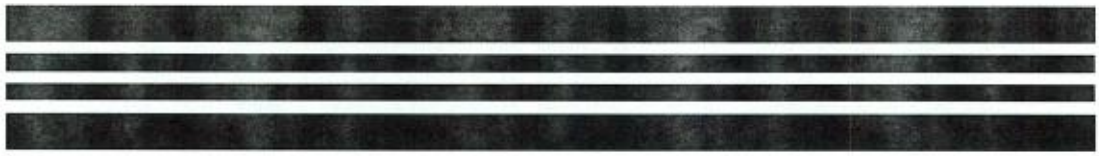

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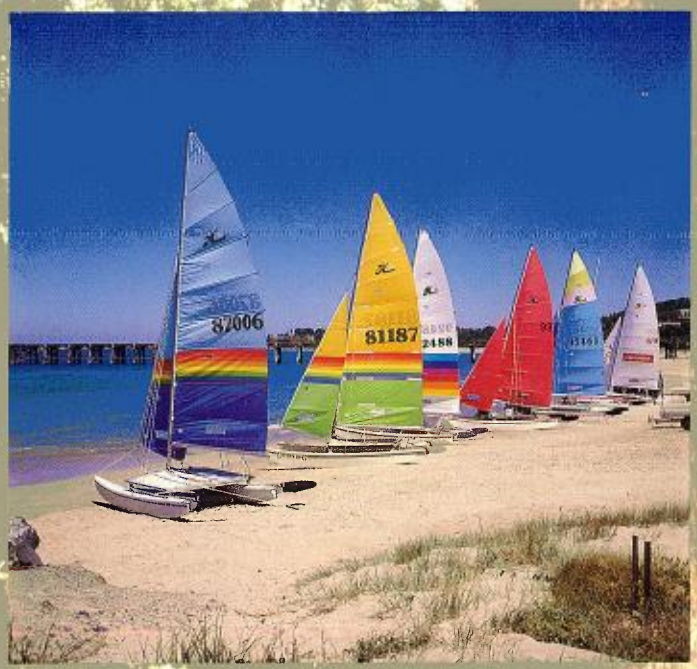
State of the environment report Coffs Harbour City Council

State of the Environment Report

1996



Coffs Harbour City Council

Coffs Harbour City Council

STATE OF THE ENVIRONMENT REPORT 1996

Prepared by:
Planning, Environment and
Development Department
November 1996

STATE OF THE ENVIRONMENT REPORT

Table of Contents

Page No

Page No

Page No

Page No

APPENDICES

SUMMARY TABLE OF STATES, PRESSURES AND RESPONSES

REFERENCES

GLOSSARY

FIGURES

TABLES

EXECUTIVE SUMMARY

INTRODUCTION

This is the third State of the Environment Report to be produced and covers the period 1 July, 1995 to 30 June, 1996. It presents an overview of the status of our environment, the pressures affecting it, and the measures required to minimise environmental degradation.

Coffs Harbour is endowed with a rich and diverse natural environment. The overriding pressure on our environment is population growth and demand for residential, commercial and industrial development.

Coffs Harbour City Council embraces 'ecologically sustainable development', and aims to promote harmony between development and our environment. This is a complex and challenging task.

During this SoE period, major studies were undertaken to enhance our understanding and better manage our environment. Examples include the mapping of vegetation communities, the Urban Development Strategy, the Agricultural Land Review, the Jetty Masterplan and Rural Residential Studies. These, and other studies, will be integrated into a revised Local Environmental Plan for Coffs Harbour.

Significant advances were made in waste management, which included the provision of an innovative kerbside recycling and greenwaste service to all residents. Surveys showed that residents are highly satisfied with this new service.

This SoE Report shows that Council has made considerable progress on many fronts in protecting and enhancing our environment. At the same time, it is important to recognise the many community groups and individuals who have freely given their time and effort to engage in important environmental activities.

COMMUNITY CONSULTATION

Community involvement is essential for successful management of our environment.

Council undertook extensive consultation to elicit the community's environmental values and aspirations for the City. The 'Vision 2020' community consultation program demonstrated that environmental protection ranks high amongst the community's priorities and is integral to our quality of life. The Vision 2020 outcomes now form the basis of Council's forward planning in all areas.

Council commissioned major studies in 1995 and 1996 to survey the community's attitudes on the importance and satisfaction ratings with respect to Council activities and ways of better communicating with the community.

Most of the projects discussed in this report have been developed in consultation with the community. Examples include the Urban Development Strategy and the Council's Management Plan. Council has also supported community-based environmental management programs, such as the City's Beautification and Improvement Committee, School 'Streamwatch' and the many Landcare and Dune Care groups.

Council recently received a prestigious award from the New South Wales Litter Recycling and Research Association for "Excellence in Communication". This was awarded for the exemplary way in which Council communicated with the community in developing and implementing new waste services.

LAND

The City's 'green' backdrop, with the patchwork of forests and agricultural lands along the coastal range, ensures that Coffs Harbour ranks high in terms of scenic quality. Management to preserve this asset is a priority.

Major land management issues include potential contamination of former banana lands and acid sulphate soils. These have been addressed by identifying areas affected and implementing appropriate development constraints. Over the past year, many other projects have been designed to integrate environmental management with development.

AQUATIC SYSTEMS

Coffs Harbour has an extensive network of creeks which form an integral part of our local environment. With their associated wetlands, they provide a habitat for a myriad of plant and animal species. Furthermore, our creeks provide urban and agricultural water supplies, as well as a resource for recreational activities such as swimming, fishing and boating.

Many advances have been made in preserving the area's aquatic systems, ranging from minimisation of pollution entering creeks to augmentation of the City's water supply system. Some examples of specific projects to which significant resources have been allocated are:

- *Total Catchment Management Committee*
- *implementation of the Coffs Creek Waterways Improvement program*
- *review of Engineering Guidelines for Design and Construction of Stormwater Systems*
- *commissioning of a major study of aquatic life in the Orara River*
- *raising of Karangi Dam and increasing environmental flows in the Orara River.*

Over the next year, management of the City's aquatic systems will be further implemented in a number of ways. These include:

- *completion of the Floodplain Management Plan for Bonville North and North Arm Coffs Creek*
- *mapping of seagrass and mangrove areas*
- *implementation of Peak Flow Rate Remediation and Stormwater Detention Policies*
- *continuing participation in the Regional Water Supply Strategy*
- *revision of Sediment and Erosion Control Guidelines*
- *development of a Stormwater Management Policy.*

BIOLOGICAL DIVERSITY

Coffs Harbour is endowed with a rich biological diversity. Approximately one third of those species of flora and fauna classified nationally as rare or endangered, occur in this area. Koalas are the most prominent endangered fauna, with relatively high numbers being widely dispersed throughout the City.

Biological diversity has been addressed through a number of strategies. Development proposals are scrutinised to assess impact on biological diversity, with appropriate restrictions and development conditions being applied where necessary. Council facilitates the work of numerous Landcare and Dune Care groups, as well as other community projects such as Habitat 2000, Jarretts Creek regeneration and Friends of Woolgoolga Lake. Assistance is also given for recovery plans for threatened species of both flora and fauna, providing practical help as well as professional representation on recovery teams.

Over the next year, resources have been allocated for:

- *completion of the Vegetation Classification and Mapping Project*
- *completion of the Koala Management Plan*
- *preparation of a Rural Residential Management Strategy*
- *preparation of Generic Management Plans for community land.*

These projects represent a major commitment to maintaining and improving the biological diversity of the City area.

AIR

Coffs Harbour is fortunate in not having the air pollution problems encountered in other metropolitan areas. Some complaints are caused by burning of vegetation and dust nuisance from unsealed roads and subdivision sites.

The recent introduction of a kerbside greenwaste collection service should serve to reduce nuisance problems arising from backyard burning. Furthermore, the on going dust sealing of roads will continue to diminish dust nuisance from this source.

Next year the following strategies will be pursued to further improve air quality:

- *promote further participation in the kerbside greenwaste collection service*
- *continue the dust sealing of roads*
- *continue to impose restrictions on burning for land clearing and subdivision activities.*
- *investigate the option of implementing a prohibition of open burning in residential areas provided with a greenwaste service.*

SOLID WASTE

The major challenge faced in management of the City's solid waste is to recycle waste going to landfill and recover waste resources.

Achievements in solid waste management over the past 12 months include:

- *implementation of an Integrated Waste Management System (involving kerbside collection of garbage, recyclables and greenwaste)*
- *commissioning of two new waste transfer stations*
- *commissioning of an Environmental Impact Statement for Englands Road waste facility.*

These achievements now place Coffs Harbour as a leading local government authority in waste management.

During the next year, a number of further objectives will be pursued, including:

- *improve participation of residents in the kerbside recyclable and greenwaste collection service*
- *reduce the level of contamination of recyclables and greenwaste*
- *implement a Management Plan for Englands Road Waste Disposal site*
- *establish a hazardous waste receival and transfer facility at Englands Road*
- *undertake an Environment Protection Authority funded study to investigate greenwaste processing and marketing opportunities.*

LIQUID WASTE

The City's liquid waste is primarily dealt with at the three treatment works in Coffs Harbour, Sawtell and Woolgoogla, which have a total capacity of 70,000 equivalent persons. Council policy is to maximise the re-use of treated waste water and a project team of professional officers has been formed to pursue this objective. The efficiency of septic tanks used in rural areas is regulated by Council through stringent design and operation standards.

A sewer rehabilitation program is currently being pursued, to rectify sewerage catchment infiltration problems. Also, concept reports for the augmentation of Coffs Harbour and Sawtell treatment plants, including methods of improving effluent quality, have been commissioned.

Over the next year the greatest priority will be to continue investigating options for provision of sewerage to the Northern Beaches. The re-use of treated waste water will also remain a major liquid waste management priority.

NOISE

The majority of noise complaints arising in Coffs Harbour can be resolved by implementation of fairly straightforward remedial measures. Causes for most complaints are domestic air conditioners, pool filter pumps and barking dogs. Council promptly responds to noise complaints.

Noise control is proactively dealt with through careful scrutiny of development proposals to assess their noise generating potential in relation to the sensitivity of the area. The aim is to prevent noise pollution problems arising. For example, an Environmental Impact Statement is being prepared which will examine noise implications of upgrading the Coffs Harbour airport.

ABORIGINAL AND NON-ABORIGINAL HERITAGE

Thirty five sites of Aboriginal significance have been identified across the area. These are maintained in a Council register under the Local Environmental Plan (LEP) 1988. There are also 17 items of general heritage significance identified through a Heritage Study. These too are protected under the LEP 1988.

Protection of the area's Aboriginal and non Aboriginal heritage is addressed through development control strategies. With regard to known Aboriginal sites, any undisturbed areas being considered for urban expansion or rezoning must undergo a relic survey by an archaeologist. Items of non Aboriginal heritage significance are listed in the City's LEP and expansion of this list is under constant review. The Jetty Area Development Control Plan is an example of a recent project which has incorporated heritage preservation.

Two major items of current heritage significance are the completion of the restoration of the Coffs Harbour Jetty and the resolution of the Native Title Claim for the coastal strip between Corindi and Bundagen.

CONCLUSION

This year's SoE report demonstrates the major commitment of Council, government authorities, community groups and individuals to the management of our rich and diverse local environment.

Today, community values and legislation demands, more than ever before, rigorous environmental assessment of all development proposals and activities. This is evident by the many environmental studies undertaken, some of which have been identified in this year's SoE report.

Perhaps the most important aspect of environmental management is that we are all responsible. Council, government agencies, business and the community need to work in partnership. In this regard, community consultation is paramount.

On an individual scale, we can all minimise our impact on the environment, by taking simple steps such as turning off light switches, repairing dripping taps, using private vehicles more efficiently, composting at home, or planting native trees and shrubs. Individually and collectively we can make a difference.

1 INTRODUCTION

1.1 BACKGROUND

The origins of State of Environment (SoE) reporting in Australia may be traced back to the 1970s. In 1979, the Organisation for Economic Co-operation and Development (OECD), of which Australia is a member, resolved that member countries should develop national State of Environment reports (DEST, 1994).

The first Australian SoE report was published in 1986. Australia's international SoE reporting obligations have further increased as a result of international treaties and agreements to promote ecologically sustainable development.

The Australian Government has recently released a comprehensive national SoE report which is available in hard copy format or CD Rom.

The national commitment to environmental reporting has devolved to both State and local government levels. In New South Wales, the State Government is obliged, under the Protection of the Environment Administration Act , 1991, to produce SoE reports.

The Local Government Act, 1993, introduced a requirement on Councils to prepare SoE reports as part of the Annual Reporting Procedures. Thus a SoE hierarchy has emerged, as shown in Figure 1.

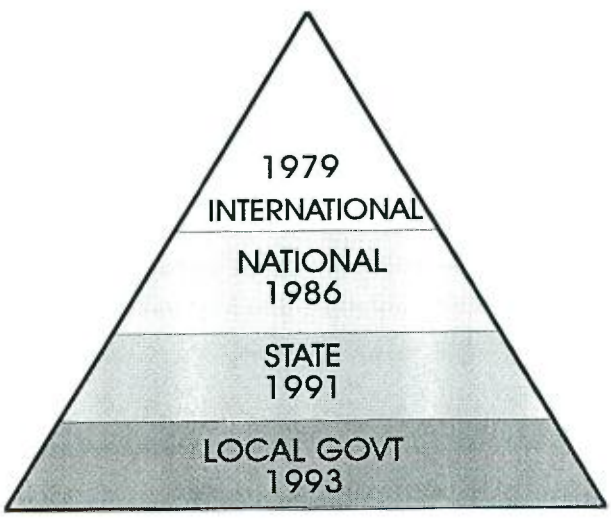


Figure 1: SoE Hierarchy

Under Section 428(2)(c) of the Act, Councils are required to address the following themes in the report:

- Areas of environmental sensitivity.
- Important wildlife and habitat corridors.
- Unique landscape and vegetation.
- Development proposals likely to affect community land or environmentally sensitive land.
- Polluted areas.
- Any storage and disposal sites of toxic and hazardous chemicals.
- Waste management policies.
- Threatened species and recovery plans.
- Any environmental restoration projects.
- Vegetation cover and any related instruments or policies, including any instruments relating to tree preservation.

