:</b>                                   | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Increasing stormwater flows, pollution loads and weeds affect many wetlands in the Shire.</li> </ul>  |
| <b>Response:</b>                                   |                | Fair           | Fair           | <ul style="list-style-type: none"> <li>There are plans to restore the wetting and drying cycles of Porters Creek wetland by removing the excessive stormwater inflows from the upper catchments of Warnervale through development of Council's stormwater harvesting scheme.</li> <li>A seasonal monitoring program of wetlands is to be reviewed by December 2007.</li> <li>A WSUD DCP is being developed to help manage the pressures and impacts upon the wetlands.</li> <li>A broader integrated water cycle management strategy, incorporating significant stormwater harvesting for the Porters Creek catchment, has been developed. This is to guide the integration of water supply, sewer and stormwater strategies for the Shire.</li> </ul> |
| <b>Projection:</b>                                 |                | Improving      |                | <ul style="list-style-type: none"> <li>Overall the Shire's wetlands are continuing to decline. However, improvements may be seen once the WSUD DCP chapter and the stormwater harvesting scheme are complete and implemented.</li> <li>The Shire contains other significant wetlands that require considerable treatment to improve water quality and quantity.</li> </ul>   |
| <b>Oceans</b>                                      |                |                |                |  |
| <b>State:</b>                                      | Stable         | Stable         | Stable         | <ul style="list-style-type: none"> <li>At the 17 ocean beaches monitored under the Beachwatch program a high level of compliance with Nhmrc (1990) swimming water quality guidelines was recorded.</li> <li>Council does not have access to a wide range of indicator data for the marine and estuarine environment, although stormwater pollution and protection of aquatic habitat within the coastal zone remain issues of concern.</li> </ul>  |
| <b>Pressure:</b>                                   | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>The pressure of stormwater runoff from developing catchments continued to increase in 2006-07.</li> <li>Predictions of sea level rises and increased storm activity due to global warming suggest there is a risk of continued and <b>increased</b> erosion of the coastal dune and bluff systems in years to come. In 2006-07 a Tsunami warning and large storm event highlight this issue. Climate change impacts may be exacerbated on the coastal zone by increasing population and development pressures.</li> </ul>   |

| Water And Catchment Management At A Glance (cont.) |                |                |                |  |
|--|----------------|----------------|----------------|--|
| Model  | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Oceans (cont.)</b>                              |                |                |                |  |
| <b>Response:</b>                                   |                | Fair           | Fair           | <ul style="list-style-type: none"> <li>The Coastline Management Study and Draft Plan are currently being undertaken. Presently, Council is awaiting advice from DECC regarding an appropriate method for evaluating the hazards along Wyong's beaches. It is anticipated the Draft Plan should be prepared by August 2008.</li> </ul>  |
| <b>Projection:</b>                                 |                | Stable         | Stable         | <ul style="list-style-type: none"> <li>Coastal ecosystems such as wetlands, estuaries, beaches, and dune systems are vulnerable to the impacts of climate change. Increased coastal hazards are expected from changes in coastal processes, affecting infrastructure and the economic base of coastal communities.</li> <li>Lack of understanding of the scale and range of potential impacts of climate change, particularly as they relate to the coastal zone limits our ability to develop and implement adequate and appropriate adaptation responses.</li> </ul> |

## Council's Management Plan - where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for water and catchment management are:

- A better environment – protect and enhance the Shire's natural qualities and move toward true ecological sustainability.
- Water quality and quantity meet community needs and natural ecosystem requirements.



*Combining residential & commercial with natural ecosystems.*

**Table 5.1 Management Plan Actions for Water and Catchment Management**

| What were the 2006-07 Actions  | Evaluation  |
|--|---|
| Develop an Integrated Water Cycle Management Plan for Porters Creek Wetland  | A broader integrated water cycle management strategy, incorporating significant stormwater harvesting for the Porters Creek catchment, has been developed. This is to guide the integration of water supply, sewer and stormwater strategies for the Shire. |
| Develop a stormwater harvesting scheme   | See above   |
| Finalise Development Control Plan, Guidelines and Toolkit to assist in the implementation of water sensitive urban design. | A Water Sensitive Urban Design DCP Chapter and accompanying guidelines and toolkit are being prepared by Council and should be ready for exhibition around April 2008   |

**Table 5.1 Management Plan Actions for Water and Catchment Management (cont.)**

| What were the 2006-07 Actions  | Evaluation   |
|--|--|
| Develop and implement a monitoring and adaptive management programme for Porters Creek   | Delayed due to development of Stormwater Harvesting Scheme and undertaking risk assessments. Monitoring program will be developed in 2007/08.  |
| Undertake seasonal monitoring of wetlands.   | Program to be completed and reviewed December 2007   |
| Implement the monitoring and adaptive management of wetlands to influence future designs (including their size, configuration and location). | Ongoing program  |
| Undertake review and audit of erosion and sedimentation controls to influence future designs   | Review and audit of erosion and sediment controls completed for building sites. Review and audit of erosion and sediment controls for Subdivisions and Council works to be completed by September 2007   |
| Evaluate stream bank rehabilitation  | Evaluations and streambank rehabilitation plans, in relation to Wyong River, Ourimbah Creek, Tumbi Creek, Saltwater Creek and Spring/Wallarah Creeks have been completed. Further evaluations currently underway, to be completed by December 2007 |
| Undertake audit of existing water quality treatment devices  | Program to be completed and reviewed by December 2007  |

## The Lakes

### Wyong Shire Council Beachwatch Program

Councils along the New South Wales coast from the Hunter region through the Sydney Metropolitan area to the Illawarra participate in recreational water quality monitoring and reporting programs during the summer swimming season in partnership with the Department of Environment and Climate Change (DECC) Beachwatch Program.

During the 2006–07 swimming season Wyong Shire Council Beachwatch Program took monthly water samples at 29 popular swimming locations in the Shire. In total 17 ocean beaches, 9 coastal lake sites and 3 estuarine river sites were tested for faecal coliform and enterococci contamination, to assess compliance with NHMRC (1990) swimming water quality guidelines.

### Tuggerah Lake

The three swimming locations monitored in Tuggerah Lake were Canton Beach in the north, Long Jetty in the south, and The Entrance channel. All three locations complied with the NHMRC (1990) swimming water quality guidelines in all seven months of the 2006–2007 summer swimming season.

Slightly elevated levels of bacteria were recorded at all three locations in Tuggerah Lake during the 2006–2007 summer swimming season. Previous monitoring has revealed elevated bacterial levels in response to rainfall at these sites (Department of Environment and Conservation 2004b and 2004c).

### Lake Macquarie

The three swimming locations monitored in Lake Macquarie were Summerland Point, Gwandalan and Chain Valley Bay. Summerland Point and Chain Valley Bay both passed the NHMRC (1990) swimming water quality guidelines in all seven months of the 2006–2007 summer swimming season. A relatively high level of compliance was also recorded at Gwandalan, which complied with the swimming guidelines in six of the seven months. The site failed the NHMRC (1990) swimming water quality guidelines for faecal coliforms during January, 2007.

Levels of faecal coliforms and enterococci at Summerland Point, Chain Valley Bay and Gwandalan were slightly elevated throughout the summer season and displayed no clear response to rainfall. Results from previous monitoring indicate that swimming in Lake Macquarie should be avoided during and after rainfall (Department of Environment and Conservation 2004b).



## Lake Munmorah

Elizabeth Bay, located in the southeast corner of Lake Munmorah, complied with the NHMRC (1990) swimming water quality guidelines in four of the seven months of the 2006–2007 summer swimming season. The site failed the guidelines in November 2006, December 2006 and January 2007 owing to elevated levels of faecal coliforms.

Slightly elevated bacterial levels were measured at Elizabeth Bay on several occasions throughout the monitoring period, often in response to little or no rainfall. Results from previous monitoring indicate that high levels of bacteria may be measured at the site in response to heavy rainfall (Department of Environment and Conservation 2004b).

## Lake Budgewoi

The two swimming locations monitored in Lake Budgewoi were San Remo in the north and Toukley Aquatic in the south. Toukley Aquatic complied with NHMRC (1990) swimming water quality guidelines in all seven months of the 2006–2007 summer swimming season. San Remo complied with NHMRC (1990) swimming water quality guidelines in four of the seven months of the 2006–2007 summer swimming season. The site failed the guidelines in October 2006, November 2006 and April 2007 owing to elevated levels of enterococci.

Slightly elevated levels of faecal coliforms and enterococci were recorded throughout the 2006–2007 summer swimming season at Toukley Aquatic and San Remo, with no clear response to rainfall. Previous monitoring at San Remo has revealed high bacterial levels in response to low levels of rainfall, suggesting a wet weather source of sewage contamination in the vicinity of the swimming site (Department of Environment and Conservation 2004c).

## Water Pollution Incidents

During the 2006–07 reporting period 38 water pollution incidents were reported to the DECC/EPA Environment Line where the EPA, rather than Council was the Appropriate Regulatory Authority (ARA) for the incident. Generally Councils will not have a role in managing or responding to these reports but upon request DECC/EPA will provide the data for SoE reporting. In the same period 33 water quality related complaints were made directly to Council. DECC and Council respond to water quality complaints as they occur.

## The Tuggerah Lakes Estuary Management Plan (EMP)

In October 2006, the EMP was completed and adopted by Council. The Plan identified management programs to address the issues facing the estuary and provided costs and timelines for work.

Implementation of the identified programs within the Plan has been dependent upon the availability of substantial funding. Council has traditionally budgeted funds to improve the 'health' of the Tuggerah Lakes (\$2.3 million), and an additional \$1.75 million has been sought through the collection of a Stormwater levy from the Wyong Shire ratepayers to implement the Plan.

Council has continued to source matching funding from the State government to ensure the full implementation of the EMP.

Implementation of the EMP should:

- I. Address further decline of the Lake expected through development and population pressures; and
- II. Improve condition of the Lakes over time.

*Addendum: In July 2007 the Federal Government provided \$80 million over four years for implementation of the Plan. This has enabled establishment of an Estuary Management Unit within Council whose responsibility will be to oversee implementation of the Plan.*

## Saltmarsh Regeneration Projects

Grant funding of over \$100,000 has allowed Council to bring forward plans to undertake a number of trial saltmarsh regeneration projects identified in the Tuggerah Lakes Estuary Management Plan.

### 1. Tuggerah Bay

The Tuggerah Bay project consisted of two components:

- I. The area was to be fenced to protect the sensitive location and the environmental works by limiting inappropriate access by 4WD cars and bikes – this has been achieved, with fencing completed during the 2006–07 reporting period.
- II. Seagrass wrack was to be applied to the large saltpan to provide the environmental conditions necessary to allow saltmarsh to regenerate – this was progressing well with approximately one quarter of the area covered by wrack. However, project completion was hampered when the June flooding occurred and washed the wrack out into the Lake.

This project is possible due to grant funding worth \$46,786 from the Natural Heritage through the Hunter-Central Rivers Catchment Management Authority (CMA).

### Rocky Point

The Rocky Point project will seek to reinstate the previously modified lake edge to a natural slope to allow wrack to assimilate naturally as it washes up to the lake foreshore, returning conditions ideal for saltmarsh to passively regenerate. With \$39,345 worth of grant funds through the CMA Coast and Estuary Works Program works will begin in late 2007. Council consulted with the residents of Rocky Point through a public information session to explain the science underlying the trial, including the ecology of successful wrack assimilation.