The first annual report was required to be produced by Councils by May 1994. This document fulfils Council's legal obligations to prepare a third SoE report by November 1996, covering the period 1 July, 1995 to 30 June, 1996.

1.2 WHAT IS SOE

The New South Wales SoE reporting process is founded on the State-Pressure-Response model, that is:

- What do we know about the state of our local environment?
- Why is it happening to our environment (causes and pressures)?
- What are we doing about it (management responses)? (See Figure 2.)

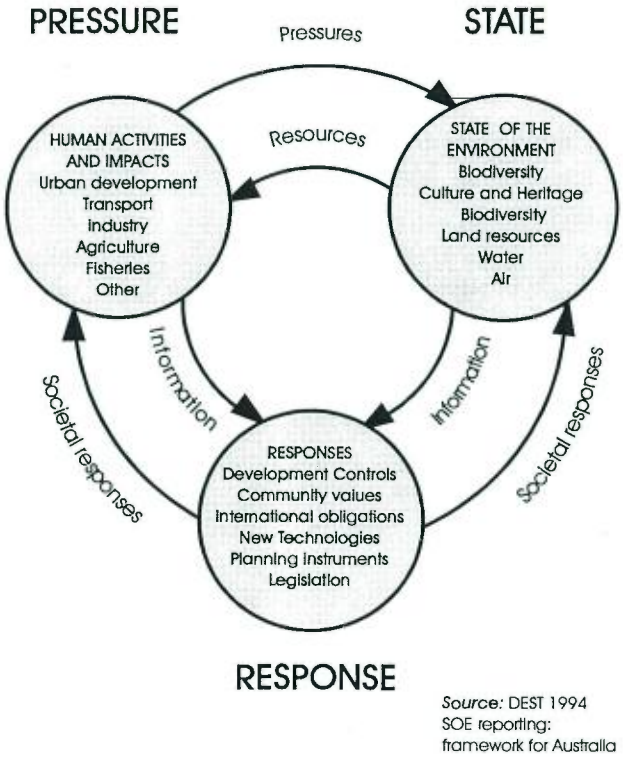


Figure 2: Pressure-State-Response Model

The New South Wales Environment Protection Authority (EPA) in its environmental guidelines "State of the Environment Reporting by Local Government" cites the benefits of SoE reports to Local Government and communities as follows:

- Contributes to community understanding of the local environment, its condition and prospects by providing an inventory of natural attributes in the Local Government area.

- Contributes to community understanding of environmental conditions and prospects by providing an accurate picture of social and economic activities in the Local Government area.

- Highlights the human use of resources and their contribution to environmental problems by providing answers to such questions as how much water or energy are residents using, how much unrecyclable waste do residents produce.

- Informing the community of the actions of Council, and the implications of potential actions, by illustrating trends and showing the effects of what the Council is doing to assist in environmental education and restoration over time.
- Improving the quality of public debate on economic environmental issues by providing a common body of information for discussion about future economic development.

- Having a positive influence on the investment activities of local industry and of State agencies with an interest in or concern for environmental attributes in the local government area, thereby increasing local employment, associated community welfare and the resource base of Councils.

- Helping Councils to make informed decisions about the broad environmental consequences of policies and plans by showing the impact the specific project may have in the larger context of the local government area or the region.

1.3 The Role of Local Government in Environmental Management

The City Council has direct responsibility for a wide range of functions which impinge on the condition of the local environment. These include planning and development control, water and sewerage services, environmental services, waste management, parks and recreation services, bush fire control and community services. The way in which these responsibilities are exercised is crucial to the well-being of many aspects of our local environment.

Overseeing the ecologically sustainable development of Coffs Harbour, working in partnership with the community.

Council's role in environmental management is broadly twofold:

- To exercise its functions under statutory instruments and to ensure that Coffs Harbour is developed and managed in accordance with ecologically sustainable principles. A range of professionals from various relevant disciplines are recruited to assist the Council in achieving this aim.

- To educate and inform the community on environmental issues, and to facilitate involvement of community groups in environmental management projects. The initial establishment of voluntary committees is often assisted or organised by Council. Funding is often made available for community environmental projects.

It must be recognised that direct responsibility for management of many aspects of the environment lies with a range of government departments, such as National Parks and Wildlife Service, Land and Water Conservation, New South Wales Forests, New South Wales Fisheries, Department of Urban Affairs and Planning, Environment Protection Authority, Department of Health and the Roads and Traffic Authority. Council routinely works in consultation and partnership with these departments in carrying out its own environmental management strategies.

More importantly, everyone in the local community impacts on the environment and may take steps to preserve our environment. There are numerous ways that every individual may make a positive contribution. For example, conserving water, recycling, home composting, conserving energy in the home, not littering or polluting our environment, or becoming involved in environmental projects.

1.4 THE STUDY AREA

Coffs Harbour City Council is located on the North Coast of New South Wales, approximately 554 kilometres north of Sydney and 427 kilometres south of Brisbane (see Figure 3).

Figure 3: Location Map - City of Coffs Harbour

The Coffs Harbour City local government area covers approximately 954 square kilometres and is characterised by coastal urban development, large areas of State forest predominantly west of the coastal range, and sparsely populated rural areas (see Figure 4).

The coastal range, which is part of the Great Dividing Range, is less than one kilometre from the Coffs Harbour coastline in places. As a result, the narrow coastal plain has no major river system.

The drainage pattern in the area is typified by a number of small creek systems. To the west of the coastal range, drainage is via the sub-catchments of the Nymboida and Orara Rivers flowing into the Clarence River.

The contrasting scale of landforms is one of the major reasons for the high scenic quality of the region. Slopes generally vary from greater than 20% for elevated ridges and valley side slopes, to less than 10% for narrow river flats.

The Orara River valley is characterised by undulating terrain (0 - 10%) and comprises river floodplains, swamps and gently sloping lower foot slopes. The coastal plain includes relatively flat areas (0 - 10%), small undulating areas (10 - 20%) and a number of small streams which flow in easterly direction to the coast.

Figure 4: Coffs Harbour City Local Government Area

Landuse in the area is dominated by forests, comprising approximately 50% of the total area, (see Figure 5).

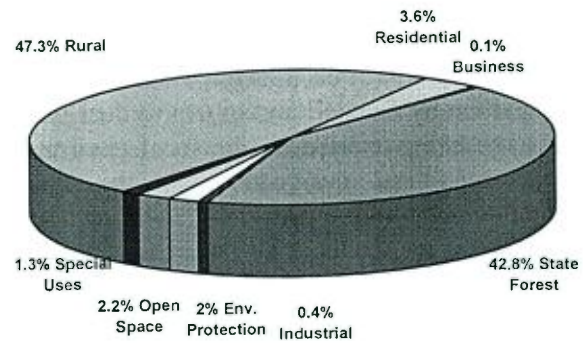


Figure 5: Coffs Harbour City Percentage Landuse by Type (1996)

The settlement is relatively sparse except for the coastal strip from Sawtell, in the south, to Woolgoolga, in the north. The river valleys feature agricultural development, primarily for beef and dairy cattle grazing. Along the coastal range there is also intensive agricultural development for bananas.

Coffs Harbour experiences relatively high rainfall of approximately 1,700 mm per annum. Though rain may occur over the entire area at any time of the year, it is more prevalent in the late summer/early autumn period. The highest incidence and intensity of rainfall occurs in high elevated areas on the east to south facing slopes.

Coffs Harbour has experienced relatively high population growth since 1971, with the most significant increase occurring between 1976 and 1981 (see Figure 6).

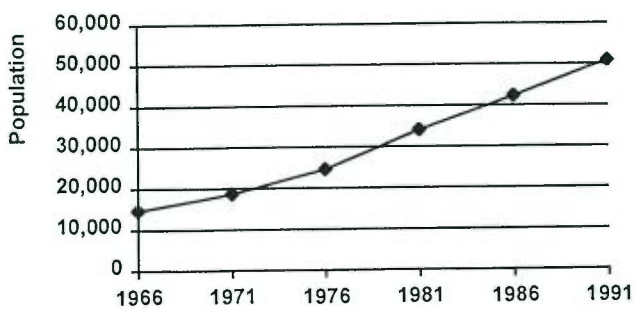


Figure 6: Population Increase, Coffs Harbour 1966-1991

In the 20 years from 1971 to 1991, the population grew from 18,633 to 50,877 persons, more than a three fold increase.

Population growth rates in Coffs Harbour have been consistently higher than the North Coast average over the past 10 years.

Table 1 shows the annual growth rate over the 25 year period, 1966-1991.

Year	Resident Population	Population Increase	Growth Rate P.A. (preceding 5 years)
1966	14,625		
1971	18,633	4,008	4.96%
1976	24,497	5,964	5.62%
1981	34,000	9,503	6.78%
1986	42,200	8,200	4.42%
1991	50,877	8,677	3.81%

Table 1: Population Growth Rates, Coffs Harbour 1966-1991

Latest Department of Urban Affairs and Planning figures show an estimated population of 57,932 in Coffs Harbour in June 1995. The Department has also provided figures for estimated growth rates during the period 1991/95, showing an average growth rate over this four year period of 3.3% per annum.

Population growth rates for the district have been consistently higher than the North Coast average over the past 10 years.

Coffs Harbour township, with a population of approximately 24,000, contains the main commercial centre, transport nodes, tourist resorts and hospital, library and other services. The district of Sawtell / Toormina / Bayldon / Boambee is situated nine kilometres south of the central business district (CBD) and has a population of 11,500. Woolgoolga is located 25 kilometres north of the CBD. The population of Woolgoolga itself is approximately 4,500, but the town also serves the residents of Arrawarra, Mullaway, Safety Beach, Sandy Beach, Emerald Beach and Moonee, representing a further 5,500 persons.

The rural villages of Coramba, Nana Glen, Ulong and Lowanna, located west of the range, together accommodate a population of just under 1,000. Approximately 1,000 people live in the coastal

rural area of Bonville, south of Sawtell / Toormina / Bayldon / Boambee. The remainder of Coffs Harbour's population is distributed throughout the rural areas of the City west of the range.

1.5 METHODOLOGY

This year's SoE Report provides an overview of Coffs Harbour's environment. There are numerous facets to our local environment and the New South Wales Environment Protection Authority (EPA) advocates that SoE reporting be based around the 'STATE - PRESSURE - RESPONSE' model. Furthermore, the EPA has recently released guidelines which recommend that the SoE be reported in terms of the following seven broad environmental 'sectors':

- Land.
- Aquatic systems.
- Biological diversity.
- Air.
- Waste and toxic hazards.
- Noise.
- Aboriginal and non-Aboriginal heritage.

A multi-disciplinary team of Council's professional officers was convened to look at each of these sectors to ensure an integrated approach to the collation of information for inclusion in the 1996 SoE Report. The 1994 report, which was the first produced, focussed mainly on data held by Council itself. The scope of this year's report has been widened to include information generated by other bodies, including government departments and community bodies.

An integrated approach to the preparation of the 1996 SoE Report.

Each chapter, covers a separate 'sector' of the environment. For example, in the 'Aquatic Systems' chapter, a review of available information on current surface water quality is given. This is referred to as the 'STATE' aspect of the 'STATE - PRESSURE - RESPONSE' model. Also highlighted in this first section of each Chapter are some of the aspirations of the Coffs Harbour community with regard to environmental management, as expressed through the Vision 2020 consultation process.

Secondly, the chapter looks at those things which influence or affect in each environmental sector. For example, under the 'Aquatic Systems' chapter, aspects such as surface and groundwater use, effluent discharges and other sources of contamination are dealt with. Such influences are referred to as the 'PRESSURES' in the 'STATE - PRESSURE - RESPONSE' model.

The third section of each chapter sets out the steps being taken by Council and others to deal with the pressures being exerted on the local environment. Such steps are designed with the aim of counteracting adverse pressures, to protect and, in many instances, enhance the current status of the environment. Again, with regard to 'Aquatic Systems', one example of a measure to improve creek water quality was a review of and improvement in the technical requirement for septic tank systems in rural residential areas. Such measures are the 'RESPONSE' aspect of the 'STATE - PRESSURE - RESPONSE' model and they may be comprised of ongoing steps, continually undertaken by Council as well as other groups and individuals, or they may be 'special' projects.

Finally, the proposed actions for each environmental sector are stated. These establish what Council's priorities will be and where resources will be targeted over the next 12 months. They provide 'performance indicators', assisting Council in measuring its progress in various aspects of environmental management. Successive SoE Reports will include sections to state whether aims for the year have been achieved.

In the production of this SoE report, use has been made of key 'environmental indicators'. These are aspects of the natural world or built environment that can be monitored to provide significant information on current conditions and trends. Such indicators include physical, chemical and biological features of the environment which may point to changes affecting individual species of flora or fauna, or perhaps entire ecosystems.

Monitoring of environmental indicators over a period of time is important, as data produced can highlight subtle changes in the environment before more obvious visible signs of change or deterioration appear. Such monitoring can, therefore, be used to tell us when our current 'use' or 'abuse' of the environment is likely to lead to future degradation, and the potentially adverse economic and social costs associated with this.

The comprehensiveness of the report has largely depended upon the availability of data for various environmental indicators. It is recognised that there are very large bodies of data, produced not only by Council but also other government agencies and voluntary groups, some of which are not readily compatible or accessible. Further, the acquisition of new data is constrained by costs and technology. This SoE report has been produced within the constraints of the data available to Council at this time.

Since the main purpose of SoE reporting is to inform the Coffs Harbour public about their local environment, it was decided that the format of the report should be kept simple. Much of the detailed and often complex data used for assessment of the local environment has been deliberately excluded from the main document, such information being separately available to any member of the Coffs Harbour community who wishes to access it. The purpose of this is to produce an SoE report which can be readily understood by the public at large.

The State Government has strongly advocated that community consultation should be a significant aspect of SoE reporting. The City Council fully concurs with this philosophy and, therefore, a number of community consultation processes were undertaken to assist with the preparation of this year's report. Many of the 'Response' aspects of the report resulted directly from feedback obtained from the community of Coffs Harbour.

It should be recognised that Coffs Harbour's SoE reporting is an evolving process, whereby the state of knowledge and environmental management responses are being continually refined.

In addition to reporting on the recommended environmental sectors, this SoE document focuses on Council's particular achievements during 1994/95 in solid waste management and in developing a sophisticated Geographic Information System (GIS).

1.6 COMMUNITY CONSULTATION

Management of our local environment is dependent upon community support. Council and other statutory bodies need community input to develop policies, strategies and programs. Without this involvement, the responses may not have the desired impact on the environment. This may be for two main reasons:

- The local environment issues and priorities, as perceived by the community, may differ from those perceived by Council and other statutory government bodies.

- Lack of consultation may result in the failure of Council and other statutory bodies to foster a spirit of partnership in the implementation and success of environmental strategies.

Community Consultation - Cr Bill Wood facilitates a workshop for the Jetty Area Masterplan

A number of important community consultation initiatives have been undertaken by Council, the most substantial being the finalisation and subsequent validation of the 'Vision 2020 program - Developing a Strategic Plan for Coffs Harbour City Local Government Area'.

The Vision 2020 document presents a long term plan for the future of Coffs Harbour Local Government Area. It outlines what the community wants Coffs Harbour to be like in 24 years time and what strategies need to be pursued to realise that vision. Environmental Management principles feature prominently in this document.

Community co-operation is essential for successful environmental management.

The community consultation involved in Vision 2020 was extensive. The process commenced in April 1993, with no fewer than 15 workshops held in different areas of the City. At these workshops, more than 300 people, young and old, business people and environmentalists, representatives of community organisations and government agencies, all shared their ideas on how they saw Coffs Harbour in the year 2020. From these workshops, 50 people were nominated to meet weekly to discuss what strategies and policies should be pursued for the benefit of the City.

Vision 2020 now forms the basis of Council's forward planning in all areas, including the environment.

In March 1995, Norsearch, a research branch of Southern Cross University, concluded a further community survey to validate the findings of Vision 2020, and to assist Council in the development of planning documents to realise it.

In brief, this survey confirmed the findings of the earlier workshops and reinforced the need to protect our environment. That survey was followed up by a further community survey by Norsearch.

The report, which was produced in March 1996, focussed on prioritising Council activities, Council performance and best ways of communicating with the community. Essential services and the environment ranked high in this survey.

The priorities advocated by the community through this whole consultation process now form the basis of Council's forward planning in all areas.

Some other recent projects, which have involved a considerable degree of consultation between Council and the community on various aspects of environmental management, are as follows:

- Jetty Masterplan: A series of workshops were held, with community responses being used in conjunction with proposals submitted to the consultant team, to develop a 'concept plan' for the Jetty area. This resulted in the development of a draft masterplan, Development Control Plan and Local Environmental Plan. A Jetty Area Masterplan Working Group was established in 1996 to develop a masterplan for the Jetty on the eastern side of the railway.

- Urban Development Strategy: In addition to the community consultation undertaken in 1994-95, as discussed in the 1995 SoE Report, a two day strategic planning forum was held in December 1995 to enable persons and organisations who made submissions to the strategy to discuss their concerns with Council. Discussions were also held with the Department of Urban Affairs and Planning and other state government and non government departments. The draft strategy was reviewed in response to discussions and submissions. The strategy has received substantial support from the community and from government departments, such as the Inter Departmental Committee (IDC). The Urban Development Strategy is currently with the Department of Urban Affairs and Planning for their formal approval.

- Agricultural Land Classification in the Orara-Bucca Valley and Bonville-Crossmaglen areas of Coffs Harbour City Council: Council, in August 1995, engaged New South Wales Agriculture to review the agricultural land suitability classification applying to the Orara-Bucca Valley and Bonville-Crossmaglen areas of the City. The study also provided a detailed economic evaluation of agricultural enterprises in these areas. The preparation of this report involved substantial consultation and liaison with Council's Rural Advisory Committee (comprising elected representatives of Council and land owner representatives), field survey to test agricultural suitability classification on individual properties, a series of workshops with New South Wales Agriculture representatives, Council and the Rural Advisory Committee; and exhibition of the draft document for two months. The draft report was reviewed in response to discussions and submissions.

- Rural Residential Development Strategy and West Korora/Korora Basin Land Use Study: Council engaged Masterplan Consultants Pty. Limited to prepare a rural residential development strategy for the whole of the City and carry out a detailed land investigation of the West Korora and Korora Basin areas.

  The Rural Residential Strategy aims to develop a range of appropriate rural living options, from hobby farms to large lot residential estates for a variety of locations, with particular consideration to the preservation of the visual landscape and protection of important vegetation and wildlife corridors.

  The purpose of the West Korora and Korora Basin Land Use Study is to assess whether land within the study area should be converted to non-agricultural use or uses and, if so, to recommend uses which would be appropriate.

  Extensive consultation, including public exhibition of the draft documents for a period of three months, public workshops, and meetings with representatives from government

departments and steering committee members, was carried out during the preparation of the draft documents. It is anticipated that both documents will be finalised in mid 1997.

- Coffs Harbour City Council Management Plan 1996/97: Open community workshops were held at a number of strategic locations across the Council area, to disseminate the details of the draft Management Plan. Opportunity was also given for individuals or groups to make submissions to Council before the final document was produced.

- Waste Management: Council undertook extensive community consultation, education and promotion in implementing new waste services. This involved media advertising, preparation of a video, schools education, workshops, establishment of an education centre at the Englands Road Waste Depot and preparation of brochures and information. Council won the Litter Recycling and Research Association's prestigious award for 'Excellence in Communication'.

Cr Essex-Clark receives an Award, on Council's behalf, from the New South Wales Litter, Recycling and Research Association for 'Excellence in Communication'

- Total Catchment Management: Management of the catchments in the Coffs Harbour is assisted by Coffs Harbour Total Catchment Management Committee. This is essentially a community based group, with representatives including land holders and representatives of Council and other statutory authorities.

- Woolgoolga Town Centre Study: A series of focus meetings were held with representative groups in April 1996. A two day 'shopfront' information day was held. This resulted in the preparation of a draft plan for the Woolgoolga Town Centre.

- Coastal, Estuary and Floodplain Management Committee: This Committee consists of representatives from the community, Council and government. Its role includes assisting Council in the development and implementation of floodplain, coast line and estuary management policies and plans. The Committee also co-operates and liaises with the Total Catchment Management Committee.

- Streamwatch: This is a program promoted and co-ordinated by the Department of Land and Water Conservation and Council to involve the younger members of the Coffs Harbour community in environmental management. Streamwatch involves a network of high school students who have access to water quality testing kits, and participate in an organised monitoring program. Council assists in facilitating what is regarded as an extremely valuable aspect of community participation in local environmental management.

- Dune Care and Landcare Groups: These groups are administered through the State Department of the Department of Land and Water Conservation (LAWC). There are 13 Dune Care and 3 Landcare groups throughout the City Council area. Representatives from these community based voluntary groups make up a Combined Dune Care and Landcare Committee for the whole area. Council is involved in the work of the Committee to maintain open communication between the community and Council in this aspect of environmental management of lands managed by Council.

- Beautification Committee: A number of voluntary, community based committees operate throughout the City Council district, undertaking various beautification projects for their areas. Representatives from each of these, together with Council representatives, make up a single overall co-ordinating committee. This group acts in an advisory capacity, having input into beautification related projects proposed by Council, as well as co-ordinating voluntary community run activities, securing funding etc. for such projects.

- Coastal Heritage Assessment: This Council initiative was aimed at consulting the Coffs Harbour community on its values in relation to coastal heritage. From February to August, 1995, seven community groups participated in workshops to specify aspects of the Coffs

Harbour coastal area which they deemed to be most significant. Fourteen elements, common from all groups, were identified and these are now stored on Council's database. During the next review of the Local Environmental Plan, it is proposed that these coastal heritage features be considered.

- North Boambee Valley: Residents were kept informed of the progress through the North Boambee Valley bulletin which is a community newsletter facilitated by Council.

Since the local Coffs Harbour environment is the community's environment, it is the aim of the City Council to involve that community, as much as possible, in determining how it should be managed. Council is endeavouring to communicate with the community more effectively in all aspects of environmental management.

The Coffs Harbour environment is the community's environment.

1.7 GEOGRAPHIC INFORMATION SYSTEM

Undoubtedly, one of the most powerful tools available to Council in the field of environmental management, is the Geographic Information System (GIS). For this reason, considerable effort and resources have been channelled into the development of the system over the past four to five years. It enables data on various environmental indicators to be digitally stored on Council's computer system and reproduced in graphic form, thereby giving a 'picture' or map to show their geographic distribution.

Council's GIS System stores many layers of information. The GIS is one of the most powerful tools in environmental management

Changes in baseline data over time can be readily identified by 'superimposing' of mapped data from one period to the next and looking at any alterations to the geographical distribution of the particular indicator under consideration. For example, the area of littoral rainforest in the Coffs Harbour district is monitored by comparing successive maps showing its distribution over time. Any changes, and hence the effectiveness of strategies to protect its distribution, can thus be readily scrutinised.

Integration of sound environmental management with development control is greatly facilitated by the GIS.

Currently, the area and distribution of the following indicators are monitored with the assistance of Council's GIS:

- Wetlands.
- Littoral rainforest.
- Water catchment drainage
- Topographic regions.
- High risk fire areas.
- Agricultural land.
- Aboriginal relics/sites.
- Waste disposal sites.
- Slopes > 30%.
- Existing water supply system.
- Existing sewerage system.
- Banana cultivation areas.
- Acid sulphate soil areas.
- Flood prone lands.
- High scenic quality areas (plain and range)
- Noise contours - City Airport.
- Buffer zones.
- Coastal hazard areas.
- Vegetation types.
- Quarries

In terms of environmental management, these 'layers' of data may be regarded as development constraints. When geographic distribution maps for the range of indicators are superimposed upon one another, 'windows' of potential development land, which are free of constraints, can be produced. Integration of sound environmental management with development control is therefore greatly facilitated by the GIS.

The GIS database is continually being updated and expanded.

In order to maintain the accuracy of the system, Council is continually updating the GIS database in the above subject areas. Furthermore, the scope of the GIS is widened on an ongoing basis as and when reliable data, produced not only by Council but also other groups and government departments, becomes available. For example, the data on acid sulphate soils, areas of high scenic quality, airport noise contours, buffer zones, coastal hazard areas and vegetation types, has all been placed on the GIS within the past two years.

A study on native vegetation has just been undertaken by Council and is included on the GIS. The project is of particular importance, forming the baseline for future planning and development strategies. The GIS data is now being used to direct development to those areas of least conservation value, and to exercise the most appropriate development conditions. Further studies are being undertaken to build on this loose data to identify habitat areas.

Aerial photography is another important resource in environmental management. Council recently acquired 1:25,000 scale photographs which were taken of the entire Coffs Harbour local government area, as well as 1:8,000 scale photographs covering the coastal areas and the Orara-Bucca Valley. Approximately $30,000 was invested by Council in obtaining these photographs which have been used extensively in the native vegetation and agriculture lands classification studies.

2 LAND

2.1 STATE

2.1.1 Visual Amenity

One of the major attractions of the City is the contrast of rugged coastline and steep mountains which creates a landscape of considerable beauty and interest. See Appendix 1 for a map showing the landscape character and scenic quality class for the Coffs Harbour area.

Coffs Harbour comprises a landscape of considerable beauty and interest.

The protection of the aesthetic qualities and the vistas of the area is seen as a priority. There is a need to retain the 'green' backdrop to the City, with the patchwork of forests and agricultural lands along the coastal range.

The Coffs Harbour community wishes to preserve 'green' escarpments, such as ridgelines and headlands.

The elements of the landscape considered as significant are:

- The closeness of the bush to residential areas.
- Open space surrounding developed areas.
- Vegetated creek lines and river verges.
- Ridge lines and the mountains.
- The coastal mountain range.
- The coast line.
- Beaches and headlands.
- The forests and national parks/nature reserves.
- The Solitary Islands.
- The close proximity of the coast to the inland river valleys and rolling pastures with their forested mountain backdrop.

Scenic lookouts have been established in key areas such as Beacon Hill and Bruxner Park. Main roads throughout the City allow views into and over significant landscape features. Key vistas for retention are views of the coast and sea, forest and coastal range from the Pacific Highway, especially Macauleys Headland and Sapphire strip.

Along the coastal range, features include Bonville Peak, Big and Little Boambee, Bruxner Park Ridge, Mount Coramba, Little Mount Coramba, Plum Pudding, Knobby's Lookout and Andersons Mountain.

Inland features are the coast range through to Tucker's Nob including Mount Wombil, Black Mountain and the Sandstone escarpment of Wailon Plateau.

The current makeup of major landuse, as determined by the 1994 Landstock Survey, is as shown in Table 2.

Landuse	Hectares Zoned
Urban Settlement	
2(a) Residential	3085
2(b) Residential	62
1(c) Rural Residential	1161
Agriculture	
1(a1)	6281
1(a2)	15960
1(b)	21525
Commercial	89
Industrial	411
Waste Disposal (landfill)	9

Table 2: Major Landuse in the Coffs Harbour Local Government Area

The urban population density is currently 7.7 persons per hectare and the rural population density is 0.2 persons per hectare.

2.1.2 Coastal Foreshores and Tidal Zones

The coastal foreshores of Coffs Harbour have been extensively studied in recent years, although further research is required into coastal processes and hazards in some areas. Much of the coastal area has experienced development to varying extents. Appendix 2 indicates a schedule of coastline Beach Recession/Erosion Studies.

Much of the coastal area has experienced development to a varying extent.