### Budgewoi 'Mow, No Mow' Trial

A grant of \$31,238 from the NSW Environmental Trust under the Environmental Restoration and Rehabilitation Program was received for another passive saltmarsh trial, this time at Budgewoi. Traditionally, Council and many residents have been in the habit of mowing right to the foreshore edge, inhibiting any prospect of saltmarsh regeneration. Council now has a policy of not mowing grass on the lakeside of footpaths to allow riparian vegetation to re-establish to help filter nutrient runoff.

The proposed trial is to test a number of reserve maintenance practices, such as ceasing to mow, with and without weeding intervention to gauge the ability of saltmarsh to regenerate and out-compete the exotic grasses. Council held a public meeting with residents to explain its intention and to seek local cooperation and participation with the trial which is to take place in late 2007.



### Streambank Rehabilitation Plans and on-ground works

The Tuggerah Lakes EMP identifies streambank rehabilitation as a high priority program for implementation to protect and restore the health of the Tuggerah Lakes estuary. In response to this, Council commissioned the development of Streambank Rehabilitation Plans for all five major tributaries entering Tuggerah Lakes – Spring Creek/Wallarrah Creek, Wyong River, Ourimbah Creek, Tumbi Creek and Saltwater Creek. The Plans map the condition of the streambanks and riparian vegetation, identify sites where rehabilitation is required, and provide a prioritised program of works to address streambank erosion. The Plans will be implemented under the EMP in consultation with landholders and other stakeholders.

Two grant applications were submitted during the 2006-07 reporting period to assist funding this initiative:

- H-CRCMA Land and Vegetation Management Incentives Grants – Streambank Rehabilitation along Wyong River. \$16K requested. Unsuccessful
- Environmental Trust Restoration and Rehabilitation State and Local Government Grants Program – Streambank Rehabilitation at Tumbi Creek wetland - \$99K requested. Announcement expected February 2008-still pending.

### Creeks

#### Beachwatch Monitoring Program - Tuggerah Lakes catchment

The three sites monitored in the Tuggerah Lakes catchment were Wyong River, Ourimbah Creek and Tumbi Umbi Creek. Very low levels of compliance with the NHMRC (1990) swimming water quality guidelines were recorded at all three locations. Wyong River failed the guidelines in six of the seven months of the 2006–2007 summer swimming season, and Ourimbah Creek and Tumbi Umbi Creek failed the guidelines in all seven months.

Due to the ongoing high levels of bacteria measured at these sites, swimming should be avoided at these sites at all times.

#### Streambank Rehabilitation in the Water Supply Catchment

During the 2006-07 reporting period Council staff rehabilitated 550 metres of degraded streambanks in the water supply catchment area on three sites at Cedar Brush creek, Palm Grove and Mardi, planting 2457 native trees, shrubs and groundcovers at a total cost of \$61,000. The work also involved the

treatment of extensive stands of environmental weeds including Privet, Lantana and Wild Tobacco (see Chapter 6 Biodiversity).

In addition \$15,000 was spent maintaining sites rehabilitated over the last three years bringing the total expenditure on the programme for the year to \$76,000.

Council also provided plants and resources to assist community groups such as Landcare, Schools and private residents to undertake rehabilitation work identified in Rivercare Plans on an additional 600 metres of streambanks at Cedar Brush Creek and Ravensdale.

### Stream flows and water extraction

The reporting period of 2006-07 brought a mix of very different rainfall conditions for the streams that supply a large proportion of the potable water to the Central Coast. After several dry years January saw most of the Shire's creeks and rivers stop flowing with the total rainfall at Wyong for the 2006 calendar year measuring only 857mm against the yearly average of 1200mm.

The following graphs detail the contrasting periods of dry and wet conditions experienced in 2006-07. For the first half of the period, the stream flow was low with the exception of September. The second half of the period saw significantly improved flow in Wyong River and Ourimbah Creek. Useful rainfalls were recorded from February to April, followed by floods in June when 642mm was received in

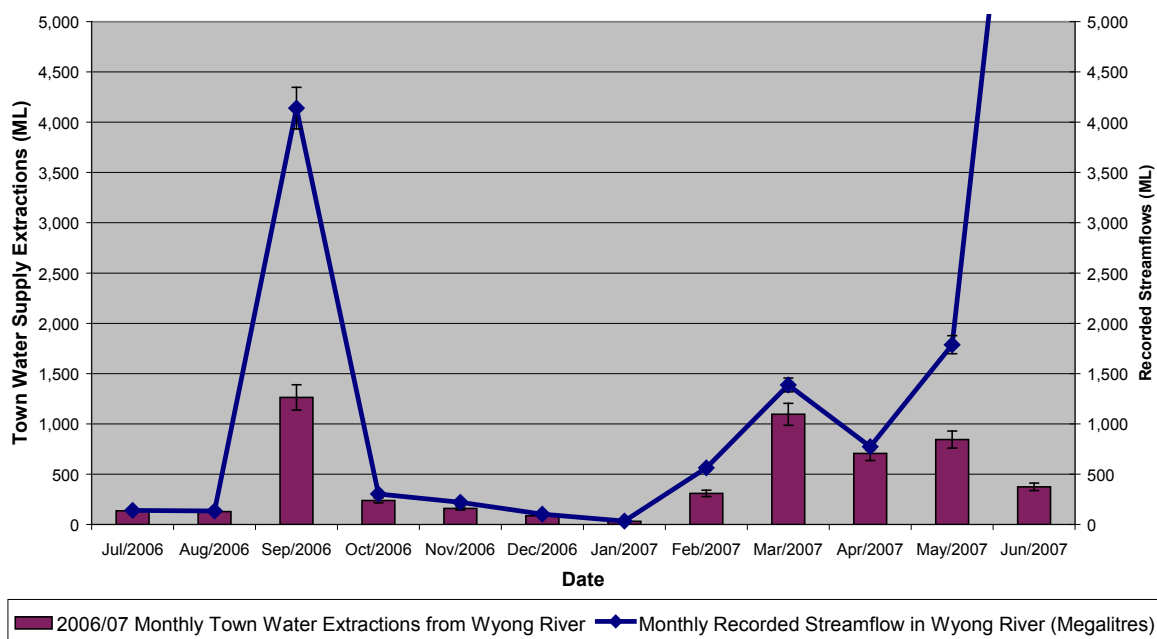
the month, of which 338mm fell in one day. The above average rainfall increased streamflows and produced flood levels in both Wyong River and Ourimbah Creek.

The rainfall in June 2007 provided temporary relief from the drought conditions, however, in spite of this rainfall annual streamflows for both streams over the whole 2006-07 period were below average.

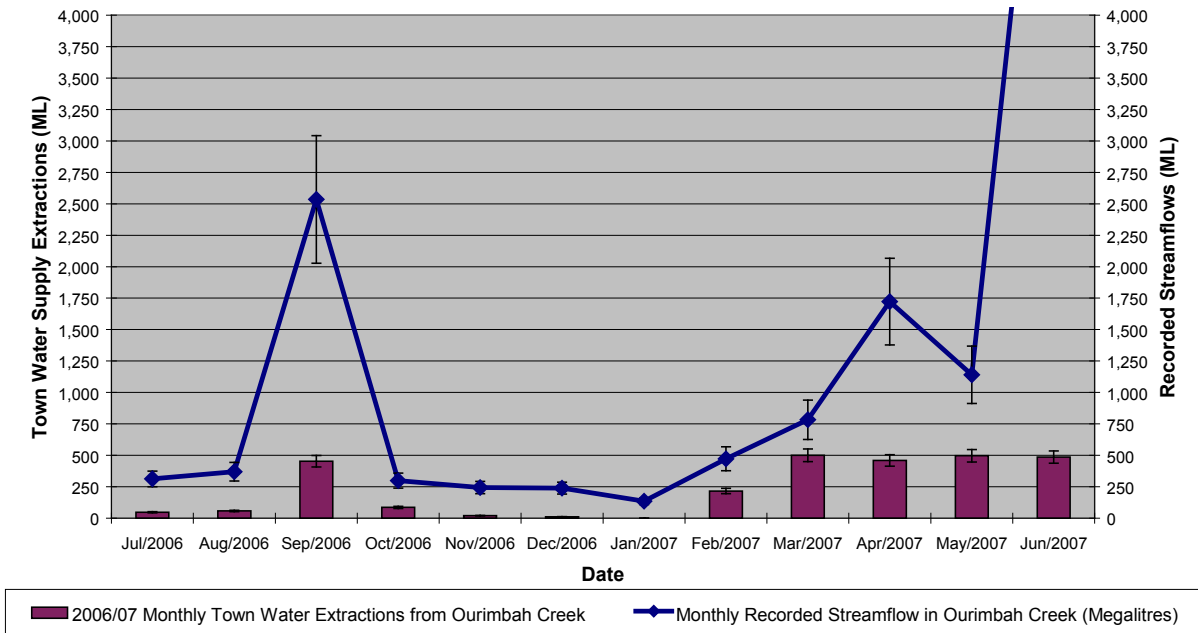
The improved flow allowed greater extractions from the streams and as a result the dam storage levels have steadily recovered with Mardi Dam reaching full storage level in May 2007. In 2006-07, like previous years, the volume of extraction has been dependent on the available streamflows up to the limits of the pump station capacity. Since May 2007 extractions have been kept at a reduced level sufficient to keep Mardi Dam at a full storage level, allowing 'environmental flows' to continue downstream and into Tuggerah Lakes.

A Water Sharing Plan for Wyong River is currently being developed by the NSW Department of Water and Energy and is expected in July 2008. Council is undertaking an Environmental Flow Study, due for completion in December 2007, aimed at supporting the development of the Water Sharing Plan.

**Streamflows and Extractions from Wyong River, July '06 to June '07**



## Streamflows and Extractions from Ourimbah Creek, July '06 to June '07



### Ourimbah Creek Environmental Flows Reduction

A Water Sharing Plan for Ourimbah Creek commenced in July 2004. As a consequence of the continuing drought, in July 2006 Council obtained approval from the (then) Department of Natural Resources (DNR) to reduce the environmental flows from the upper Ourimbah Creek weir from 7 ML/Day to 3 ML/Day as a temporary drought contingency.

Due to the ongoing drought and subsequent reduction of natural stream flows, the inflow from Ourimbah Creek into the upper weir was less than 3 ML/Day for virtually the entire second half of 2006. This meant that almost no additional flows were available, where under normal rainfall conditions an average of approximately 10 ML/Day could be expected to be available for extraction.

Council subsequently applied to cease the release of flows from the upper weir. In response and in recognition of the severity of the impact of the drought on the Coast's water supply, DNR, suspended the Water Sharing Plan for Ourimbah Creek and notified Council that the Minister proposes to apply discretionary arrangements to Council's water access licence. These arrangements are subject to Council meeting various conditions, including preparation of an environmental management plan (EMP) to monitor any impacts of reduced flows on the health of the stream, and also the riparian water rights of landholders on this section of the stream.

Council staff have regularly monitored the creek to establish baseline data for the EMP and also to ensure that sufficient flows are available for both stream health and basic water rights of downstream landholders.