Development in the coastal foreshores is now largely controlled by guidelines within the New South Wales Government Coastal Policy 1990.

Plans of management for areas such as Sawtell Headland, Coffs Harbour foreshores and Woolgoolga Lake, detail the current status and development criteria for these areas.

The Coffs Harbour community wishes to see coastal areas, including beaches, dune systems and vegetation preserved.

2.1.3 Wetlands and Saltmarshes

Coffs Harbour features wetland areas and saltmarshes along the coastal plain. These areas have important functions as habitat for a diversity of flora and fauna including migratory bird species and, more recently, as educational and recreational resources.

Wetlands and saltmarshes are a habitat for a diversity of flora and fauna.

The importance of coastal wetlands led the State Government, in December 1985, to introduce State Environmental Planning Policy (SEPP) No. 14 to protect designated wetlands. Designated wetlands within Coffs Harbour have been identified by the Department of Urban Affairs and Planning using air photos and on ground investigations. Most of these areas are specified in Coffs Harbour Local Environmental Plan, 1988 as being 7(w) Environmental Protection (Wetlands) zone. These areas are shown in Appendix 3.

Data Gap

- A full inventory of wetlands and saltmarshes in the Coffs Harbour area is not yet available.
- Coastal and estuary dynamic processes for all areas.

2.1.4 Coastal Flooding

Major development in Coffs Harbour, both existing and proposed, is generally confined to the coastal strip where there are significant areas of flood prone land. Most of the existing and proposed urban areas have had flood studies undertaken to determine flood affected zones. Some of these studies are now out of date and therefore need revision. Flood studies, where they precede the adoption of a Development Control Plan, have been used to assist in determining zonings to control development of the floodplain.

The Coffs Harbour community is in favour of the development of flood prone lands where environmentally acceptable, preferring to see flood mitigation via use of natural systems.

Data Gaps

- Updated flood studies are still required for many rural and urban areas.
- Floodplain management plans are required in older development areas.

2.1.5 Acid Sulphate Soils

These soils form when sea or brackish water meets with sediments containing organic matter to produce iron sulphide (pyrite).

Potential acid sulphate soil occurs when the sulphides in the sediments remains beneath the watertable, the water preventing oxygen in the air from reacting with sulphides. However, when affected areas are disturbed and drained for development or agricultural reasons, the sulphides oxidise to produce sulphuric acid. This then gives rise to actual acid sulphate soils, which can create severe environmental problems, with acid washing into waterways after rain and affecting fish and aquatic life.

Seven percent of land in Coffs Harbour is probably affected by potential acid sulphate soils.

In the Coffs Harbour Council area, approximately 7% of land has been classified as being probably affected by potential acid sulphate soils. This total is broken down as low probability (4.1%), high probability (2.6%), and disturbed (0.3%). Areas concerned are located along the coastal plain, with high probability land being found mainly along the path of the creek systems (see Appendix 4).

Although it is now known that several areas, in both low and high probability zones, have already been developed (accounting for land classified as 'disturbed'), the extent of the disturbance to potential acid sulphate soils in Coffs Harbour is, fortunately quite limited to date.

2.1.6 Unhealthy Building Land

Coffs Harbour has traditionally been a significant banana cultivation area, with banana plantations still accounting for a large proportion of landuse. In May 1994, approximately 2.2% of the City area was made up of banana plantations, this figure having dropped from approximately 2.4% in 1974 (see Appendix 5).

Studies have shown that contamination of land previously used for cultivation of bananas is liable to have resulted from the use of various hazardous chemicals as pesticides. These chemicals include arsenic and dieldrin.

Numerous other sites are potentially affected by other forms of soil contamination, including current or former fuel storage depots, service stations, mechanical workshops, wrecking yards, gold mining areas, timber treatment plants and industrial premises.

Several fuel storage sites have or are in the process of being remediated to allow development to proceed. One technique currently on trial at the Council's landfill depot involves bioremediation of soil affected by petroleum by-products.

In addition to the above, the EPA holds on its register 12 Coffs Harbour properties which were designated as unhealthy building lands. These are mainly so classified because of previous use as garbage or nightsoil depots.

Data Gap

- Identification of all lands likely to be affected by soil contamination on Council's GIS.

2.1.7 Extractive and Mineral Resources

The geology of the area features the Coramba Beds, the Brooklana Beds and the Moonbil siltstone. These comprise of late carboniferous, siltstone, mudstone, lithofeldspathic wacke, jasper, chert, net and basalt slate, and felsic volcanics.

Along the coastal strip and inland river flats, quaternary sediments dominate.

Mineral resources in the area include hard rock for construction purposes, river gravel, sand, structural clay, mineral sands, gold, copper, manganese and mercury.

Of particular importance in the area are the hardrock quarries located at North Boambee, Bucca, West Coffs and Woolgoolga, and sand mining operations at Bundagen and Boambee Beach.

2.2 PRESSURES

2.2.1 Visual Amenity

The rapid development of the City and associated landuse pressures, has significant potential for detrimental effects on the City's 'green' backdrop along the coastal range and coastal reserves.

Rapid development has potential to adversely affect the City's visual amenity.

2.2.2 Coastal Foreshores and Tidal Zones

Coastal processes give rise to a variety of coastline hazards that can damage or destroy coastal developments and coastline amenity. The following hazards occur along the Coffs Harbour coastline:

- Beach erosion.
- Shoreline recession.
- Coastal entrance instability.
- Vegetation degradation and sand drift.
- Stormwater erosion.
- Coastal inundation.
- Climate change effects.

Beach Erosion, Park Beach, August, 1995. There are concerns that the Jetty breakwalls are interfering with the natural movement of sands and recovery of Park Beach.

During 1995/96 significant beach erosion occurred, which resulted in recession of the shoreline by 20 to 30 metres. This was not caused by a single event, but a series of storms and king tides. It is estimated that this was the most serious coastal

erosion to occur in Coffs Harbour for 25 years. Damage included dunal erosion, damage to walkways, siltation of Coffs Creek, and reduction in the height of beaches by 1.5 to 3 metres.

In general, recovery of the beaches is anticipated. However, the Jetty breakwalls are hampering natural movement of sand and recovery of Park Beach.

2.2.3 Wetlands and Saltmarshes

Existing wetlands and saltmarshes are threatened by landuse pressures associated with rapid development of the City. Clearing and infilling of such areas due to agricultural, industrial and residential development then poses further sedimentation and pollution problems for adjoining wetlands and saltmarshes.

Construction of the Eastern Distributor, running from the northern end of Hogbin Drive through to Arthur Street has been deferred indefinitely.

2.2.4 Coastal Flooding

Rainfall on the coastal strip in Coffs Harbour City is almost tropical in its intensity. Cyclones have come as far south as Coffs Harbour, resulting in major flooding.

Coffs Harbour's coastal catchment areas are relatively small and steep. Critical storms in this area are therefore generally short, up to nine hours, but many are less than two hours. Recent storms have had a short time interval between them, with flow breaking the banks of the creeks and dwellings being inundated. Therefore little or no warning time is available to residents to enable either evacuation or the saving of property. The inundation only generally lasts for a few hours.

2.2.5 Acid Sulphate Soils

The rapid rate of development in the Coffs Harbour area means that there is potential for inappropriate use of land affected by potential acid sulphate soils, with the risk of associated environmental damage. Inappropriate agricultural practices in affected areas, through lack of understanding of the issues involved, again gives cause for concern.

2.2.6 Unhealthy Building Land

There is continued pressure for development of former banana land and other potentially contaminated sites.

Much of the banana land is located along the coastal range where demand for housing is high, and a lot of the decline in land used for bananas can be attributed to residential development. There is continued pressure for changing use of banana land and other contaminated areas to meet the development needs of the City. The levels of residual chemicals in the soil are often above the acceptable thresholds, thereby imposing additional costs for sampling and remediation of land to allow safe development to proceed.

2.2.7 Extractive and Mineral Resources

Mining operations often result in conflict with local residents, due to heavy vehicle traffic, noise, dust and blasting operations. Residents and Council are empowered, under Environmental Protection and Planning legislation, to restrict mining operations where local amenity is compromised or where the environment is at risk.

Depletion of mineral resources and rising demand for those resources means that new deposits need to be mined or existing mining operations expanded. There are significant hurdles to be overcome in obtaining the necessary approvals for such mining activities. In some instances, the environmental costs outweigh the benefits of mineral extraction.

2.3 RESPONSES

2.3.1 Visual Amenity

Coffs Harbour Forestry Management Plans identify management policies to retain many prominent landscape features. The visual impact of logging practices is carefully considered in these areas.

Areas of high scenic quality are notated on Council's GIS and this is used in the control of development in such areas to minimise impact on visual amenity.

2.3.2 Coastal Foreshores and Tidal Zones

The Coastal, Estuary and Floodplain Management Committee was formed early in 1993 and comprises various community, Council and

government representatives.

The role of the Committee is as follows:

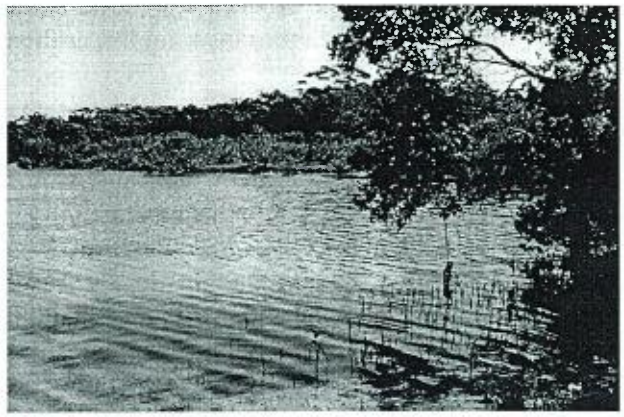
- Assist Council in the development and implementation of floodplain, coastline and estuary management policies and plans.
- Advise Council on the priorities for the preparation of these management plans and policies, and the implementation of the measures contained in them.
- Advise Council on funding options for preparation and develop strategies for the implementation of the various management plans.
- Formulate and make recommendations to Council on interim development controls for use until the various management plans are completed, approved and implemented.
- Monitor the progress and funding of any studies being undertaken in the various stages of management plan preparation.
- Co-operation and liaison with the Total Catchment Management Committee.

Estuaries and the coast are integrally linked and contain the large bulk of flood prone land for the coastline streams. For this reason the Coastal Hazard Management Committee, the Estuary Management Committee and the Floodplain Management Committee were combined in July 1993 and the title of the Committee was changed to the Coastal, Estuary and Floodplain Management Committee.

2.3.3 Wetlands and Saltmarshes

Research is currently being undertaken by Council to review wetland and saltmarsh boundaries to determine appropriate zonings in the Local Environmental Plan. These will be notated on the GIS. Studies of changes in these areas over time are also in progress, to establish impact of development activities.

Development controls already apply to currently designated 7(w) Wetlands, and the expansion of Council's database will enhance protection of wetlands and saltmarsh zones throughout the City.



Mangrove/Saltmarsh Complex, Coffs Creek. These are important fish habitat and nursery areas.

2.3.4 Coastal Flooding

The available information from flood studies is used to undertake interim floodplain management to ensure new dwellings have minimum floor levels above the design flood event. However, in the older development areas there are some houses which are below the flood levels in the 100 year Average Recurrence Interval (ARI) event.

Council is addressing the issue of floodplain management by undertaking interim floodplain management measures, floodplain management studies and flood mitigation works as funding permits.

Coffs Creek flood mitigation works have resulted in a dramatic fall in the number of flood affected homes.

Coffs Creek flood mitigation works have recently been completed. This has seen the number of houses affected by flooding fall dramatically.

Other studies which have been allocated funding include Bonville Creek Flood Study and Floodplain Management Study, and North Arm Coffs Creek (Bray Street, Argyll Street and Park Beach Area), and Moonee Creek Flood Study.

Council currently stores flood information relevant to each property in its computer based property information system. The information on this system tells whether a property is considered flood affected or not and provides information on flood levels.

Flood prone lands are now notated on the GIS, assisting with development control in such areas.

Council has a database of over 150 flood studies which are held within the Engineering Department.

Council formed a Floodplain Management Committee in early 1992 to oversee floodplain management in the area. This Committee is made up of representatives from State Government Authorities, Council and the community. It recommends to Council changes to its current Floodplain Development and Management Policy and priorities for floodplain management studies and works. The Committee has now been combined with the Coastal Hazard and Estuary Management Committees.

With regard to inland flooding, the Orara River and Bucca Creek west of the escarpment have been the subject of a preliminary flood study to allow interim planning. This was undertaken in 1991. Prior to this study, there was limited information for floodplain management in these catchment areas.

2.3.5 Acid Sulphate Soils

Development restricted in areas with potential acid sulphate soil to avoid environmental damage.

All areas affected by potential acid sulphate soils are now notated on the Geographic Information System (GIS). Development in such areas is subject to Council controls so as to avoid associated environmental damage. Guidance and advice to farmers is also available through Council concerning the location of potential acid sulphate soils and appropriate agricultural practices in such areas.

2.3.6 Unhealthy Building Land

Approximately 10% of proposed development sites on former banana land require remediation works.

All banana lands in the Coffs Harbour area, dating back to 1943, are now notated on the Geographic Information System. Any development proposed in such areas must be preceded by soil testing for contaminants. Where levels are above threshold values, Council requires an approved form of remediation works to be carried out, so as to remove any potential health hazard. (To date, approximately 10% of proposed development sites have required remediation).

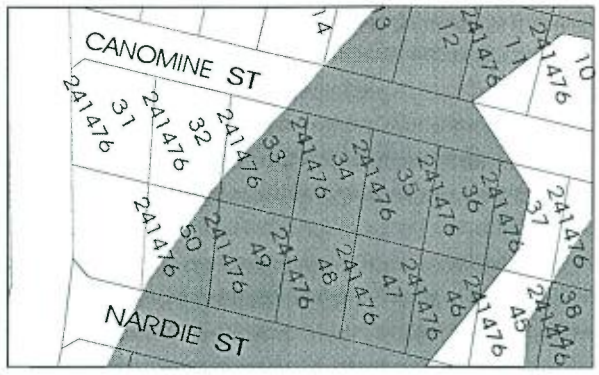


Figure 7: Former Banana Land, GIS Layer

Other types of potentially contaminated sites are subject to rigorous soil sampling and remediation requirements. Contaminated soil from fuel storage depots has been transferred to Council's landfill depot for bioremediation.

2.3.7 Extractive and Mineral Resources

Rigorous safeguards are applied when assessing any new applications for mining activities to minimise conflict with residents and reduce environmental impact.

The location of current and potential extraction sites is included as important considerations in landuse planning and development control.

2.4 ACTIONS FOR 1996/97

- **Approval and Implementation of Urban Development Strategy**

The Strategy identifies areas of land within the coastal strip which are most economic to service and are least environmentally sensitive or hazard prone for future urban development.

A series of planning principles, such as minimisation of urban sprawl, maintenance of water quality, provision of appropriate community facilities and services and protection of productive agricultural land, underpin the Strategy.

The Strategy is currently with the Department of Urban Affairs and Planning for endorsement.

- **Finalisation of Rural Residential Development Strategy for Korora Basin and West Korora**

A draft Strategy has been prepared and will be reviewed. It identifies areas suitable for a range of rural living options, from hobby farms to large lot residential estates. It will incorporate measures to preserve the visual landscape, maintain and protect important vegetated areas and wildlife corridors and provide buffers between competing landuses.

- **Finalisation of the Jetty Area Masterplan**

Finalise the Masterplan with regard to deferred land east of Orlando Street and the railway in the Jetty Foreshores. The process will involve further consultation with the community and government to resolve points of conflict over the future use of valuable coastal lands.

An Aboriginal Land Claim has been made over the area which will delay determination.

- **Wetlands and Saltmarshes**

Further identification and GIS notation of wetlands and saltmarshes in the Coffs Harbour local government area to supplement information already held on designated 7(w) Wetlands. Review zonings of wetlands and saltmarshes as part of the LEP review.

- **Agricultural Land Classification**

Study has been completed. The findings need to be incorporated in the LEP Review

- **Extractive and Mineral Resources**

Inclusion of existing and potential mineral extraction sites on Council's GIS.

3 AQUATIC SYSTEMS

3.1 STATE

3.1.1 General

The Coffs Harbour Community would like to see a pride in our creek system engendered.

Aquatic systems within the Coffs Harbour area form an integral part of the environment. Generally the creeks are small but they perform a variety of important functions, including provision of urban and agricultural water supplies and acting as recreational resources for activities such as swimming, fishing and, in the larger streams, boating. With their associated wetlands they provide a habitat for a myriad of plant and animal species.

Creek systems, an integral part of the Coffs Harbour environment.

The main creek systems within Coffs Harbour are shown in Appendix 6. Coffs Harbour City area encompasses several small catchments along the eastern coastal strip. The western side of the coastal escarpment forms part of the headwaters of the Clarence River catchment.

Limited ground water resources exist along the coastal strip, the Orara Valley, Bucca Valley and Bonville areas. Records held by the Water Resources Commission provide detailed information on the location of aquifers, the number of bores utilising aquifers and details on aquifer recharge.

Monthly monitoring of all Coffs Harbour waterways and beaches is undertaken.

Sampling of major waterways in Coffs Harbour has been undertaken since 1985, and was expanded in 1990 to include monthly monitoring of all waterways and ocean beaches. Sampling frequencies for various areas is shown in Appendix 7.

This testing has focussed on microbiological quality, as an indicator of faecal pollution levels, although testing for nutrients and pesticides has been undertaken from time to time in response to pollution incidents or suspected pollution problems.

The water sampling regime for the Coffs Harbour area is shown in Figure 8.

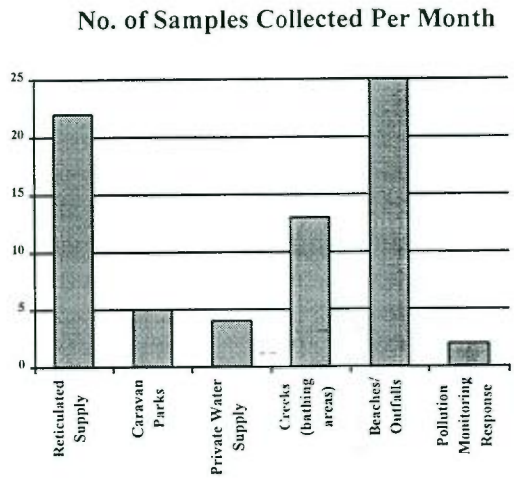


Figure 8: Water Sampling Regime Coffs Harbour City Council 1995/96

Sampling points have been established along estuaries and creeks throughout the City area in locations most likely to be used by the community for recreational purposes.

The Orara River, which provides the City's water supply, is constantly monitored for turbidity, dissolved oxygen and flow rates.

Results confirm an impact of urban and agricultural run-off with a correlation between high rainfall and high pollution levels. Recommended bacterial levels are generally exceeded in all waterways during periods of heavy rainfall.

Recommended bacterial levels are generally exceeded in all waterways during heavy rainfall.

Pollution levels of up to 25 times above levels recommended by the Environment Protection Authority (EPA) and Health Department for bathing and recreational use have been detected in creek systems during periods of heavy rainfall. Factors such as urban and industrial run-off and failure of septic systems contribute to the high levels recorded.

Figure 9 illustrates the geometric mean of monthly sample results for Coffs Harbour's coastal creeks over the past 3 years.

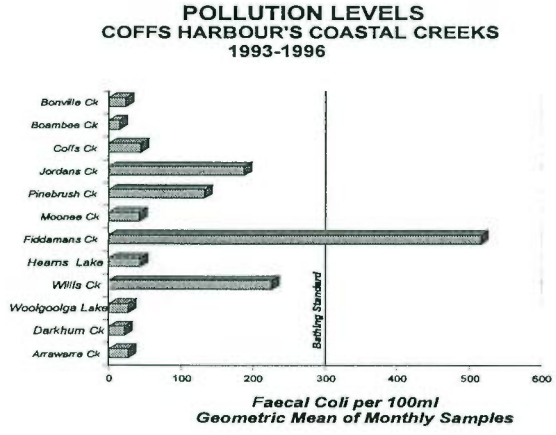


Figure 9: Coffs Harbour's Coastal Creeks Pollution Levels: Jan 1993 - Jun 1996

Fiddamans Creek is highly polluted with sewage and this is largely attributed to the abuse and failure of septic pump-out systems in the catchment area. It has been signposted since 1990 warning against bathing at all times.

Willis Creek also suffers relatively high pollution levels which are caused by urban and industrial run-off, septic systems and discharge of treated effluent from the Woolgoolga Sewage Treatment Works.

Several studies have been undertaken over the past decade concerning the levels of pesticides in Coffs Harbour's coastal creek systems. Organochlorine pesticides were extensively used for beetle control in banana areas until the late 1980s, and for termite treatment until June 1995.

Coffs Creek is signposted with a warning regarding potential contamination of fish and crustacea with pesticide residues.

The high surface water run-off in the Coffs Harbour area is due to the high rainfall intensities and soil types. Average surface water run-off is more than double the average for coastal New South Wales and nearly nine times the average for the State. The implications raised by this are flooding, erosion, sedimentation and run-off.

The Coffs Harbour community would like to see a reduction in nutrient and sediment loadings entering our waterways.

In the drier times of the year, flow rates and run-off are minimal causing pollutants to accumulate during these drier times. Within Coffs Harbour, the majority of run-off pollution is generated in three areas: rural, industrial and urban.

Much of the Coffs Harbour coastline and estuaries form part of the Solitary Islands Marine Reserve. It is essential to maintain the ecological integrity in these areas.

The Coffs Harbour community wants to avoid generation of pollution from activities in the City area.

3.1.2 Water Supply

Currently the City's main reticulated water supply is drawn from the Orara River. The water is abstracted from Cochranes Pool, approximately 8 kilometres upstream from Coramba. The townships of Coramba and Nana Glen are serviced by independent supplies which are sourced from the Orara River near the villages. The Nana Glen supply is fully treated, the Coramba supply is disinfected only, and Coffs Harbour's main water supply is disinfected and conditioned.

The main supply services 17,319 premises. The much smaller Coramba and Nana Glen systems supply 142 and 73 premises respectively.

Water drawn from Cochranes Pool is pumped into Karangi Dam which provides storage for use in dry periods. The dam has a capacity of 5,600 megalitres.

In all, it is estimated that 50,207 permanent residents utilise the reticulated water supply.

The introduction of demand management measures over the past five years have seen water consumption in Coffs Harbour decline significantly. During 1995/96 average consumption in Coffs Harbour was calculated as 270 litres per person per day. This compares with 330 litres per day for the average Australian, 340 litres per day in Sydney and up to 1,100 litres per day in some country towns.

The 1995/96 mean water consumption rate in Coffs Harbour was 190 litres per person, per day, excluding industrial and commercial use.

Data Gap

- Benchline data on benthic fauna, water quality and estuarine vegetation.

3.2 PRESSURES

Pressures on the water quality and viability of Coffs Harbour's creeks include: urban and agricultural run-off, failure of septic tanks, siltation and industrial/commercial pollution. These pressures may also impact on the Solitary Islands Marine Reserve.

3.2.1 Rural Run-Off

The majority of cleared land in Coffs Harbour is designated as rural. The rural areas comprise a mix of landuses - rural residential, agricultural and extractive industry.

Cropping, grazing and various other agricultural pursuits all contribute to pollutants such as sediment, pesticides and nutrients. Chemical nutrients used in the majority of agricultural pursuits can lead to eutrophication of water bodies and algal bloom outbreaks.

Pesticides entering waterways via rural run-off can also degrade water quality and place aquatic organisms under stress.

Since the early 1980s there has been heightened demand for rural residential development in Coffs Harbour and the density of development in areas zoned for rural residential use has been steadily increasing.

Rural residential subdivisions have been approved at Emerald Heights, Middle Boambee, Avocado Heights, Forest Glen, Bonville and Woolgoolga. A concern is the cumulative impact of increasing numbers of poorly functioning on-site disposal systems on the quality of creeks and waterways. On-site disposal systems are prone to failure, particularly during periods of rainfall when soil absorption is minimal and water tables are high.

On site septic tank effluent disposal systems are prone to failure.

Since the banning of organochlorines for agricultural activities in the late 80s, there has been a general decline in organochlorine chemical residue levels. However, replacement pesticides, in particular the organophosphates, pose even greater toxicity to marine fauna. Several fish kills in Coffs Harbour have been attributed to this group of pesticides over recent years.

Data Gap

- Assessment of the condition and effectiveness of septic tanks installed in catchment areas.

3.2.2 Industrial Run-Off

The industrial areas of Coffs Harbour are typically small scale industrial developments, fragmented throughout the City area.

Some industrial activities incorporate hazardous and toxic processes (storage and mixing of chemicals, etc.). Thirty nine premises hold pollution control licences with appropriate controls from the Environment Protection Authority.

Some premises do not have adequate pollution controls.

Often, due to their age, some premises in these areas do not have adequate environmental controls to minimise pollution potential. The area has a proliferation of motor vehicle oriented industries, such as panel beaters, spray painters and mechanical repair workshops which have the potential to impact on the environment via polluted run-off, fumes and emissions, and ground contamination.

There are numerous examples of minor pollution in industrial areas, such as washing and de-greasing of motor vehicles on external driveways and discharge of pollutants into the stormwater system.

Data Gap

- Further assessment of pollution sources.

3.2.3 Urban Run-Off

Urban run-off is another source of pollution entering creeks in the Coffs Harbour area. Converting land to urban use modifies the natural environment. This conversion disturbs the soil, alters the land surface and changes drainage patterns.

Stormwater run-off transports quantities of silt from developing and developed urban areas into drains, water courses and natural bushland.

Pollutants introduced to creeks include litter, coarse sediment, fine suspended material, oil and tar, nutrients, pesticides and oxygen depleting materials such as grass clippings.

Water so polluted becomes deoxygenated and turbid, aquatic life can disappear and nuisance species of exotic plants thrive.

Water quality is generally best in the headwaters area where forests and other low disturbance land uses predominate. In these areas, water usually has low salinity, low turbidity and low phosphorus levels.

Turbidity, a measure of water clarity and indicator of suspended material (silt), is a problem in some local creeks. Land clearing, road building and development can add significantly to natural suspended sediment levels in creeks through erosion.

Phosphorus is a major ingredient of many lawn, garden and crop fertilisers. It is also present in effluent from urban and industrial areas in levels well above normal background levels. Evidence of eutrophic conditions, due to phosphorous and nitrogen concentration, may be found in several coastal creeks, in particular, Fiddamans, Arrawarra and Willis. The elevated levels of phosphorus in Willis Creek is attributed to its catchment being an industrial area, and the disposal of excess treated effluent from the Woolgoolga Treatment Plant, while in Fiddamans and Arrawarra Creeks it is largely due to the failure and abuse of septic systems.

Urban litter is evident along all coastal creek systems.

Pesticide contamination is also associated with urban development. In 1989, almost all marine fauna in Woolgoolga Lake were killed following a spill of Aldrin by a pest controller treating a domestic dwelling for termites. More recently, organophosphates have been found responsible for fish kills.

Urban litter which is washed down the stormwater systems is evident along all coastal creek systems and, as well as being aesthetic pollution, is a threat to marine life, for example turtles, which frequent the adjoining Solitary Islands Marine Reserve.

Data Gap

- Assessment of extent of riparian zone degradation.

3.2.4 Water Supply

The abstraction of the town's water supply from the Orara River, which is a relatively low flow stream, has varying impact on the flow rates in the river.

For part of the year, the City's water demand exceeds the Orara River's flow rate.

For part of the year, Coffs Harbour's water demand exceeds the river's flow rate, thus there is a need for water storage. To augment the existing supply from the Orara River an alternative water supply is being investigated from the Nymboida River. This is being planned for a 50 year horizon.