Since the June rainfall event streamflow has remained high and has continued to overtop the weir. Pumping has been limited due to Mardi dam being full to its capacity. The suspension of the Water Sharing Plan for Ourimbah Creek still stands.



Ourimbah Creek ran dry during late 2006



## Upper Ourimbah Creek Fishway

The rock ramp fishway on the Upper Ourimbah Creek weir was completed in July 2007. The fishway provides fish passage by removing the barrier imposed by the three metre high weir built in 1977 to form a water supply pumping pool across the creek. The weir was originally constructed with a fishway, however this did not work effectively and developing a design to successfully provide fish passage has been challenging. The new ladder will complement an existing rock ramp ladder on the Lower Ourimbah Creek weir.

Native fish such as Australian Bass live in fresh water but need to move to salty areas to spawn, before returning upstream. Weirs and other barriers can severely impact these migrating species.

After extensive negotiations with NSW Department of Primary Industries (DPI) and the NSW Department of Natural Resources (DNR), Council engaged DNR to design a reverse leg rock ramp fishway. This type of fishway is a series of connected rock pools on a gentle slope formed by precise placement and keying in of large sandstone boulders, to meet the requirements of the site. Council called tenders for the project in 2006 and local firm P&H Constructions were awarded the job from a list of ten submissions from companies across NSW.

The fishway cost around \$350,000 and was funded by Council, DNR, through the Estuary Management Program, and DPI through the Environmental Trust.



Upper Ourimbah Creek fishway

## Water quality in times of flood

The lake received a good flushing during the June 2007 long weekend flood. A water quality monitoring station at the mouth of Ourimbah Creek recorded the influx of freshwater at this location. A drop in salinity was recorded from approximately 31 parts per thousand (ppt) (equivalent of seawater) to less than 1ppt (almost entirely freshwater) in the 24 hour period between 5pm 7 June - 5pm 8 June 2007. At other locations closer to the channel, salinity fell as low as 4ppt indicating that much of the saline lake water had been pushed out to sea by the sheer volume of water entering from the catchment.

Turbidity (water clarity) in the lake followed similar trends with a massive spike in turbidity as the floodwaters flowed from the creeks and rivers into the lake. A plume of sediment could be seen extending out into the ocean off The Entrance although it dissipated once floodwaters receded.

The photo shows a turbidity plume in the mouth of Tumbi Creek after the June 2007 floods. A floating boom with a silt curtain that was put in place to contain any sediment from dredging activities failed during the extreme rainfall event. The resulting turbidity plume reflects the impacts of upstream catchment activities upon our creeks and the lake. It is interesting to note however, the efficiency of the silt curtain as it successfully contains the plume where it is still in place (left hand side).



A turbidity plume in the mouth of Tumbi Creek after the June floods.



## Wetlands

### Porters Creek Storm Water Harvesting Scheme

Wetlands need dry periods as much as they need to be wet. But this cycle or pattern needs to mimic what occurs in nature. Too much water in a wetland can cause as much damage (if not more) as no water.

There are plans to restore the wetting and drying cycles of Porters Creek wetland by removing the excessive stormwater inflows from the upper catchments of Warnervale through development of Council's stormwater harvesting scheme.

The scheme will divert the stormwater around the wetland to an offline storage system and will provide a substantial quantity of stormwater for harvesting to supplement the water supply. This will also ease the pressures upon many endangered vegetation communities in the wetland by slowing the current vegetation decline and help reduce further decline of these communities in the future.

Current planning controls provide some protection to significant wetlands in the Shire, however, the increasing stormwater inflows from adjacent development is changing the hydrology (i.e. the wetting and drying cycles) and affecting vegetation communities.

The storm water harvesting scheme is being developed to a broad conceptual stage, incorporating storm water input from the Wyong Employment Zone, Warnervale Town Centre and surrounds, and the broader Wadalba release area. The project incorporates studies on risk assessment and environmental impact assessment leading to detailed design being completed in 2007-2008.

## Oceans

### Wyong Shire Council Beachwatch Program

During the 2006–07 swimming season, Wyong Shire Council Beachwatch Program took monthly water samples at 29 popular swimming locations in the Shire. In total 17 ocean beaches, 9 coastal lake sites and 3 estuarine river sites were tested for faecal coliform and enterococci contamination, to assess compliance with NHMRC (1990) swimming water quality guidelines.

#### Ocean beaches

A high level of compliance with NHMRC (1990) swimming water quality guidelines was recorded at the 17 ocean beaches. All beaches were suitable for swimming in all months of the 2006–2007 summer swimming season.

A very high level of compliance with swimming water quality guidelines has also been reported at the ocean beaches in previous years (Department of Environment and Conservation 2004b, 2004b, 2006a and 2006b).

The following table gives a comparison of various Councils' compliance rates in relation to the Beachwatch monitoring program for 2005-2006. Where faecal coliform and enterococci compliance is reported, the values represent the number of beaches with 100% compliance across the sampling period. Failures to comply are noted below the table.

**Table 5.2 Beachwatch reports 2005-06**

| Beachwatch reports 2005-06 | Sutherland | Port Stephens | Newcastle | Lake Macquarie | Wollongong | Shellharbour | Pittwater | Wyong    |
|----------------------------|------------|---------------|-----------|----------------|------------|--------------|-----------|----------|
| Length coastline (km)      | 145        | 6             | 20        | 26             | 40         | 20           | 20        | 37       |
| Size of LGA sqkm           | 3373       | 979           | 183       | 749            | 714        | 154          | 125       | 827      |
| Population                 | 215, 000   | 56, 000       | 140, 000  | 183, 000       | 182, 000   | 54, 000      | 56, 000   | 139, 500 |
| Faecal coliform compliance | 7/8        | 4/4           | 7/7       | 6/6            | 11/11      | 2/3          | 9/9       | 24/29    |
| Enterococci compliance     | 6/8        | 4/4           | 7/7       | 4/6            | 4/9*       | 2/3          | 9/9       | 25/29    |

\*Enterococci results were not available for two Wollongong sites

Source: <http://www.environment.nsw.gov.au/beach/bpp/ar2006/>

## The Coastal Zone and Climate Change

Wetlands, estuaries, beaches, dune systems and other sensitive coastal ecosystems are vulnerable to the impacts of climate change (DEH 2006).

Scientific reports indicate a strong likelihood of increased temperatures, rising sea levels, increased storm frequency and intensity and flooding. Increased coastal hazards are expected from changes in coastal processes, affecting infrastructure and the economic base of coastal communities. Fisheries and other coast dependent industries will also be affected by climate change (DEH 2006).



### Central Coast Watertight

Central Coast Watertight is a joint water education program coordinated by Gosford and Wyong Councils, and Rumbalara Environmental Education Centre. The program was developed in response to the current water supply issue on the Central Coast, to reach a wide audience in the Primary School environment. The Watertight program began with 4 trial schools (Tuggerawong, Wyong Grove, Chertsey and Copacabana Public Schools) in late 2006 and continued into 2007 with another 8 schools across the Central Coast. The program has been well received in Wyong Shire and the students at Bateau Bay, Kanwal, Toukley and Warnervale Public Schools have gained an in depth knowledge of water related issues and how those issues relate to them. The program has also visited another four schools in the Gosford City Council area.

Watertight is run as a one-day mini excursion held in the grounds of the participating school and is specifically designed to meet the outcomes of the Primary School curriculum. The program aims to raise awareness of water conservation and water management issues amongst the school community and can also assist in the schools' preparation of its School Environmental Management Plan (SEMP).

All students from K-6 are involved in activities throughout the day, beginning with a performance from the Mad Cow Theatre Company titled "Our Creek has Sprung a Leak". This performance sets the scene for the remainder of the day and educates the students in a fun, informal way. Other activities include water quality testing, creating artwork, problem solving, report writing, communicating messages and studying models and maps, these activities cover the main focus topics of the program which include the water cycle and water supply, water use, wastewater and the schools management of water.



*Watertight Education Program*

## Central Coast Waterwatch Activity Report for Wyong Shire July 2006 – June 2007

The current Waterwatch program on the Central Coast began in 1997 when a number of community volunteers sought funding to initiate a community water quality monitoring program. This group, the Brisbane Water Clean & Safe Team, were successful in obtaining a grant through the Natural Heritage Trust. Subsequent funding applications by the previous Brisbane Water Catchment Management Committee and CEN have developed the program to its current level. Both Gosford and Wyong Councils have also assisted the program. It was not until 2000 that a Waterwatch coordinator was employed for the Central Coast.

The Central Coast Waterwatch Program is now delivered through a contract with the Hunter-Central Rivers Catchment Management Authority with sponsorship from the Gosford Wyong Joint Water Authority.

A selection of key achievements of the Central Coast Waterwatch group in Wyong Shire during the 2006-07 reporting year includes:

- 93 data sets by 15 groups were uploaded to the NSW Waterwatch website [www.waterwatch.nsw.gov.au](http://www.waterwatch.nsw.gov.au)
- 9 new Waterwatch groups were trained; members included 8 teachers, 142 students and 46 community members
- A Wyong River Catchment Crawl was held in May 2007 for community members and school catchment crawls were held on Wyong River and Porters Creek. A total of 3 teachers, 51 students, 52 community and 14 agency staff were involved in the catchment crawls.
- 11 Waterwatch groups in Wyong tested 12 sites for Available Phosphorus during Phosphorus Awareness Day in November 2006.
- Waterwatch conducted stormwater audits and water testing activities at 7 Watertight days in Wyong
- For World Wetlands Day 2007 'Breakfast with the Birds' was held at Pioneer Dairy Tuggerah with 60 people attending and participating in Waterwatch activities and bird watching.



The coastal towns are facing the greatest rate of population increase and the greatest pressure for economic growth (DEH 2006). However, the uncertainty and lack of understanding of the scale and range of potential impacts of climate change, particularly as they relate to the coastal zone, limits our ability to develop and implement adequate and appropriate adaptation responses.

### **Water Education Trailer**

The Water Education trailer was initiated as a resource to be included in the Watertight Program. It is a purpose built, fully functioning bathroom, with toilet, bath, shower and sink as well as a washing machine, that allows students and teachers to view the actual amounts of water that these appliances use. This water is then recycled into large tanks located under the floor of the trailer.