Cochrans Pool - Source of Coffs Harbour's Water Supply

In 1991, the Department of Land and Water Conservation imposed a condition on the water licence to abstract water at Cochrans Pool. A condition of the licence was that an environmental flow rate of five megalitres per day pass the abstract point to ameliorate impact on the aquatic system. In addition to the town supply, the Orara River is subjected to further stress in dry periods due to use of water for agricultural and riparian purposes.

In September 1994, a new licence was issued, due to the raising of Karangi Dam, which increased the environmental flow rate to 25 megalitres per day.

Council carried out aquatic monitoring of the river upstream and downstream of the abstraction point to determine the effect of filling the raised dam. The impacts of extraction were undetectable compared with changes in seasonal waterflow.

Extensive studies have been undertaken which indicate that groundwater supplies, whilst capable of serving individual bore supplies, could not serve as a long term or emergency supply for the City.

The current water supply is inadequate to meet the long term needs of the City.

3.3 RESPONSES

3.3.1 Total Catchment Management (TCM)

Council has recently supported and become a member of the Total Catchment Management (TCM) Committee for the Coffs Harbour area. The Committee is City based, with various government agencies being represented to develop overall catchment management strategies.

Issues covered include urban run-off, land use practices, chemical usage and disposal, siltation control, re-afforestation and regeneration. These issues are addressed in conjunction with Landcare groups and Council's Coastal, Estuary and Floodplain Management Committee.

Council is not represented on the Clarence Valley Total Catchment Management Committee at present.

3.3.2 Streamwatch

In conjunction with the Department of Public Works and Services, Council has participated in the facilitation of a creek watch campaign utilising local schools.

Water quality information collected by schools is fed into a central data base to plot the water quality of Coffs Harbour's creek systems and compare the creeks to others across the State.

Creek monitoring has triggered technical improvements in septic tank systems.

3.3.3 Council Waterways Monitoring

Council continues to monitor the water quality of creek systems throughout the City area. A study was undertaken in 1991, comparing the stream load of faecal and total coliforms in three creeks of similar catchment areas but different land uses. A rural catchment and a catchment with reticulated sewerage were compared with a rural residential catchment. The results were used to trigger a re-assessment of rural residential development, and technical requirements for septic tank systems were radically improved.

All 12 coastal estuaries and the Orara River system are monitored on a monthly basis for bacterial pollution. Ocean beaches, in the vicinity of ocean outfalls, are also monitored monthly, and weekly during swimming seasons.

Incidents of above normal pollution levels are promptly investigated. It is doubtful whether any substantial improvement in water quality can be achieved in estuaries in unsewered Northern Beaches catchments until more effective effluent treatment and disposal systems are implemented.

3.3.4 Coffs Creek Waterways Improvement Program

This project aims to make the Coffs Creek area a focal point of the City. To date, approximately $1.3 million has been expended on creek dredging, restoration and beach reclamation works. This program is to be expanded to include the maintenance of other coastal parks.

Coffs Creek - an important ecosystem and recreational resource

Council has participated in a number of studies in conjunction with other government authorities in relation to pesticide residues in fish, water and

sediment, and continues to monitor the trends in residue levels.

A Trade Waste Officer is now employed by Council to audit all industrial/commercial premises in the City to ensure compliance with the Trade Waste Policy.

Installation of pollution control devices in locations highlighted by the Coffs Creek Management Plan is currently under investigation. It is expected that these devices will ultimately control the discharge of urban litter and other materials into the creek.

Installation of pollution control devices, which are expected to ultimately control discharge of litter and other materials into Coffs Creek, is currently under investigation.

Improvement of stormwater systems, where possible, is being carried out to maximise use of natural drainage systems to filter, settle and remove pollutants.

Council has adopted and is implementing 'Guidelines to Minimise Erosion and Sedimentation from Building and Development Sites'.

3.3.5 Rural Run-Off

Over recent years, Council has introduced several measures to minimise the environmental impact of septic tanks as follows:

- In 1992, Council introduced a minimum size of one hectare for rural residential allotments.
- In 1993, Council introduced a condition of approval for septic tank approvals requiring the submission of maintenance reports every two years. These reports began to be received by Council in March 1995.
- Council has introduced more stringent design requirements for both septic systems and aerated septic systems to optimise performance and reduce potential to cause pollution.
- Pump-out septic system records are monitored for obvious inconsistencies and investigated where necessary.
- Council issued approximately 40 notices to correct faulty septic tank systems during the 1995/96 SoE period.
- Aerated septic systems are monitored by way of maintenance reports which are submitted to Council every three months.

3.3.6 Industrial Run-Off

In order to reduce the potential of pollution from industrial areas, Council has adopted a trade waste policy and employed a trade waste officer. The standard of industrial premises and potential pollution risks are being progressively improved by the following means:

- Stringent environmental safeguards for all new developments.
- Introduction of strict requirements for discharge of waste water to sewer.
- Stormwater controls to prevent discharge of pollutants into our creek systems.

Council officers attend to numerous pollution complaints and are on-call to attend to emergency pollution incidents 24 hours per day.

The success of Council's endeavours to improve the quality of our creek systems depends to a large extent on assistance from the general community in identifying problems and pollution offenders.

3.3.7 Conservation of Riparian Zones

Riparian (streamside) zones of vegetation are a very important natural defence mechanism against pollution of waterways, and Council is taking a number of measures to conserve and enhance such zones.

Flood mitigation works in the area of Robin Street and Coff Street necessitated the clearing of some riparian vegetation (mainly camphor laurel). However the riparian zone was rehabilitated with native vegetation.

A 7(b) Environmental Protection zoning applies to land within 20 metres of certain streams within the local government area. A tree preservation order applies within this zone and development is only permitted where it is consistent with the zone objective of maintaining a buffer.

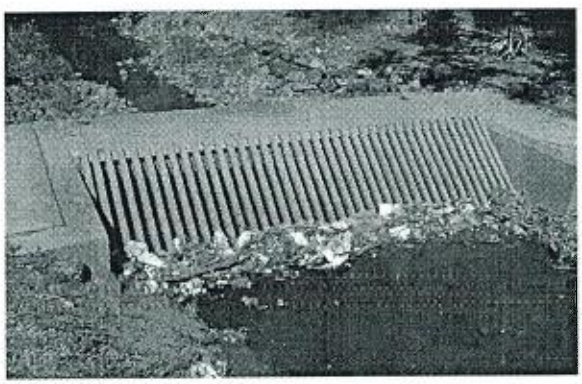
3.3.8 Stormwater Pollution Control Policy

Council has been successful in gaining a grant from the EPA to prepare a stormwater management plan for the Coffs Creek catchment.

The integrated stormwater management plan will address a wide range of factors which influence the quality of our creeks and waterways, including:

- Sediment control.
- Reducing nutrient loads.
- Controlling pollution.
- Preserving riparian vegetation.
- Flood management.
- Stormwater design.
- Development control.

When completed, the stormwater management plan will form a model for other catchments in Coffs Harbour.



Trash Rack adjacent to Park Beach Plaza, Coffs Harbour

3.3.9 Development of Engineered Stormwater Pollution Control Devices

A six month study was commissioned by Council to investigate pollution loads in two creeks, Carrols Creek and another unnamed creek in the Lawson Crescent area. Following on from this, funds were allocated to the design of engineered pollution control devices to arrest identified pollutants prior to entering the City's waterways. Design of these facilities is now in hand.

3.3.10 Floodplain Management

The issue of pollution control is now being considered during the preparation of floodplain management strategies. An example of this is the Floodplain Management Plan for Bonville Creek and North Arm Coffs Creek, which is due for completion in late 1996, where structural flood mitigation measures are determined to be part of the strategy. The opportunity of incorporating pollution control in the structural measures will be actively sought.

3.3.11 North Boambee Valley Development Control Plan

The importance attached by Council to stormwater quality control in the North Boambee Valley Development Control Plan is reflected by its commissioning of the Department of Land and Water Conservation to look at this aspect. Mechanisms such as wetland and detention systems have been incorporated into the plan to ensure that development is controlled in such a way that stormwater quality is maximised.

3.3.12 Revision of Engineering Guidelines for Design and Construction of Stormwater Systems

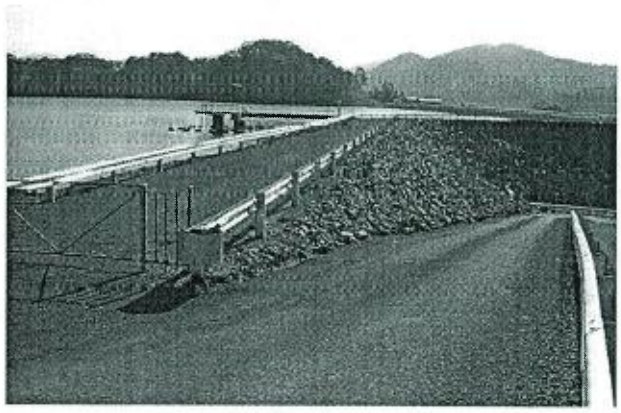
These guidelines are currently being reviewed by Council staff, and will take into account policies adopted by Council aimed at improving the quality of stormwater.

3.3.13 Water Supply

An environmental impact statement was undertaken for the raising of Karangi Dam as an emergency measure to augment the City's water supply. Construction activities were completed in December 1995, with the result that water storage was more than doubled to 5,600 megalitres. These works have significantly boosted the City's water supply, but a longer term solution is still required.

Licence conditions imposed by the Department of Land and Water Conservation, in conjunction with the raising of Karangi Dam, provide for higher environmental flows in the Orara River.

A major study was commissioned at an approximate cost of $200,000 to study the impact of abstraction of water from the Orara River on macro invertebrates and fish.



Karangi Dam - recently completed construction activities have more than doubled water storage to 5,600 megalitres

Development of a Regional Water Supply Project (servicing the Clarence Valley and Coffs Harbour for the next 50 years) is proceeding in conjunction with other local authorities in the region. The scheme will involve the replacement of one of the existing water supply pipelines from Nymboida weir to Coutts Crossing with a larger pipeline. An offtake from this pipe will be constructed to Karangi Dam. It is proposed that installation of booster pump stations and construction of Kangaroo Dam will take place at a later date.

Council adopted a Demand Management Program in 1994. Mandatory dual flush toilets for new premises and retrofitting in older premises, use of low flow shower heads, installation of water saving devices in older cisterns, use of reclaimed water and use of rainwater tanks, are some of the strategies being pursued.

Whilst these strategies will result in further water savings, it should be recognised that Coffs Harbour's water supply consumption per capita now ranks as one of the lowest in Australia. The consumption rate per person, compared to consumers in the Sydney metropolitan area, is approximately 80%.

It is important to protect Coffs Harbour's drinking water catchment from pollution which may arise from development or intensive agricultural activities. The cumulative impacts of development in the drinking water catchment will be scrutinised in a review of Council's Local Environmental Plan in 1997.

3.3.14 Septic Tanks

During 1995/96 Council undertook a survey of 650 premises in areas with septic tank pump out systems. The study, which involved the comparison of effluent pump out rates with water usage found that, on average, about 50% of effluent generated was being illegally discharged into stormwater systems, creeks, roads, reserves or being used for irrigation of gardens and lawns.

Council has initiated an intensive education and enforcement campaign to reduce pollution in these areas.

3.4 ACTIONS FOR 1996/97

- Mapping of seagrass and mangrove areas.
- Study estuarine benthic organisms and estuarine health.
- On-going pesticide and sediment sampling of Coffs Creek.
- On-going bacteriological sampling of creek and beach water to assess changes in water quality and recreational suitability.
- Completion of Stormwater Management Plan.
- On-going implementation of stringent controls for new septic systems in accordance with Australian Standard 1547-1994.
- Preparation of revised Sediment and Erosion Control Guidelines for Coffs Harbour.
- Investigation of funding for installation of newly developed pollution control devices to the City's stormwater systems.
- Implementation of Peak Flow Rate Reduction and Stormwater Detention policies.
- On-going preparation of a Floodplain Management Plan for Bonville North and North Arm Coffs Creek.
- Complete the revision of Engineering Guidelines for Design and Construction of Stormwater Systems.

4 BIOLOGICAL DIVERSITY

4.1 STATE

4.1.1 General

The climatic range and geographic diversity of the City, the mountain range within one kilometre of the sea in places combined with inland river plains and plateau, results in a wide diversity of habitat and fauna from warm temperate to sub-tropical wildlife.

The Coffs Harbour community would like to see remnant vegetation and significant habitat protected, linked and maintained throughout the City. In this context, there is a desire to see residential development being appropriately located and designed.

There are many native plant and animal species in the Coffs Harbour area which are considered threatened either locally or regionally. Lists of threatened plant and animal species have been drawn up by various bodies (e.g. National Parks and Wildlife Services, Department of Land and Water Conservation) for certain areas.

Schedule 12 of the National Parks and Wildlife Service Act lists 240 rare and endangered species. Approximately 80 of the 240 species listed occur or are likely to occur in Coffs Harbour.

Many native plant and animal species found in Coffs Harbour are considered threatened either locally or regionally.

Koalas are the most prominent endangered fauna in the City area. Koala numbers are relatively high and are widely dispersed throughout the area.

The National Parks and Wildlife Service has expanded the area of land under its control in Coffs Harbour in a bid to preserve habitat areas. Of particular significance is the creation of the Bongil Bongil National Park.

The predominant vegetation of the area is eucalypt open forest, with approximately 49% of Coffs Harbour area remaining tree covered. A major part of this tree covered land is under the control of the State Forests of New South Wales.

State Forests of New South Wales' Management Plan for the Coffs Harbour Management Area recognises the need to preserve significant plant species and incorporates this need into its Plan. The total area preserved in the Coffs Harbour Management Area is approximately 3,400 hectares. However, outside of this area, other significant vegetation types exist. These are outlined below:

Population growth and urban expansion inevitably leads to pressures on biodiversity. These pressures may take the form of feral or domestic predators, reduction or modification of habitat, introduction of weeds and exotic plants, pollution, bush fire control measures, and infrastructure such as roads and drainage.

Cattle Egret Colony, Lindsays Road, Boambee. This area is protected under Environmental Protection (Scientific) zoning.

4.1.2 Littoral Rainforests

Littoral rainforest is a distinct type of rainforest which is well suited to living in the harsh conditions of exposure to salt laden and drying winds on the coast. Areas within the Coffs Harbour City area are notated on Council's GIS and illustrated in Appendix 8.

4.1.3 Saw Banksia and Hard Corkwood Communities

Saw banksia and hard corkwood forest are not well reserved within the State. The major occurrence within the Coffs Harbour area is in the Moonee Nature Reserve.

4.1.4 Headland Heath and Grassland

The headland heath and grassland communities are poorly represented within the State's reserve system. These communities occur on Mutton Bird Island Nature Reserve and off-shore islands, and on exposed headlands between Coffs Harbour and Arrawarra.

Arrawarra Heath. Such plant communities are poorly represented within the States reserve system.

Many of these areas are dominated by exotic plant species. The lithosol soil on which the heath communities grow are quite stable, providing the vegetation is not disturbed.

4.1.5 Important Wildlife and Habitat Corridors

Throughout the City there are numerous wildlife and habitat corridors. The most significant of these are identified in environmental protection zones under Local Environmental Plan (LEP) 1988.

The distribution and abundance of fauna throughout the City is determined by the availability of suitable habitat and the presence of suitable wildlife and habitat corridors. Appendix 9 shows the approximate areas of coastal wildlife habitat in the Coffs Harbour area.

The Coffs Harbour vegetation mapping project will eventually assist in the production of more detailed and accurate wildlife habitat maps.

There are numerous wildlife and habitat corridors in the area.

Data Gaps

- Assessment of rare or threatened flora and fauna species.
- Assessment of need for recovery plans for threatened species.
- Assessment of local and regional importance of habitat corridors.
- Assessment of mortality numbers from corridors and near traffic thoroughfares.

The Coffs Harbour community wants to maintain endangered species, including koala population, and, to this end, would like to see development of conservation plans.

4.2 PRESSURES

4.2.1 Bush Fires

The occurrence of bush fire is an inevitable fact of life in Australia. Many plant species rely on bush fires for rejuvenation and propagation.

Each year bush fire brigades attend to numerous bush fires in the Coffs Harbour area, the nature of which vary greatly from grass fires to forest fires.

Dry sclerophyll forest and pastures feature at lower altitudes to the west of the coastal plain whilst wet sclerophyll forest predominate in the coastal ranges. In addition, approximately 2,800 hectares of bananas are cultivated around the eastern slopes of the coastal ranges, presenting special fire risk problems.

Some smaller rural residential developments are surrounded by large amounts of volatile vegetation.

The high fuel loads, the flammable nature of the vegetation, the mountainous topography, and climatic patterns contribute to the volatility of the region.

In 1987, Council undertook a study of the entire Coffs Harbour City area to map high bush fire hazard areas (see Appendix 10).

Whilst most of the population is confined to the coastal fringe, some smaller residential developments are surrounded by large amounts of volatile vegetation.

4.2.2 Littoral Rainforests

Development over previous years has seen an encroachment on coastal rainforest areas. This disturbance and activity has resulted in weed infestations in certain areas as well as increased activity of feral and domestic animals preying on native fauna. Important littoral rainforest areas in coastal reserves are in need of urgent regeneration and protection works.

4.2.3 Saw Banksia and Hard Corkwood Communities

These communities have been subjected to heavy grazing pressures, and some adjacent areas have been cleared.

These areas should be maintained and regenerated, as required, for biological conservation and to maintain and protect the scenic quality of the visually prominent areas.

4.2.4 Wildlife and Habitat Corridors

Some linkages between wildlife habitats have suffered degradation.

The location or dedication of corridors or habitat areas in certain areas bounding or leading to roads or highways has been the subject of debate. Wildlife mortality from such corridors would appear to defeat the purpose of creating corridors to protect and increase wildlife numbers. In addition, feral and domestic predators are problematical in these areas.

The National Parks and Wildlife Service maintains that these linkages are vital and is advocating management of roads to reduce animal mortalities.

4.2.5 North Bonville Subdivision

Council had approved a subdivision of land at North Bonville which was expected to yield approximately 1,500 house lots. However, the National Parks and Wildlife Service has purchased a large portion of land which included the land covered in the subdivision approval. The land is now included in the Reserve System.

4.2.6 North Boambee Valley Development Area - Stage 1

The Draft LEP and DCP for North Boambee Valley have been completed. The development had the potential to impact on significant koala habitat, unless proper safeguards are employed. The Draft LEP and DCP have been reviewed in consultation with the National Parks and Wildlife Service, with a view to protecting more koala habitat. The amended plans have been endorsed by National Parks and Wildlife Service..

4.2.7 Upgrading of the Pacific Highway

The proposed upgrading of the Pacific Highway from Englands Road to Lyons Road has the potential to impact on koala habitat and creek systems.

4.2.8 Englands Road Landfill Depot

Expansion of the Englands Road Landfill Depot, without proper controls, has the potential to reduce important habitat areas, create dangers for wildlife and impact on corridors.

4.3 RESPONSES

4.3.1 Bonville North

The proposed subdivision was subject to extensive fauna and flora studies. The resultant approval incorporated numerous habitat protection measures. The National Parks and Wildlife Service has since announced its intention to acquire the land and incorporate it into the new Bongil Bongil National Park.

Rehabilitation of native vegetation has been carried out in Bonville North in the Environmental Protection Zones owned by Council. The area involved is over 160 hectares, with twenty five percent of the area being rehabilitated under the 'Jobskills Program'. The cost of the program was in the vicinity of $100,000.

4.3.2 Eastern Distributor

An EIS was prepared for this project at a cost of almost $200,00 and involved extensive assessment of social and ecological impacts. The EIS process particularly addressed the issue of koalas and its recommendations require that the project incorporate several measures to minimise the impact on local native fauna.

4.3.3 North Boambee Valley Development Area - Stage 1

The plans are currently with the Department of Urban Affairs and Planning for gazettal.

4.3.4 Upgrading of Pacific Highway from Englands Road to Lyons Road

The EIS for this project was completed in April 1994 and included concept design details for the road. Once again, the recommendations from the EIS process require extensive provision to minimise the impact of the road reconstruction on native fauna habitat and travel patterns.

4.3.5 ETC/Jobskills/Dune Care Project

A combined Enterprise Training Company (ETC) /Jobskills/Dune Care program, employing 12 trainees and two supervisors for 26 weeks, carried out an approved program of coastal works on Crown reserves managed by Council. This program cost $265,000.

Community Dune Care groups and Landcare continue to contribute many hundreds of hours of voluntary labour.

Voluntary community Dune Care groups have contributed an estimated $80,000 worth of labour to restoration, protection projects on coastal Crown reserves managed by Council.

Coffs Harbour has 13 community Dune Care groups and three Landcare groups actively contributing voluntary labour to improve and restore many coastal and creekside environments.

4.3.6 Arrawarra/Mullawarra

Picnic tables, walking track construction, a timber access ramp to the beach and regeneration works were achieved.

4.3.7 Woolgoolga Lake

Council and the Department of Land and Water Conservation funding has seen the start of lakeside bank stabilisation works.

4.3.8 Woolgoolga Back Beach Dune Care

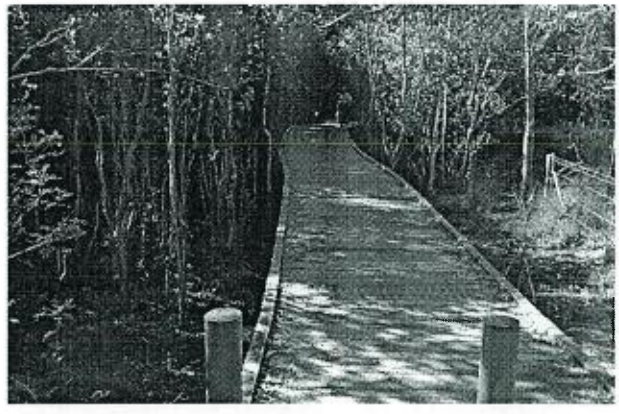
Vehicle access board and chain has been installed to protect fragile dunal areas. A 'whale watching' platform and walking access to the beach have been completed.

4.3.9 Sandy Beach Dune Care

Pedestrian board and chain access and regeneration works have been achieved.

4.3.10 Friends of Coffs Creek

A habitat walk on the northern side of the creek has been developed by a Jobskills team with DEET and Department Land and Water Conservation funding of $165,00. The Friends have continued regeneration works with $5,000 National Landcare program funding.



Board Walk, Coffs Creek. Constructed under Job Skills program with funding from Department of Land and Water Conservation

4.3.11 Habitat 2000

A $32,000 NLP grant, over three years, has allowed Habitat 2000 to continue regeneration and walkways to the central section of Coffs Creek.

4.3.12 Jarrett Creek

The restoration along Jarrett Creek culminated in the official opening of the 'memorial walk'.

4.3.13 Safety Beach Dune Care

A timber access ramp onto the beach and a walking track linking up to the south of the headland have been completed.

Access Ramp, Safety Beach.
Constructed under the combined Job Skills/ Dune Care Project

4.3.14 Emerald Beach Dune Care

Pedestrian board and chain access, weed removal and native plantings have occurred.

4.3.15 North Sapphire Dune Care

A new group who were the catalyst for Jobskills to construct a viewing platform, fencing, beach showers and picnic landscaping area. Ongoing weed removal is a priority.

4.3.16 Diggers Beach Dune Care

Picnic area development by Council/Jobskills, valued at $56,000, has rejuvenated interest in this popular beach reserve.

4.3.17 Jetty Dune Care

Their achievements service as a model for other Dune Care groups.

This group has been regenerating the Jetty foreshore vegetation for over 5 years and continue to work each week. Their achievements serve as a model for other Dune Care Groups.

4.3.18 Sawtell Beach Dune Care

Regeneration works in Twenty Second Avenue, following a severe bush fire in 1994, remain a priority for this group. This regeneration work has been assisted by TAFE students and ETC/Jobskills trainees.

4.3.19 Vegetation Cover and Tree Preservation

Tree Preservation Orders are the main control Council has to preserve trees. Tree Preservation Orders are implemented for a variety of reasons:

- As buffer zones between residential areas and roads.
- For aesthetic purposes.
- To protect important habitat areas.
- To maintain tree species suitable for koalas.
- To maintain wildlife corridors.

There are six areas covered by tree preservation orders as follows:

- 7(b) zones in the 1988 Local Environmental Plan - generally a 20 metre strip adjoining the Pacific Highway and main roads, as well as along major creeks with the City.
- North Boambee Valley forested area - trees of koala habitat importance.
- Bonville North - 6(a), 6(b), 7 and 8 zones plus a 30 metres buffer adjacent to permanent waterways and wetlands.
- Driftwood Court Estate Residential Area, Coffs Harbour.
- Various lots in Vera Drive, which contain trees suitable for koala habitat.
- Lot 20, D.P. 800222, Newmans Road, Woolgoolga.

4.3.20 Environmental Protection Zones

Within the Coffs Harbour City district, there are eight areas designated Environmental Protection Zones. These zones designate and identify lands which are particularly environmentally sensitive. Development is not prohibited but special consideration is required to ensure the value of the area, as identified, is not damaged.

The environmental protection zones identified in the Coffs Harbour area are:

- 7(a) Environmental Protection (Primary) Zone.
- 7(b) Environmental Protection (Secondary) Zone.
- 7(e) Environmental Protection (Habitat and Waterway) Zone.
- 7(f1) Environmental Protection (Management Coastal Lands Protection) Zone.
- 7(f2) Environmental Protection (Coastal Lands Acquisition) Zone.
- 7(j) Environmental Protection (Scientific) Zone.
- 7(l) Environmental Protection (Littoral Rainforest) Zone.
- 7(w) Environmental Protection (Wetlands) Zone.

The locations of these zones are shown in Appendix 11.

4.3.21 Bush Fires

The identification and mapping of high bushfire hazard areas within the study area enables the community, land owners and government authorities to be aware of the potential hazard of bushfires and to plan accordingly. High bushfire hazard areas are regarded as a physical land use constraint and development within such areas is restricted where possible. All high risk bushfire areas are now notated on Council's GIS and, where practical, planning controls are implemented to assist in the control of bushfires in rural developments.

Planning controls assist in control of bushfires.

4.3.22 Littoral Rainforests

These areas are identified in Appendix 8 and are protected by State Environmental Planning Policy (SEPP) 26. Coffs Harbour Local Environmental Plan 1988 identifies them as 7(1) Environmental Protection (Littoral Rainforest).

These areas should be maintained and regenerated, as required, for biological conservation and to maintain and protect the scenic quality of the visually prominent areas.

Littoral rainforest, in the City area, has now been identified and notated on the GIS. Council has prepared a draft plan of management for natural areas as part of the generic management plans for community lands. This plan will serve as a guide to the issues and challenges to be addressed in natural areas, including littoral rainforest areas.

Littoral Rainforest, Charlesworth Bay. Such areas are now protected under State Environmental Planning Policy (SEPP) 26.

4.3.23 Koala Habitat Restoration

In March 1994, the Ulitarra Society commenced a program to restore areas of koala habitat in the City. Coffs Harbour City Council has provided assistance in the form of slashing providing mulch and site preparation works.

Development impact mitigation measures are aimed at sustaining koala populations.

Habitat restoration and development impact mitigation measures aimed at sustaining koala populations in the City area are being carried out. A draft management plan for koalas has also been prepared by the National Parks and Wildlife Service and is currently being reviewed.

4.3.24 Important Wildlife and Habitat Corridors

Wildlife and habitat corridors are now carefully studied, retained and enhanced, as far as possible. Local groups have undertaken tree planting in areas in a degraded state to re-establish tree cover in

corridors, re-establish severances and overcome problems such as soil erosion and weed infestation.