*Water Education Trailer*

## Council responses to Water and Catchment management issues

| Response        | Action to date   | New actions for Council's consideration   |
|-----------------|--|---|
| <b>Lakes</b>    | <p>The Estuary Management Plan adopted in October 2006</p> <p>Federal funding allocated to complement other sources of funding.</p> <p>Grant funding opportunities maximised.</p>  | <p>Support for implementation of first year's actions as identified in Plan.</p> <p>Continue to prioritise and increases catchment protection of the Tuggerah lakes system.</p>   |
| <b>Creeks</b>   | <p>On-ground rehabilitation works are ongoing in the water supply catchment through council and community efforts. Other works undertaken as funding allows.</p> <p>Comprehensive streambank rehabilitation plans completed.</p>   | <p>Continue funding to ensure high priority works are undertaken.</p> <p>Support for rehabilitation and protection of upstream and downstream reaches of creeks to continue through implementation of works program outlined through completed Plans.</p>   |
| <b>Wetlands</b> | <p>Planning for a stormwater harvesting scheme for Porters Creek continues.</p> <p>WSUD chapter in the DCP is progressing. Decline in the wetlands may be slowed once this is completed and implemented.</p>   | <p>Stormwater harvesting project is supported to provide additional potable water and to reduce stormwater inflows currently influencing hydrological balance in wetland.</p> <p>Preparation of the Coastline Management Study and Plan will help address coastal erosion.</p> <p>Funding continues to ensure Porters Creek wetland decline is limited and attributes are protected</p> <p>Importance of groundwater influence on function of wetland system needs to be more fully understood.</p> <p>The Shire contains other significant wetlands that require considerable treatment to improve water quality and quantity.</p> |
| <b>Oceans</b>   | <p>Completion of the Coastline Management Study and Plan will help address coastal erosion.</p> <p>The application of WSUD principles to new coastline development will reduce levels of stormwater pollution.</p> <p>Ocean sewage outfalls are currently maintained at a sustainable level with no detectable impact on marine organisms. Increased quantities of effluent recycled decreases the amount discharged to the ocean.</p> | <p>Consideration and implementation of suitable adaptation measures to respond to climate change will reduce the severity of impacts to coastal and low lying areas.</p> <p>Stormwater pollution and protection of aquatic habitat within the coastal zone remain issues of concern.</p> <p>Invest in infrastructure to increase market opportunities and availability for recycled effluent.</p>   |



# CHAPTER 6

## BIODIVERSITY

### Introduction

Wyong Shire is rich in biodiversity, enhanced by the presence of both coastal and inland vegetation communities and expresses faunal characteristics of both the Sydney Basin and north coast bioregions. It supports 427 native fauna species (mammal, bird, amphibian and reptile) and many invertebrates.



| Biodiversity At A Glance |                |                |                |  |
|--------------------------|----------------|----------------|----------------|--|
| Model                    | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>State:</b>            | Declining      | Declining      | Declining      | <ul style="list-style-type: none"> <li>Wyong Shire is fortunate to retain approximately 65% of its native bushland. As stated in Chapter 3, many of these areas occur in the valleys and highlands managed under Forestry or National Parks. Other large parcels of vegetated areas include those owned by Wyong Council or the Crown (managed by Council) and the State government owned electricity generating sites.</li> <li>During the 2006-07 reporting period,               <ul style="list-style-type: none"> <li>a fish species (<i>Prototroctes Maraena</i>) was added to the National vulnerable species list</li> <li>an orchid species (<i>Caladenia porphyria</i>) was added to the NSW threatened species list</li> <li>an endangered dragonfly species (<i>Petalura Gigantea</i>) was discovered on the Central Coast by a local resident - the first recording of this species in the region.</li> <li>over 415ha of land was gazetted for inclusion in the National Park Estate. Although this is a large addition in one reporting period, it is likely to taper off in future reporting periods.</li> </ul> </li> </ul> |
| <b>Pressure:</b>         | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>Many people live on the Central Coast because of the area's natural beauty. While growth pressure exists in the Shire, the pressure will continue to increase on vegetated land and therefore biodiversity.</li> <li>The greatest risk of biodiversity losses occur on the coastal lowlands and floodplains where development pressure is most intense and results in native vegetation clearing.</li> </ul>  |

| Biodiversity At A Glance    |                |                |                |  |
|-----------------------------|----------------|----------------|----------------|--|
| Model                       | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Pressure:</b><br>(cont.) | Increasing     | Increasing     | Increasing     | <ul style="list-style-type: none"> <li>The need to reduce the pressures mentioned in the Comprehensive SoE Report 2003-04 is no less intense if we are to protect the Shire's native plants and animals and retain the extent of biodiversity for future generations and more toward sustainability.</li> </ul>  |
| <b>Response:</b>            | Poor           | Poor           | Fair           | <ul style="list-style-type: none"> <li>The challenge continues to maintain the "bushland" lifestyle of our Shire by integrating the social and economic aspects of development with preserving and enhancing the natural environment.</li> <li>To ensure there will be no significant loss of native flora and fauna, particularly on the coastal lowlands, a full assessment of conservation values of these areas need to be conserved, protected and managed into the future. Private and government landowners need to work together to balance the needs of development and biodiversity conservation.</li> <li>Council and the Hunter Central Rivers Catchment Management Authority jointly fund a Community Support Officer (Landcare) to assist in the development and delivery of environmental programs.</li> <li>Council is involved in a range of programs and initiatives which involve the community and school groups working towards improving and protecting the Shire's biodiversity values. This includes: <ul style="list-style-type: none"> <li>- Environmental care groups (including funding)</li> <li>- Habitat restoration programs</li> <li>- Property Vegetation Plan</li> <li>- Community forums</li> <li>- Noxious weeds program</li> <li>- CEN Conservation on Private Lands</li> </ul> </li> <li>The CEN began a "Habitat for Wildlife" program to encourage urban residents to create and/or maintain habitat for wildlife in their own backyard.</li> </ul> |
| <b>Projection:</b>          | n/a            | Declining      | Declining      | If development pressures continue to fragment the remaining bushland in Wyong Shire without the direction of strong conservation planning, then biodiversity values will continue to decline and be unsustainable for future generations to share.   |

## Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for the conservation of biodiversity are:

- A better environment – protect and enhance the Shire's natural qualities and move toward true ecological sustainability
- Preserve the diversity of all native plants and animal species and to protect and assist recovery of threatened and endangered species.



**Table 6.1 Management Plan Actions for Biodiversity**

| What were the 2006-07 Actions   | Evaluation   |
|---|--|
| Provide ongoing support for community environmental groups  | Scheduled liaison group meetings with CEN/Wycare and Coal Liaison Group ongoing.<br>Council continues to work with local community groups with the preparation of grant funding applications for local rehabilitation projects.  |
| Continue the joint venture with Community Environment Network (CEN) to investigate conservation initiatives on private lands. | Council continues to work with CEN and has established conservation initiatives on private lands. Council also supports community environment groups through partnership education programs and staff commitment to steering committees for local and regional environmental education programs. |
| Commence preparation of Management Plans for high conservation areas based on priorities based in Phase 1                     | Council has prepared a database on Flora & Fauna for use in the preparation of the Management Plan for the Glenning Valley area.   |

## Biodiversity

Biodiversity is an important issue for Wyong Shire Council because of its responsibility under a range of legislation including the NSW Threatened Species Conservation Act 1995 (TSC Act) and the Federal Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) to ensure ecologically sustainable development in the Shire. Many of the animals, plants and plant communities listed as threatened under the TSC Act also occur as threatened at a national level under the EPBC Act (although this is not always the case).

### Nationally Listed Species update (EPBC Act)

In 2004-05 there were 45 nationally listed species occurring in Wyong Shire. There has been one change of national listings during the 2006-07 reporting period, the inclusion of a vulnerable fish species *Prototroctes Maraena*, Australian Grayling.

As shown below, there are now 36 vulnerable species, 9 endangered and 1 critically endangered species listed nationally for Wyong Shire.

**Table 6.2: Nationally Listed Species for Wyong Shire\***

|              | Vulnerable | Endangered | Critically Endangered |
|--------------|------------|------------|-----------------------|
| Plants       | 11         | 2          | 0                     |
| Birds        | 10         | 3          | 0                     |
| Fish         | 1          | 1          | 0                     |
| Mammals      | 5          | 2          | 0                     |
| Frogs        | 4          | 1          | 0                     |
| Sharks       | 2          | 0          | 1                     |
| Reptiles     | 3          | 0          | 0                     |
| <b>TOTAL</b> | <b>36</b>  | <b>9</b>   | <b>1</b>              |



*Old Red Gum with many habitat places*

Source: [www.environment.gov.au](http://www.environment.gov.au)  
\* does not include migratory, marine and other cetaceous animals.

## State Listed Species update (TSC Act)

In 2004-05 there were a total of 118 threatened species, endangered populations and endangered ecological communities recognised under State legislation, for the Wyong sub-region. During the 2006-07 reporting period, the total threatened species, endangered populations and endangered ecological communities changed. Firstly, there appears to have been an anomaly in the figures presented in the 2005-06 period and the 2006-07 period. Secondly, the following additional endangered species and endangered ecological community were added to the TSC Act listing:

- an orchid species (*Caladenia porphyria*) was added to the NSW threatened species list
- an endangered dragonfly species (*Petalura Gigantea*) was discovered on the Central Coast by a local Toukley resident – the first recording of this species in the region.

**Table 6.3: Flora, Fauna, Endangered Populations and Ecological Communities in the Wyong sub-region listed as Threatened under the NSW Threatened Species Conservation Act 1995**

|              | EECs      | Endangered Populations | Flora     | Fauna     | Total      |
|--------------|-----------|------------------------|-----------|-----------|------------|
| Vulnerable   |           |                        | 18        | 63        | <b>81</b>  |
| Endangered   | 12        | 2                      | 10        | 13        | <b>37</b>  |
| <b>TOTAL</b> | <b>12</b> | <b>2</b>               | <b>28</b> | <b>76</b> | <b>118</b> |

Source: [www.threatenedspecies.environment.nsw.gov](http://www.threatenedspecies.environment.nsw.gov).



Squirrel Gliders are identified as a Threatened Species and are naturally found in several habitats throughout Wyong Shire.



Australia supports a rich and diverse array of plants, animals and microorganisms. Seahorses are found naturally in Tuggerah Lakes and are identified as a Threatened Species.



*Diuris bracteata*.

This was thought to be extinct but rediscovered about 2 years ago. Currently only known from the escarpment in the west of Wyong LGA (and across in Gosford LGA).



Green and Gold Bell frog



## Jurassic giant dragonfly discovered on Central Coast

(Source: Photos courtesy of Maureen Goninan from ABC website <http://www.abc.net.au/centralcoast/stories/s1835598.htm>)

- During the 2006-07 reporting period, a rare and fascinating giant dragonfly, *Petalura Gigantea*, was discovered on the Central Coast.
- It is listed as endangered under the Threatened Species Conservation Act 1995.
- There were previously no records of the dragonfly in the region.
- Both a male and female of the species was caught on film by local Toukley resident Mrs Maureen Goninan. The Australian National Museum confirmed Mrs Goninan had made quite a significant discovery.
- There are only five known species of these giant dragonflies in Australia with the largest, *Petalura Ingentissima*, holding the record as the world's bulkiest dragonfly with a wingspan of 160mm.
- The male giant dragonfly, *Petalura Gigantea*, has a distinctive "feathered" tail, tiger stripe colouration and a wingspan of up to 130mm.
- The *Petalura Gigantea* nymph (juvenile) can spend up to 30 years in the ground eating anything it can grab with its jaws, surviving in tunnels excavated in swampy ground. This is quite different to the more common dragonflies that live underwater feeding on other aquatic insects and small fish.
- According to fossil records, the *Petalura Gigantea*, has been flying around since the Jurassic period (around 200 million years ago).
- Mrs Goninan's discovery will help Council and NPWS protect this rare creature's habitat on the Central Coast.

(Source: ABS website <http://www.abc.net.au/centralcoast/stories/s1835598.htm> - 29 January 2007)



*Female giant dragonfly*



*Male giant dragonfly*

(Source: Photos courtesy of Maureen Goninan from ABC website <http://www.abc.net.au/centralcoast/stories/s1835598.htm>)



The following table shows the endangered ecological communities (in full) and their corresponding vegetation mapping units as they occur in Wyong LGA. This highlights the significance of retaining these vegetation communities in conservation planning processes.

**Table 6.4 State Listed Endangered Ecological Communities and Comparable Vegetation Communities in the Wyong sub-region**

| <b>Endangered Ecological Communities</b>   | <b>Comparable Vegetation Communities in the Wyong sub-region</b>   |
|--|--|
| Coastal Saltmarsh  | Estuarine Baumea Sedgeland (Unit 1)<br>Estuarine Mangrove-Saltmarsh Complex (Unit 2)   |
| Freshwater Wetlands  | Freshwater Wetlands (Unit 14)  |
| Littoral Rainforest  | Coastal Sand Littoral Rainforest (Unit 12)   |
| Low Woodland with heathland on indurated sand at Norah Head                          | Coastal Sand Wallum Heath-Scrub (Norah Head) (Unit 13)   |
| River-Flat Eucalypt Forest   | May include some components of:<br>Alluvial Bluegum-Paperbark Mesic Palm Forest (Unit 16)<br>Riverine Alluvial Gallery Rainforest-Moist Forest (Unit 40)<br>Narrabeen Warm Temperate-Subtropical Rainforest (Unit 41)  |
| River-Flat Eucalypt Forest on coastal plains   | Ecotonal Community (Unit 26d/50)<br>Riverine Alluvial Gallery Rainforest-Moist Forest (Unit 40)<br>Alluvial Riparian Blackbutt Forest (Unit 43)<br>Narrabeen Snappy Gum Sedge Woodland (Unit 50)   |
| River-Flat Eucalypt Forest <u>OR</u> Swamp Sclerophyll Forest on Coastal Floodplains | Alluvial Redgum Foothills Forest (Unit 15)<br>Alluvial Bluegum-Paperbark Mesic Palm Forest (Unit 16)<br>Alluvial Robusta-Paperbark Sedge Palm Forest (Unit 17)<br>Alluvial Floodplain Swamp Paperbark Thicket (Unit 18)<br>Alluvial Woollybutt-Melaleuca Sedge Forest (Unit 19)<br>Alluvial Floodplain Shrub Swamp Forest (Unit 20)<br>Narrabeen Alluvial Drainage Line Complex (Unit 26d) |
| Swamp Sclerophyll Forest on Coastal Floodplains                                      | Coastal Sand Bangalay-Paperbark Forest (Unit 9)<br>Coastal Sand Mahogany-Paperbark Forest (Unit 10)<br>Regrowth Alluvial Floodplain Shrub Forest (Unit 20Xs)   |
| Sydney Freshwater Wetlands   | Munmorah Impeded Sand Sedgeland (Unit 21)  |
| Swamp Oak Floodplain Forest  | Estuarine Swamp Oak Forest (Unit 3a and 3b)  |
| Low Rainforest   | Narrabeen Hunter Ranges Gully Dry Rainforest (Unit 41)<br>Narrabeen Warm Temperate - Sub-Tropical Rainforest (Unit 42)   |
| In some instances it might also apply to:  | Alluvial Bluegum-Paperbark Mesic Palm Forest (Unit 16)<br>Riverine Gallery Rainforest-Moist Forest (Unit 40)   |
| Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion                 | <a href="http://www.nationalparks.nsw.gov.au/npws.nfs/Content/">www.nationalparks.nsw.gov.au/npws.nfs/Content/</a><br>This listing has the potential to impact large areas of Wyong Shire, specifically in the valleys (Yarramalong & Dooralong).  |
| *Hunter Lowland Redgum Forest  |  |
| *Lower Hunter Spotted Gum-Ironbark Woodland  |  |
| *Quorrobolong Scribbly Gum Woodland  |  |
| *Umina Sandplain Woodland  |  |

\*While these Communities are listed as occurring in the sub-region, they do not occur in the Wyong LGA. Those items in italics are new listings for 2006-07

## National Parks Estate update

During the 2006-07 reporting period, a total of 415 hectares has been gazetted for inclusion in the National Park Estate. These are listed in Table 6.5 below.

**Table 6.5 National Parks area for gazettal**

| Changes in status of protected lands | Area of land (hectares)   |
|--------------------------------------|---|
| Colongra Swamp Nature Reserve        | 119   |
| Palm Grove Nature Reserve            | 36 (note this is part of a larger reserve, the majority of which is in the Gosford LGA) |
| Tuggerah Nature Reserve              | 134   |
| Tuggerah State Conservation Area     | 126   |

Note: Reserve information has been generated from the National Parks and Wildlife Service Estate GIS layers and includes the National Parks and Wildlife Service Estate as at 30 June 2007. Where a reserve is entirely within an LGA the "total" area is the gazetted area. Where only part of a reserve falls within an LGA the "total" area provided is the GIS calculated area and is approximate only.

## Community projects and programs

### Environmental Care Groups

Wyong Council and the Hunter-Central Rivers Catchment Management Authority (CMA) jointly fund Council's Community Support Officer (Landcare). This role aims to increase the capacity of volunteers in their activities by providing technical and administrative support, encouraging the formation of new groups and supporting the implementation of the CMA Catchment Action Plan. Formal training has been delivered to volunteers on a weekly basis, on topics including native plant recognition, weed control methods and grant applications.

The community led network of volunteers in Wyong Shire, are committed to the sustainable health and management of our biodiversity and our environment. The network includes Landcare, Waterwatch, Coastcare, Dunecare and Bushcare groups. There are approximately 32 groups conducting restoration and regeneration activities at 51 sites throughout the Shire.



*Community Biodiversity workshop*



*Student field day in Porters Creek*

**Table 6.6 Number of Environmental Care Groups**

|                      | 2004-05                   | 2005-06 | 2006-07 |
|----------------------|---------------------------|---------|---------|
| <b>No. of Groups</b> | 18 (approx 31 sub-groups) | 34      | 32      |
| <b>No. of Sites</b>  | 43                        | 34      | 51      |

The groups undertake a range of restoration activities including weed control, erosion control, flora and fauna identification, revegetation, construction of fencing and walkways, seed collection and propagation and increasing community awareness of environmental issues. The combined area maintained by these groups is approximately 5,485 hectares. Council has funded 12 groups working on 14 projects, to a total of \$50,000. The funded environmental care groups are listed below.

**Table 6.7 Environmental Care Groups**

| Environmental Care Group                  | Project Location                              | Project Outcomes  |
|---|---|---|
| Palmgrove-Ourimbah Landcare               | Ourimbah                                      | Riparian bush regeneration on Ourimbah Creek  |
| Canton Beach Landcare                     | Canton Beach                                  | Bush regeneration of Tuggerah Lakes foreshore                                       |
| Geoffrey Road Bushcare                    | Chittaway                                     | Weed suppression in assest protection zone and bushland                             |
| Hargraves Beach                           | Werepi St, Budgewoi                           | Dune restoration activities   |
| The Swamp Landcare                        | Wyong   | Bush regeberation and willow control in wetland                                     |
| WyCare                                    | Pollock Ave, Wyong                            | Construction of mulch storage bins, garden beds for veggie patch and native gardens |
|   | Mingara                                       | Sponsorship of 2007 Mountains to the Dunes Landcare conference                      |
| Budgewoi Beach Duncare                    | Budgewoi                                      | Beach access at Ewa St  |
| Coastcare T.E.N.                          | The Entrance North Glenvale School            | Dune Restoration Plant Propogation  |
| Norah Head Coastcare                      | Bush Street Reserve and Coastal Walking track | Revegetation and weed control on coastal walking track                              |
| Northlakes Primary School Junior Landcare | Northlakes Primary School                     | Commenced construction of a school nursery  |
| Chain Valley Bay South Bush-care          | Wetland adjacent to Kemira Ave                | Bush regeneration and control of Crofton weed                                       |
| Ourimbah Creek Landcare                   | Burrarah Rd, Chittaway                        | Bush regeneration of Ourimbah Creek riparian area                                   |



*Bush St Reserve and Coastal Walking Track  
Norah Head Coastcare*



*Palmgrove - Ourimbah Landcare Group*

Council also works with Green Corps. This is a partnership between Wyong Council, WyCare and ET Australia working together to deliver a Commonwealth Government initiative aimed at providing environment and heritage training to youth. During the 2006-07 reporting period, the project employed ten young people to assist environmental care groups in their restoration activities. The team visited 15 sites, presented at the Mountains to the Dunes Landcare forum, controlled weeds over an area of 25ha and planted in excess of 1500 trees.

### Mountains to the Dunes

In May 2007, the third consecutive regional forum for Environmental Volunteers was held. Approximately 200 volunteers from Wyong, Lake Macquarie Landcare network, Gosford Bushcare and beyond attended field days, workshops and presentations over the three day period.

The event was co-ordinated by WyCare with support and sponsorship from Natural Resources Advisory Council, and sponsored by the Hunter-Central Rivers Catchment Management Authority, Wyong, Gosford and Lake Macquarie Councils, Landcare Australia, Natural Heritage Trust and Mingara.

The forum included field trips to Ourimbah and Wyong Creek Primary Schools, Kooindah Waters and WyCare community garden. Demonstrations of tree planting techniques and the winter survey of Swift Parrots and Regent Honeyeaters were undertaken at Pioneer Dairy.



Mountains to the Dunes field trip: Kooindah Waters Golf Course Environmental Management System



Mountains to the Dunes field trip: Waterwatch at Wyong Creek Primary School



## CEN Conservation on Private Lands

The Community Environment Network continues to coordinate the “Conservation on Private Lands Program” that seeks to reduce the decline of vegetation and biodiversity with regard to threatened species management on private lands by working with private landowners (on a voluntary basis).

The project is undertaken in partnership with Wyong, Gosford, Lake Macquarie and Cessnock Councils, National Parks and Wildlife Service (DECC), Hunter Central Rivers and Hawkesbury Nepean Catchment Management Authorities and Hunter Central Coast Regional Environmental Management Strategy. It is funded by the NSW Government Environmental Trust program and has been running for over 2 years.

The program offers a number of services to landholders including:

- free site visits by project officers to landholders who are interested in knowing more about the trees and other flora on their properties and how to manage them;
- a site report including species lists of both native and exotic species;
- the Natural Connections News;
- regular workshops related to maintaining habitat and biodiversity on private lands;
- a fully qualified bush regeneration team;

- access to a local provenance regional seed bank (over 40 different species); and
- the potential to qualify for DECC’s Land for Wildlife program.

Since its inception in January 2005, the program has resulted in over 62 site visits, providing advice on issues related to land management from erosion and weed control to native vegetation management. Of these, 36 chose to join the land for wildlife program equating to 578 ha of land protected in Wyong Shire; two have opted to put their properties under a conservation agreement in perpetuity; and two have opted for wildlife refuges. Three landowners have also been successful in applying for subsequent funding to undertake further rehabilitation of bushland and weed control on their properties.

The program has also assisted in the establishment of significant wildlife corridors along Wyong Creek (six properties involved), Ourimbah Creek (12 properties involved) and Jiliby Jiliby Creek (14 properties involved).

## CEN Habitat for Wildlife

In 2007 CEN began the *Habitat for Wildlife* program to encourage urban residents to create and/or maintain habitat for wildlife in their own backyard.

The overall aim of the program is to create corridors throughout urban areas that link to local parks, reserves and bushland. To date, 315 households have joined the program, of which 102 are in the Wyong Shire. The program offers information for residents, free site visits by volunteers from the Australian Plants Society (Central Coast Group) and workshops designed to help residents design and maintain habitat for wildlife. There has been a concerted effort and membership in the Wadalba area. Further information can be found at <http://www.cccen.org.au/>.



*Habitat for Wildlife launch in Wyong, March 2007*



## Swift Parrot and Regent Honeyeater Project Update 1

During the 2006-07 reporting period, a grant funded project was undertaken on the Tuggerah Reserve (Pioneer Dairy) site to provide habitat protection and enhancement for two threatened species of birds, the Regent Honeyeater and the Swift Parrot.

The Threatened Species Network (TSN) grant (applied for jointly by the Central Coast Regent Honeyeater Volunteer Operations Group, Tuggerah Reserve Trust and Wyong Shire Council) was used to purchase seedlings for planting along a section of Tuggerah Creek which bisects the Reserve. Over 4700 trees and shrubs were planted by 97 volunteers from the local community. Planting of 21 different species of trees and shrubs commenced two years ago and already some of the Blue Gums and Swamp Mahoganies are over three metres tall.

The Regent Honeyeaters and the Swift Parrots are autumn-winter visitors to the Central Coast. They feed on the nectar of the flowering Swamp Mahoganies and Forest Red Gums located within the Shire. Both species have been recorded on the adjacent Tuggerah Nature Reserve (once part of this Reserve) but the trees on the Tuggerah Reserve have mostly been removed for dairying purposes over the past 150 years.

## Swift Parrot and Regent Honeyeater Project Update 2

During the 2006-07 reporting period, Council was successful in gaining grant funding for another Swift Parrot / Regent Honeyeater Habitat Restoration project through the Natural Resources Advisory Council under its Forging Partnerships Program.

The project, called *Tuggerah Lakes Community Swift Parrot / Regent Honeyeater Habitat Restoration* builds on and expands existing community partnerships between Wyong Shire Council, Tuggerah (Pioneer Dairy) Reserve Trust, Central Coast Regent Honeyeater Volunteers Operation Group, Department of Environment and Conservation, Wyong Council Community Nursery Committee, Bateau Bay Public School and Landcare groups.

Using local provenance stock to revegetate multiple sites around Tuggerah Lakes, local Landcare, community and environment groups will assist Council to plant and maintain Swamp Mahogany trees in areas in which either or both bird species have been sighted.

The project supports the Recovery Plans of both Regent Honeyeaters and Swift Parrots, and will incorporate an information and education programme. The objective is to engage local residents around the Tuggerah Lakes and improve community appreciation of biodiversity conservation.



Photo courtesy of Lazarus




Photo courtesy of Lazarus

## Delta Electricity Funding

Delta Electricity continues to generously support Environmental Care groups in the Shire to implement on ground restoration works. During the 2006-07 reporting period, eight Landcare groups were sponsored for the following projects.

**Table 6.8 Delta Electricity Sponsored Landcare Groups**

| Group                                     | Materials  |
|---|--|
| Rocky Point Landcare                      | Stakes to install bank stabilisation materials on lake foreshore reserve   |
| Duck Haven Wetland Care                   | Litter removal materials<br>Weed control in landscape beds   |
| Charmhaven/Wallarah Landcare              | Mulch and labour to remediate damage from bike jumps<br>Plants for revegetation  |
| Budgewoi Dunecare                         | Signage for beach access<br>Star pickets for foredune fencing  |
| Chain Valley Bay South Bushcare           | Litter removal materials<br>Plants for burnt area  |
| Wycare Inc.                               | Community Nursery fittings: horticultural Heating Unit, pump and irrigation materials  |
| Northlakes Landcare                       | Noxious weed control and bush regeneration along Yuruga Ave  |
| Northlakes Primary School Junior Landcare |  Concrete Slab and shed for school nursery facilities |

### Glenola Farm Education Site

Glenola Farm is a Council owned property. It has an environmental and agricultural education centre to inform groups on issues such as catchment management, sustainable agriculture and environmental monitoring. Glenola is also used by students studying birds, frogs, platypus and fungi. The following table shows the use of Genola Farm Education Site by community and school groups over the SoE reporting periods.

| 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 |
|---------|---------|---------|---------|---------|
| 12      | 16      | 11      | 16      | 21      |

The group figures for the reporting period 2006-07 equates to approximately 624 visitors.

### *Weedbuster Glenola Farm October 2006*

In conjunction with National Weedbusters Week, two workshops were held at Glenola Farm on 7 October 2006. The workshops were funded by the Hunter Central Rivers CMA and Wyong Council. It provided information on weed ecology, identification and treatment. The workshops were attended by 50 people and included local residents, community members and volunteers groups.



Glenola Farm

## Council Bushland Management

### Bushfire Mitigation

There have been no changes to Council's bushfire maps during the 2006-07 reporting period.

As part of Council's Bush Fire Risk Management Programme, Council continued to maintain approximately 50 kilometres of asset protection zones (APZ) located at the urban bushland interface. The purpose of APZ construction and maintenance is to protect property assets and provide crucial safe access for fire fighting personnel and equipment in the event of a fire.

In conjunction with the Rural Fire Service (RFS), two major fire trails were upgraded during 2006-07 with funds from the RFS Fire Mitigation Works Fund – the Beckingham Fire trail (\$7,000) and the Elizabeth Bay Fire trail (\$9,000).

### Bushland Management Program

Wyong Shire Council manages bushland on Council-owned open space areas. A total of 38.2 hectares were regenerated with primary works on 12.2 hectares and maintenance on 26 hectares. This work has improved the condition of significant areas of high value bushland as well as protecting habitat for rare and threatened flora and fauna. The program has been funded by Council's Natural Resource's Unit, developer contributions and the Lands Department and cost approximately \$84,000.

However, this work does not protect all Council bushland sites considered of high conservation value. It is complemented by other projects including the Glenning Valley Property Vegetation Plan CMA Incentives Project (refer to section in this Chapter).



*Bushland at Bateau Bay*

## Noxious Weeds Program

During the 2006-07 reporting period, Council reviewed its noxious weed program and resolved to establish a Noxious Weeds and Pest Species Officer within Council (reflected in the 2007-08 Management Plan). The position will be responsible for facilitating the control of noxious weeds on both private and public lands managed by Council.

A five year noxious weeds inspection program has been developed. The noxious weeds program aims to inspect properties identified as high priority within the Shire, at least once over a five year period. High priority properties have been identified based on a risk analysis regarding the following heads of consideration:

- Potential pathway spread of weeds within the Shire;
- Local knowledge of weed history and known occurrences;
- Weed biology including life cycles, seed viability and dispersal mechanisms; and
- Weed impact analysis.

Council has recently added an extensive information section on noxious weeds to its website. The site provides information on over 95 noxious weeds that are found throughout Wyong Shire and New South Wales. Fact sheets include colour photos to assist noxious weed identification, fact sheets on identifying the weeds, how damaging they are, residents' responsibilities for controlling weeds and how Council can help.



*Bitou Bush*



*Salvinia*

**TABLE 6.9 A summary of Wyong Council's 2005-06 Bush Restoration Program**

| Location                        | Floral Assemblage  | Type of Restoration required   | Target Weed Species   | Area Ha | Primary Works | Maintenance Works | \$ Costs | Funding Source       |
|---------------------------------|--|--|---|---------|---------------|-------------------|----------|----------------------|
| Southfork Road, Glenning Valley | Gallery rainforest, Open forest, Sedgeland & a weed dominated forest | Continued intense target primary weeding with minor maintenance weeding using bush regeneration techniques.  | Privet, Lantana, Crofton, Blackberry, Ginger Lily, Wandering Jew & Impatiens. | 10      | 2             | 1                 | 20k      | WSC<br>Natural Areas |
| Victor Close, Tumbi Umbi        | Closed forest with emergents,  | Continued intense target primary weeding with minor maintenance weeding using bush regeneration techniques.  | Lantana, Crofton, Wild tobacco, Ginger Lily                                   | 50      | 12            | 0                 | 20k      | WSC<br>Natural Areas |
| Bush Street reserve             | Coastal Sand littoral forest   | Generally targeted primary weeding with minor maintenance weeding using a combination of bush regeneration techniques and herbicide foliar sprays. | Bitou Bush, Asparagus fern  | 2       | .5            | 1.5               | 10k      | WSC                  |



## Glenning Valley Property Vegetation Plan Incentives Project

As reported in the 2005-06 SoE Report, Council received \$397,000 funding (over a 3-year period) through Round 1 of the Hunter-Central Rivers Catchment Management Authority Property Vegetation Plan Incentives Project. Glenning Valley is identified as a very high conservation area and covers an area of approximately 1,400 hectares. The funding is to undertake regeneration works throughout the valley to work towards longer term conservation (in perpetuity), at a landscape scale. Council will take the lead role by regenerating and managing Council owned and controlled lands. It is also intended that the program be used as a model conservation initiative involving private-public cooperation.

Ten sites were identified for restoration under this project. The ten sites were selected based upon the following highly valued attributes:

- Regionally significant vegetation communities or habitat;
- The presence of threatened flora or fauna;
- The presence of endangered ecological communities;
- The size and spatial context of the sites within the landscape; and
- The resilience of the sites and their sensitivity to threatening processes.

The restoration works required under this project include selectively removing identified noxious and environmental weeds from the sites, encouraging natural regeneration and discouraging further weed invasion. Restoration works are expected to commence during the 2007-08 reporting period.

### Clearing approved by Council

The following table provides an approximate figure for vegetation clearing approved by Council during the 2006-07 reporting period. These figures reflect only those development applications submitted to Council and referred to Council's Development Ecologist for specialist review. They do not include single dwellings or clearing that was approved in a previous year (ie Section 96 applications under the *Environmental Planning and Assessment Act 1979*).

**Table 6.10 Vegetation Clearing**

| Category of proposed development   | Total approved clearing (ha) |
|--|------------------------------|
| Residential subdivision  | 28.1                         |
| Major Projects (including industrial) and Special Uses                           | 7.4                          |
| Council works (includes Bateau Bay Sports fields and Hunter connection pipeline) | 5.4                          |

\* These figures will be an underestimate of the total area cleared in Wyong Shire, as they do not include smaller Council applications and some single dwellings in rural locations.

In relation to the approved clearings, Council has been able to negotiate "in perpetuity" offsets with Management Plans via Deeds of Agreements and Section 88B instruments for approximately 26 hectares. In addition, as part of the Bateau Bay Sports fields approval, a wildlife corridor is to be created which will provide 3.25 hectares of bushland linking part of Tumbi Wetlands to Yarramalong National Park.

*Note: Under the Native Vegetation Act 2003, a landholder may be permitted to clear remnant vegetation providing they agree to "offset" actions – that is, planting or protecting native vegetation on their own property or other land (NSW CMA).*

### Tree Management Policy (Chapter 14 – DCP 2005)

During 2005-2006, Council considered and adopted a new policy direction for tree management (particularly in relation to private property), and further amended its Tree Management controls to address legislative updates and the recommendations of a further significant tree study for the Shire. It became effective on July 17 2006. The changes to the policy allow residents to remove certain trees within 3 metres of an approved structure without further consent from Council (conditions apply). Identification of the species is required to address the requirements of the Threatened Species Conservation Act 1995. The tree must not be a threatened species or habitat for threatened animals.

In the initial phase of the changes to the policy, Council offered a free Tree Identification Service to assist residents identify the type of tree(s) being considered for removal. This has also allowed Council (to some degree) to track the extent of canopy being removed.

Council's Tree Assessment Officer has advised that over 180 site inspections for tree identifications were undertaken during the 2006-07 SoE reporting period. On average, 2 trees were identified through each application and approximately 324 trees were removed. However, this figure may be significantly higher if preliminary tree identification is not undertaken (ie to identify whether the tree is a threatened species or habitat for threatened species) and the trees are removed solely on the basis that they are within 3 metres of an approved structure.



The free Tree Identification Service was only offered for the initial phase of the changes to the Policy and ceased in July 2007. The identification process is still required however residents must now pay a fee for this service. The ongoing monitoring of the removal of these trees will be very difficult due to the fact that Council consent is not required and record keeping may be limited.

Whilst some of these trees may have posed a threat to homes or built structures, the potential for loss of canopy within the urban landscape has adverse implications for the future of Wyong Shire's biodiversity.

### Biocertification within Wyong Shire

Working draft guidelines for Biodiversity Certification of Environmental Planning Instruments were released by the Department of Environment and Climate Change (DECC) in late February 2007. A new provision under the Threatened Species Conservation Act 1995 (section 126G) gives the Environment Minister the ability to confer certification on an EPI (such as a local environmental plan), if they are satisfied that it will lead to the overall improvement or maintenance of biodiversity values. Before determining whether to grant biodiversity certification, the Minister for the Environment must be satisfied that the EPI, and any associated measures, will lead to an overall improvement or maintenance of the biodiversity values.

The primary test for biodiversity certification, is whether the proposal "improves or maintains biodiversity values".

A draft biocertification report has been prepared to support the Wyong Employment Zone (WEZ) State Significant Site Study. This is being done to stream-line statutory processes for administering threatened species legislation within the WEZ. The DECC have agreed 'in principle' that the WEZ draft local environmental plan should be biocertified because of the size and complexity of biodiversity planning issues. This would greatly simplify the future development application process for developments within the WEZ. It will create more development certainty as it allows conservation outcomes to be negotiated upfront through the rezoning process.

### Mechanical Aquatic Weed Harvesting Trials

In June 2007, a free-floating aquatic weed called salvinia molesta (salvinia) had infested a wetland at Applegum Close, Woongarra. The wetland is up stream of the Warnervale floodplain. The weed had grown amongst the existing narrow-

leaf plants and taken over a large proportion of the surface area of the wetland. Salvinia molesta (salvinia) dies very quickly when not in direct contact with water and makes great compost for conditioning soil, so it can be added to green waste.

The weed was removed using an amphibious vehicle called a Truxor. This was used to trial how effective it would be to remove the weed. As shown in the pictures below, the Truxor harvests the weed from the surface of the water and places it in a pile on the foreshore for disposal. The vehicle is quite easy to move, providing a chemical free alternative to aquatic weed removal.

The use of the Truxor to remove the salvinia molesta (salvinia) at Applegum Close, Woongarra was successful. Over 99% of the weed was controlled and a boom was installed to contain the remaining 1%. This approach is now being considered for other weed infestations in Wyong Shire.



Before weed removal 01/06/07



Truxor amphibious vehicle removing weeding



Truxor amphibious vehicle

## PACT – Central Coast Platypus Awareness Campaign

In 2004, the Central Coast Platypus Awareness and Conservation Team (PACT) was formed, in response to the death of 15 Platypus in illegal yabby traps in local streams. Members of PACT include the Rumbalara Environmental Education Centre, several local schools, and community members and Council.

During the 2006-07 reporting period, PACT assisted a student at the Newcastle University Ourimbah Campus complete an Honours Project on the distribution and occurrence of Platypus in Wyong River and Ourimbah Creek. PACT also held a successful platypus day at Yarramalong, attracting 150 people. In addition to this, no reports were received by PACT regarding Platypus deaths in illegal yabby traps in local streams.



*Many platypus die every year due to getting caught in yabby traps.*



## Council response to Biodiversity issues

| Response                   | Action to date  | New actions for Council's consideration   |
|----------------------------|---|---|
| <p><b>Biodiversity</b></p> | <p>Council continues to work with the community, environmental care groups and the development sector on a range of activities to help protect and enhance the Shire's natural environment. These include:</p> <ul style="list-style-type: none"> <li>• implement threatened species legislation as it regulates land development;</li> <li>• support for provide funding for Environmental Care groups;</li> <li>• rehabilitation of Council's Glenola farm education site</li> <li>• a noxious weeds removal program;</li> <li>• support for projects such as DECC's Land for Wildlife and CEN'S Conservation on Private Lands and Habitat for Wildlife projects;</li> <li>• improving stormwater treatment, incorporating reuse and management and addressing the issue of quality;</li> <li>• bushland management and regeneration;</li> <li>• bushfire mitigation;</li> <li>• trial chemical free aquatic weed removal;</li> <li>• tree management policy (Chapter 14 of DCP2005);</li> <li>• biodiversity certification of environmental planning instruments;</li> <li>• seek external grant funding opportunities including the Glenning Valley Property Vegetation Plan and the Swift Parrot/Regent Honeyeater projects.</li> </ul> <p>Volunteers from local groups such as Wycare, Landcare, Rivercare, Dunecare, Coastcare and the Community Environment Network all contribute time and on-the-ground effort to conservation within the Wyong Shire catchment. During 2004-05 fourteen community projects were funded by Council.</p> <p>Conservation planning needs to incorporate an overall management strategy to address biodiversity issues across the Shire and also to consider the vulnerability of species, habitats and ecosystems in light of the looming impacts of global warming and resulting climate change.</p> | <p>If development pressures continue to fragment the remaining bushland in Wyong Shire without the direction of strong conservation planning, then biodiversity values will continue to decline and be generations to enjoy.</p> <p>Effective triple bottom line (TBL) decision making is required to ensure that an equitable balance can be made between economic, social and environmental outcomes for Wyong Shire.</p> <p>Consider the development of a biodiversity strategy which includes:</p> <ul style="list-style-type: none"> <li>• a review of Council management of biodiversity on its own lands and investigation into the implications for Council of biocertification and the offset arrangements currently being determined by DEC and the CMA to 'counteract' clearing of native vegetation;</li> <li>• a variety of incentives to landowners to conserve biodiversity on private land;</li> <li>• consideration of the vulnerability of species, habitats and ecosystems in light of the looming impacts of global warming and resulting climate change.</li> <li>• the requirement for compensatory restoration when significant vegetation is cleared; and</li> <li>• identification and reservation of Green Corridors ie: strips of vegetation which link larger remnants of vegetation together.</li> </ul> <p>Council is to engage a new noxious weeds officer during the 2007-08 reporting period to undertake a 5-year noxious weed inspection program.</p> <p>Effective triple bottom line decision making ensures that an equitable balance can be made between economic, social and environmental outcomes.</p> |

## Little Green Steps

Wyong Shire Council in partnership with Gosford City Council received \$55,000 in funding from the Department of Environment and Conservation's Our Environment *It's A Living Thing* Program to develop a sustainability program for preschools and early childhood centres. Since the funding source ended Council has funded the continuing program which involves developing and workshopping environmentally sustainable practices in preschools along with developing children's activities and programs that can be easily incorporated into the early childhood curriculum. The program has also funded a series of professional development workshops and training for staff of these centres. The workshops were developed and will be presented by expert environmental educators from the Department of Environment and Conservation and The Lady Gowrie Child Centre Sydney.

Activities developed and implemented into approximately 30 centres in Wyong Shire include; water education, biodiversity and green gardening, and healthy eating and waste education. Many centres are now composting, growing tyre gardens with herbs and vegetables, using chemical free cleaning methods and saving water! The children and their families enjoy activities in their centres and are teaching each other the importance of our local environment. Centres in 2005 also participated with their families in National tree Day, planting tubestock in their school grounds. More centres are becoming involved as time goes by.

Both Gosford and Wyong Council were invited to showcase the program to others working in environmental education through a workshop held by the NSW Department of Environment and Conservation. From this day 26 Councils across NSW took interest in the program and are looking to use it as a model for their LGA's. Recently the Little Green Steps Program has been successful in receiving a new grant to showcase the program across NSW.



# CHAPTER 7

## HERITAGE

### Introduction

Heritage in Wyong Shire dates back many thousands of years. This incorporates both Aboriginal heritage which is rich and diverse, and European heritage which reflects our early settlements. This chapter

outlines the identified heritage items, the main pressures which could impact on them and the responses required by Council to ensure they are retained.

| Heritage At A Glance |                |                |                |   |
|----------------------|----------------|----------------|----------------|---|
| Model                | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment   |
| <b>State:</b>        | Stable         | Declining      | Stable         | <p>Wyong Shire has a rich natural heritage, indigenous and built heritage.</p> <p>During the 2006-07 reporting period, the Norah Head lighthouse was listed as an item of state heritage significance under the NSW Heritage Act 1977.</p> <p>However, the state of at least one privately owned local heritage item has been declining due to lack of maintenance by the owner. Council has limited power to force maintenance unlike State Heritage items. For local items power only extends as far as weed control and where the building forms a safety concern.</p>   |
| <b>Pressure:</b>     | Increasing     | Increasing     | Increasing     | <p>The main sources of pressure on the heritage of Wyong Shire continue to be:</p> <ul style="list-style-type: none"> <li>• population growth and resultant urban development and redevelopment (eg The Entrance);</li> <li>• more intensive use of the landscape; increasing land values resulting in a push to maximise development potential of sites;</li> <li>• Development reflecting current trends rather than the existing character of the area. These have resulted the loss of context and the degradation of streetscapes where consistent older style streetscapes have given way to a mixed variety; and</li> <li>• the natural process of deterioration.</li> </ul> |



| Heritage At A Glance |                |                |                |  |
|----------------------|----------------|----------------|----------------|--|
| Model                | Rating 2004-05 | Rating 2005-06 | Rating 2006-07 | Comment  |
| <b>Response:</b>     | n/a            | Good           | Good           | <p>As mentioned above, during the 2006-07 reporting period, the Norah Head Lighthouse has been listed as a state significant item under the <i>Heritage Act 1977</i>.</p> <p>Council is currently preparing a draft Local Environmental Plan (LEP) to update Schedule 1 of the <i>Wyong LEP 1991</i>. The purpose is to update the LEP to remove the regional listing and retain the local and state listings (in accordance with the amendment to the Heritage Act in 1999) and update the listed heritage items in the Schedule.</p> <p>The state heritage items to be updated include:</p> <ul style="list-style-type: none"> <li>• The Norah Head Lighthouse</li> <li>• The Entrance Baths</li> <li>• St Barnabas Anglican Church</li> </ul> |
| <b>Projection:</b>   | n/a            | Stable         | Stable         | Whilst heritage sites owned and managed by Council are generally well maintained, there is a risk of incremental loss of privately owned heritage items over time. Priority should continue to be given to items of state significance.  |

## Natural heritage

Wyong is rich in natural heritage. The value of these areas has been recognised with much of the area protected in the form of National Parks/Nature Reserves, with further land protected in dedicated open space reserves. No additional areas were gazetted as National Park Estate during the reporting period 2006-07.

**Table 7.1 Name and additional area of land gazetted as National Park Estate in 2006-07**

| Changes in status of protected lands | Area of land affected (hectares)   |
|--------------------------------------|--|
| Colongra Swamp Nature Reserve        | 119  |
| Palm Grove Nature Reserve            | 36 (This is part of a larger reserve, the majority of which is in the Gosford LGA) |
| Tuggerah Nature Reserve              | 134  |
| Tuggerah State Conservation Area     | 126  |

**Note:** Reserve information has been generated from the National Parks and Wildlife Service Estate GIS layers and includes the National Parks and Wildlife Estate as at 30 June 2007. Where a reserve is entirely within an LGA the "total" area is the gazetted area. Where only part of a reserve falls within an LGA the "total" area provided is the GIS calculated area and is approximate only.

## Protection of Indigenous heritage

There are some 270 recorded Aboriginal sites in the Shire, most occur in the Hawkesbury sandstone region and coastal fringe and are listed on the National Parks & Wildlife Service database. Council continues to work closely with the NSW Heritage Office and the Darkinjung Aboriginal Land Council to protect these items.

Licences are required under the *National Parks and Wildlife Act 1974* for works which could impact on Aboriginal Heritage either positively or negatively (eg destroy or damage a site or conservation or relocation works). The Department of Environment and Conservation have advised that during the 2006-07 reporting period, there were six sites in Wyong Shire that were altered, destroyed or damaged.

### The Norah Head lighthouse and it's surrounds

The place was used by the Darkinjung people as a camp site, burial place and all stage of the rites of passage from childhood to adulthood have occurred there since ancestral times. Sites include a burial, a dreaming site, middens, campsites, engravings and a scarred tree (NSW Heritage Office).

## Cultural heritage (non-indigenous)

There are 94 items of European heritage in the Shire which date back to the early settlements in the 1820s. These include houses, barns, holiday homes, war memorials and bridges.

On 13 April 2007, the Norah Head Lighthouse and its surrounds was formally listed on the State Heritage Register under the NSW Heritage Act 1977. This means that the lighthouse has been recognised at a state level for its national cultural significance. It was the last colonial built lighthouse on the central NSW coast and as such marked the completion of a chain of lighthouses along the NSW coast which was necessary to keep the maritime track open (NSW Heritage Office). The place is also significant for its spiritual and cultural association with the Darkinjung people. The place was used by the Darkinjung people as a camp site, burial place and all stages of the rites of passage from childhood to adulthood have occurred there since ancestral times.

The application was submitted by the Norah Head Lighthouse Reserve Trust. The Trust is now considering applying for National Heritage listing of the lighthouse. In the meantime, the state listing provides the opportunity to apply for more grants and funding from all levels of government to assist the Trust in their ongoing restoration works (including fencing and scrubbing the interior of the lighthouse). Tours of the lighthouse commenced in January 2006.

There are now four items listed by the Heritage Council under the *NSW Heritage Act 1977* in Wyong Shire, these include:

- The Entrance Ocean Pools;
- Hargraves House, Noraville;
- St Barnabas Anglican Church, Yarramalong; and
- Norah Head Lighthouse.



Norah Head Lighthouse

## Simpsons Track - Convict Trail Project Inc.

During the 2006-07 reporting period, the Convict Trail Project Incorporated released a brochure to promote and increase appreciation of Simpsons Track, an unofficial branch of the Great Northern Road.

The route was called "Simpsons Track" because Thomas Simpson's land was the first large landholding it passed.

It was the first link with Sydney, Newcastle and the Hunter Valley and opened the Central Coast area to settlers coming by land.

For more information about Simpsons Track and the Great Northern Road, visit the Convict Trail website [www.convicttrail.org](http://www.convicttrail.org)



Source: <http://www.convicttrail.org/tours.php?id=a3b5>

## Ourimbah Sawmill

During the 2006-07 reporting period, a draft report was prepared regarding the Ourimbah Sawmill which recommended that the Mill, or elements thereof, be relocated to the Pioneer Dairy. The Open Space and Recreation and Future Planning sections of Council continue to work on the upgrade of Bill Sohler Park and the Ourimbah Planning Strategy, however a final decision on the relocation of the sawmill has not yet been made.



The Entrance Ocean Baths

## Amendments to Wyong Local Environmental Plan 1991

Council is currently preparing a draft Local Environmental Plan (LEP) to update Schedule 1 of the Wyong LEP 1991. These are detailed below. These changes are likely to proceed in the 2007-08 reporting period.

### 1. New heritage items to be included on schedule 1 of the Wyong LEP 1991:

- Bulk Store Building, Ruttleys Road, Mannering Park and the former Wyong Dairy Cooperative, Alison Road, Wyong

A Cultural Plan for Wyong Shire 2005 was developed to 'provide an immediate and long-term direction for culture and the arts for Wyong Shire.' Designed to 'guide the activities of the Council,' the Cultural Plan outlines a four-year action plan and timeframe for key actions that were identified in response to research and community consultation.

Amongst other things, the Plan focuses on Celebrating our History and Heritage and recognises that 'built heritage can contribute greatly to the flavour of the environment.' Action Number 53 recommends that Council encourage and support programs that research and document the Aboriginal and post-1788 history of the Shire. Through the listing of the Bulk Store Building and former Wyong Dairy Cooperative, Council takes a vigilant approach to the formal recognition of heritage items in consideration of the adopted Cultural Plan.

In order to ensure the continued maintenance of the heritage, interpretive and education values and the appropriate conservation of both the Bulk Store Building and the Former Wyong Dairy Cooperative, it is recommended that Conservation Management Plans be prepared to ensure that existing and future uses will not adversely affect the heritage significance of the facilities.

- The Entrance Ocean Pools, Ocean Parade, The Entrance

The Entrance Ocean Pools was listed on the NSW State Heritage Register on 22 August 2003. However, this has not been reflected in Council's LEP. It is therefore recommended that the LEP be amended to list The Entrance Ocean Pools as a Heritage Item of State Significance.

### 2. Change to the Heritage Categories

Under the Wyong Local Environmental Plan 1991 (Schedule 1), there are currently three categories a heritage item can be classified. These are local, regional and state. Changes to the Heritage Act in 1999 resulted in the abolishment of the 'regional heritage significance' category. The purpose of this was to align classifications with current levels of government (ie there is no regional level of government) and ensure appropriate management of the heritage items. The NSW Heritage Office stipulated that all heritage items of regional significance be recognised as heritage items of local significance. In addition, Councils were requested to assess all heritage items of regional significance to ensure the revised classification was appropriate.

While Council aims to undertake a review of all items of heritage significance under both the Heritage Inventory and Schedule 1 of Wyong LEP 1991 in 2008/2009; it was considered appropriate (in the interim) to reclassify all heritage items of regional significance to local significance with the preparation of the draft LEP for LEP Bundle 2.

### 3. Reclassification of Heritage Items of Significance:

Both Norah Head Light Station Precinct and St Barnabas Church will be reclassified as heritage items of state significance under Schedule 1 – Heritage Items of WLEP 1991.



St Barnabas Church

## Council's Management Plan – where do we want to be?

As stated in Wyong Shire Council's Management Plan 2006-07, our objectives for society are:

- A better society – enhance the quality of life of the Shire's residents
- Conserve significant items of Aboriginal and European heritage

There are no actions outlined in the 2006-07 Management Plan that relate to heritage items.

## Council responses to heritage issues

Maintaining the heritage of the Shire is a way of preserving our history for the benefit of current and future generations.

Council directly impacts heritage items which are owned and maintained by Council in its works programs and takes heritage issues into account in town planning and development applications. Any developments involving items of State significance becomes an integrated development and requires the concurrence of the NSW Heritage Office.

Responses identified in the 2006-07 SoE Report for consideration in development of Council's Management Plan. By addressing these issues and implementing a long-term program of identification, maintenance and auditing, Council will ensure the sustainability of these items.

| Response        | Action to date   | New actions for Council's consideration   |
|-----------------|--|---|
| <b>Heritage</b> | <p>The audit of Council owned heritage items in the Shire in 2003-04, recommended that conservation plans and maintenance guidelines be developed for each item in accordance with the NSW Heritage Office.</p> <p>Council is currently preparing a draft Local Environmental Plan (LEP) to update Schedule 1 of the <i>Wyong LEP 1991</i>.</p> <p>The purpose is to update the LEP to remove the regional listing and retain the local and state listings (in accordance with the amendment to the Heritage Act in 1999) and update the listed heritage items in the Schedule.</p> <p>Heritage items to be added include:</p> <ul style="list-style-type: none"> <li>• Bulk Store Building, Ruttleys Road, Mannering Park;</li> <li>• Former Wyong Dairy Cooperative, Alison Road Wyong; and</li> <li>• The Entrance Ocean Pools, Ocean Parade The Entrance.</li> </ul> <p>Items to be reclassified include:</p> <ul style="list-style-type: none"> <li>• The Norah Head Lighthouse; and</li> <li>• St Barnabas Anglican Church.</li> </ul> <p>Strategic Planning Strategies continue to require heritage studies, where appropriate. These include:</p> <ul style="list-style-type: none"> <li>• The Entrance Peninsula Strategy (covers the areas of North Entrance, The Entrance and Long Jetty);</li> </ul> | <p>Council's work program should consider prioritisation of several conservation plans including the State significant Norah Head Lighthouse.</p> <p>The amendment to Wyong LEP 1991 progress as expeditiously as possible to ensure heritage items in the Shire are given appropriate recognition and protection in accordance with the <i>NSW Heritage 1977</i> and the 1999 amendments.</p> <p>Any recommendations from the relevant Heritage Studies will need to be considered in the finalisation of the relevant planning strategies.</p> <p>The Wyong/Tuggerah Planning Strategy is to be considered by</p> |

| Response               | Action to date   | New actions for Council's consideration  |
|------------------------|--|--|
| <p><b>Heritage</b></p> | <ul style="list-style-type: none"> <li>• Ourimbah Planning Strategy; and</li> <li>• The Wyong/Tuggerah Planning Strategy.</li> </ul> <p>The Ourimbah Sawmill is located in the Bill Sohler Precinct of the draft Ourimbah Strategy which is being developed. As part of this process, a report prepared has recommended that the Sawmill (or elements thereof) be relocated to the Pioneer Dairy. However, to date, no final decision has been made on this.</p> | <p>Council in July-August 2007. If adopted, a draft LEP will be prepared and a revision of Chapter 7 in DCP 2005 will be undertaken. This work will need to ensure that the heritage characteristics of the areas (particularly the Wyong Town Centre) are maintained. This approach would also be consistent with the draft Central Coast Regional Strategy.</p> <p>The future of the Ourimbah Sawmill is subject to a decision on the possible relocation of the Mill (or parts thereof) to Pioneer Dairy.</p> <p>This uncertainty should be resolved during the 2007-08 reporting period.</p> |



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## **contacts:**

### **Wyong Shire Council**

**Karen Douglas**

Natural Resources Officer

Sustainability

43505145

[karen.douglas@wyong.nsw.gov.au](mailto:karen.douglas@wyong.nsw.gov.au)

You can also find the State of the  
Environment Report on Wyong  
Council's website:

[www.wyong.nsw.gov.au](http://www.wyong.nsw.gov.au)