The majority of information held by Council on species is contained in Environmental Impact Statements (EIS) for specific development proposals, however there are no detailed lists for the entire Coffs Harbour area. These studies are held in the Town Planning library.

In addition to a draft management plan for the koala, species management reports have been prepared by the National Parks and Wildlife Service for the following fauna:

- The Little Tern;
- The Osprey;
- The Platypus.

Recovery plans are currently being actioned for two plant species; these being:

- Zieria prostata;
- Thesium australe.

Both species are the subject of Species Recovery Plans which commenced action in 1992. Council is represented on these recovery teams by professional staff. The majority of the funding for the recovery projects is from the National Parks and Wildlife Service. The distribution of Zieria prostata in Coffs Harbour is in areas recently gazetted and added to Moonee Nature Reserve. Thesium australe is confined to only a small area of the Coffs Harbour coastline.

Native vegetation data will be placed on the GIS.

A native vegetation study is currently being completed by Council and data collected will be placed on the GIS. This will assist with conservation of areas of vegetation and habitat significance. Appendix 12 shows vegetation areas outside of State Forests or National Parks which have been classified. More detailed information is now held on the GIS.

4.4 ACTIONS FOR 1996/97

- **Completion of Koala Management Plan**

The project will involve the identification of significant areas of koala habitat within the City. It will:

- satisfy the requirements of SEPP 44 for the City.
- provide the research data to review LEP 1988 with regard to environmental protection.
- provide a management tool for Council officers and developers.

- **Completion of Vegetation Mapping**

The vegetation survey has been completed and exhibited. Council has established a working group to review the implications of the survey and determine the use of the data.

- **Preparation of Rural Residential Development Strategy and West Korora/Korora Basin Landuse Study**

These Strategies will identify areas suitable for a range of rural living options, from hobby farms to large lot residential estates. It will incorporate measures to preserve the visual landscape, maintain and protect important vegetated areas and wildlife corridors and provide buffers between competing land uses.

- **Preparation of Generic Management Plans for Community Land**

Council is currently developing plans of management for various types of community land. These will incorporate strategies to maintain and enhance the biological diversity of areas. For example, management of littoral rainforest, such as the Coachmans Close area will be incorporated into the plan for the coastal reserves category of community land.

Council will be preparing a Plan of Management for coastal reserves in 1997.

5 AIR

5.1 STATE

Due to the light nature of industry in the Coffs Harbour area and the characteristics of air movements, air pollution is not, in general, a major problem.

Backyard burning and vegetation burning are common causes for complaint.

Complaints which are received by Council with respect to air pollution mostly relate to backyard burning, solid fuel stoves, burning of vegetation from land clearing and dust from rural roads.

5.2 PRESSURES

Backyard burning can cause not only smoke haze but also foul odours and occasionally the fallout of ash and other substances. Unlike the Sydney metropolitan area, Coffs Harbour is not subject to Environment Protection Authority prohibition of back yard burning and open fires. As such, backyard burning and burning of vegetation from land clearing operations is common practice, and a common basis of complaints.

Solid fuel stoves and heaters are quite common in both old and new residential areas. Inappropriate fuels, weather conditions (mainly during winter months) and poorly located flues can contribute to smoke nuisances and odour problems.

Dust frequently becomes a problem for residents in the vicinity of unsealed rural roads or development sites during dry periods.

Community concern has been expressed in the past over a possible correlation between aerial spraying of banana plantations and health problems.

5.3 RESPONSE

The introduction of a greenwaste kerbside collection service by Council has resulted in a reduction in the need for backyard burning.

Council is undertaking a dust sealing program for all unsealed urban roads and some more heavily trafficked rural roads.

Monitoring indicates a negligible risk to the community from exposure to pesticides in ambient air.

During the summer of 1992/93, New South Wales Department of Health undertook extensive ambient air monitoring for a range of pesticides. The sampling period was chosen to coincide with the period of aerial spraying of banana plantations (with the pesticide propiconazol). The findings of this monitoring program were released in September 1995, indicating that of the six pesticides detected, all were at levels which are a small fraction of the "Acceptable Daily Intake" (ADI) set by the World Health Organisation (WHO). Furthermore, propiconazol (the only aerial sprayed pesticide) was not detected at all. Interestingly, the pesticides detected were attributed primarily to household chemical use. Further air sampling was undertaken in early 1996. The investigation concluded that the risks from community exposure to pesticides in ambient air in Coffs Harbour are likely to be negligible.

Council has introduced a policy to restrict burning of vegetation in land clearing operations, for which there is development consent.

5.4 ACTIONS FOR 1996/97

- Council will continue its program of dust sealing of roads, further alleviating nuisance problems for local residents.
- Participation by residents in the recently introduced kerbside collection service for greenwaste will continue to be promoted. This should further minimise problems with nuisance from backyard burning.
- Continue to impose burning restrictions for land clearing and subdivision activities.
- Investigate the option of implementing a prohibition of burning in residential areas, under the Clean Air Act.

6 WASTE AND TOXIC HAZARDS

6.1 STATE

6.1.1 Solid Waste

Coffs Harbour City Council is the responsible authority for the collection, recycling and disposal of domestic waste from within the boundaries of the City.

A diverse range of solid wastes are generated in the area, including:

- Domestic waste.
- Industrial/commercial waste.
- Medical wastes.
- Dead animals.
- Greenwaste - garden clippings, prunings, tree loppings, stumps.
- Demolition wastes.
- Municipal wastes.
- Tyres.
- Chemical wastes.

During the year ending 30 June, 1996, a total of 40,500 tonnes of waste was received at Council's central Englands Road landfill and waste processing depot, at Englands Road, Coffs Harbour. About 95% of waste was received at the Englands Road Waste Depot. Broadly, the composition of the solid waste received at Council's landfill depots is given as follows:

	Tonnes per Annum
• Domestic waste	18,000
• Commercial	12,000
• Fill	5,000
• Demolition	2,500
• Other	3,000

Based on studies in other Council areas, it is believed that approximately 50% of the domestic waste stream could be recycled (including a 25% greenwaste component could be processed into chips, mulch and compost).

Much of the demolition materials disposed at landfill have the potential of being salvaged or processed for reuse.

The City also generates a variety of hazardous wastes, including domestic, industrial and agricultural chemicals, clinical, cytotoxic and pharmaceutical wastes, and contaminated soils.

Council has engaged contractors to service approximately 18,000 residences, 1,250 multi-occupancy residences, 2,000 industrial/commercial premises and 50 medical establishments. Bulk commercial waste collection is undertaken by private contractors.

Based on 1994 estimates, the City's principal landfill depot would be extinguished within 5 to 10 years unless expansion of the tip were to take place concurrent with waste stream reduction measures. The Englands Road site has been identified as a koala habitat area.

Vision 2020

The Coffs Harbour community would like to see the development and implementation of sustainable waste management practices (reduction, reuse and recycling).

6.1.2 Liquid Waste

Coffs Harbour City Council is the authority responsible for the collection and treatment of sewage, and the disposal of treated waste water and sludge.

Coffs Harbour City Council operates and maintains three sewerage catchments, these being Woolgoolga, Coffs Harbour and Sawtell. Each catchment has a sewage treatment plant, the capacities of which are 10,000 equivalent persons (ep), 42,000 ep and 18,000 ep respectively.

The sludge produced at the treatment plants is stockpiled and composted. After 12 months composting to kill pathogens, it is used by Council for landscaping or is sold as a soil conditioner.

The treated waste water from the treatment plants, some 10 to 12 megalitres daily, is either discharged to the ocean or reused in the irrigation of sporting fields, golf courses and at the airport. It is a Council policy to maximise reuse where ever economically viable.

Approximately 650 premises are served by septic tank pump-out service, with such effluent being delivered to Council's sewage treatment works.

Each week about 15,000 litres of grease trap and oily wastes are produced by approximately 400 food and commercial/industrial establishments. This waste is currently disposed into evapo-transpiration absorption ponds at Englands Road Depot.

Data Gap

- Assessment of the extent and type of inflow/infiltration into the sewerage system.

The Coffs Harbour community wants to see environmentally responsible collection, treatment, disposal and reuse of sewage.

6.2 PRESSURES

6.2.1 Solid Waste

The continuing growth of the City's population has contributed to significant increases in the waste stream. The disposal of wastes by landfill poses environmental hazards and results in loss of renewable and non renewable resources such as paper, glass, cardboard, metals and construction materials.

Hazardous chemicals pose particular environmental hazards.

Hazardous Chemicals Storage Facility, Englands Road Waste Depot

The limited life of the central landfill depot and difficulties gaining approvals for alternative sites are good reasons to maximise the life of the existing facility. The uncontrolled operation of smaller landfill depots poses environmental hazards such as fire, air and water pollution, vermin, and affectation of native flora and fauna.

Illegal dumping of waste and litter in public areas is an eyesore.

In recent times, there has been an increase in illegal landfilling on private properties, which may lead to pollution and production of unhealthy building lands.

Currently there are no facilities available in Coffs Harbour to receive hazardous chemical wastes. This situation gives rise to potential indiscriminate release of chemicals into the environment.

The absence of waste disposal facilities in the northern beaches area has contributed to the illegal dumping of waste on public lands.

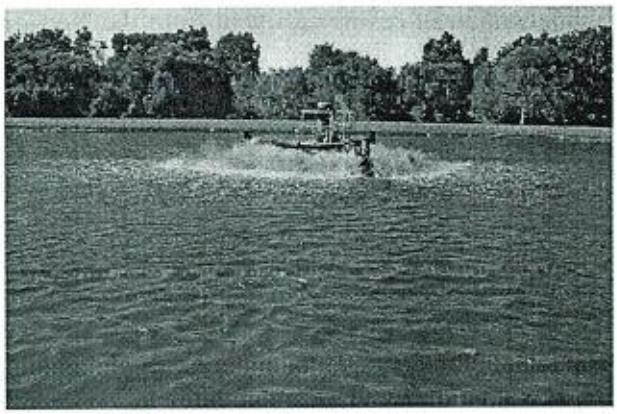
A significant deterrent to waste minimisation and recycling in country areas such as Coffs Harbour is the much lower landfill disposal fees. Country landfill disposal costs are approximately one quarter of Sydney metropolitan costs.

The local recycling industries are also affected by higher transport costs and lack of the recycling rebate incentive schemes which are offered in metropolitan areas.

6.2.2 Liquid Waste

The three sewerage catchments all suffer from inflow/infiltration during storms. This sometimes leads to the surcharging of the sewage reticulation and carrier system. This is most prevalent in the older areas of Coffs Harbour.

The treatment plants at Sawtell and Coffs Harbour are reaching their design capacity. Augmentation will be required in the near future.



Coffs Harbour Sewerage Treatment Works. Concept plans for the augmentation of this facility and improvement of effluent quality are being undertaken.

The provision of sewerage to the northern beaches is essential for maintaining environmental and public health and to allow development to proceed.

Septic tank pump-out systems are expensive to operate and prone to failure. The incentive of reducing costs has been a major factor contributing to the illegal discharge of effluent and pollution in pump-out areas.

The current method of disposal of grease trap and oily wastes causes odour problems, contaminates soil and may cause pollution of surface and ground water.

6.3 RESPONSES

6.3.1 Solid Waste

- **Cleanups**

Coffs Harbour City Council is committed to annual City clean-up projects. City clean-up days, run in conjunction with 'Clean-Up Australia Day', are regarded as being one of the most important contributing factors in raising public awareness of the environment. They also create a role for individuals in protection, management and restoration of the environment. Clean-up days are co-ordinated by the Coffs Harbour City Beautification and Improvement Committee in conjunction with Coffs Harbour City Council.

- **Waste Management Strategy**

The disposal and management of waste in Coffs Harbour has been reviewed and is detailed in the Waste Management Strategy, adopted by Council in October 1994.

The Strategy identifies shortcomings of the existing system and details challenges, opportunities and timeframes in which to improve the system. Many of the options, for example kerbside recycling and greenwaste processing were introduced in August 1995.

- **Landfill Guidelines**

New landfill guidelines were introduced in New South Wales in late 1995, which will improve the environmental management and monitoring of landfills.

- **Englands Road Environmental Impact Statement**

In late 1994, Council commissioned the preparation of an Environmental Impact Statement and Plan of Management to examine the expansion of the facility and management procedures. The study incorporated detailed fauna and flora reports.

The EIS was released for public comment and comments from statutory authorities. The EIS and management plans are currently being reviewed.

It is anticipated that these reports will be completed during 1996. The management plan estimates the life of the facility and recommends management strategies to optimise long term use of the site, and preservation of endangered flora and fauna.

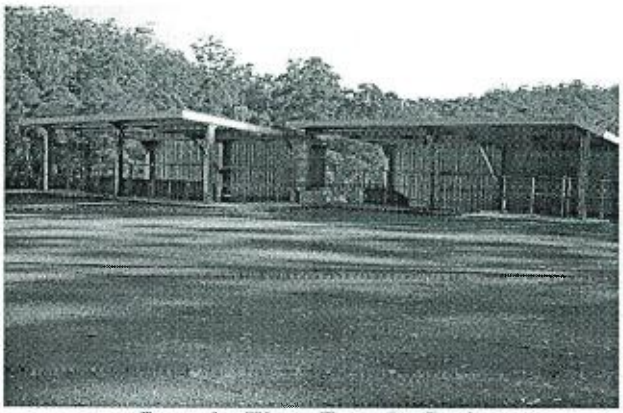
Englands Road Landfill Depot, Coffs Harbour. An EIS and Management Plan are being prepared for this site.

♦ **Integrated Waste Management**

During 1995, Coffs Harbour City Council introduced an innovative, integrated waste management system. This involves the weekly collection of garbage and recyclables in a divided 240 litre wheely bin and fortnightly greenwaste collection from a separate wheely bin. This approach has been successful in diverting nearly 50% of waste away from landfills.

♦ **Transfer Stations**

During 1995, the existing landfill depot at Coramba was rehabilitated and converted to a waste transfer station.



Coramba Waste Transfer Station.
Waste is transferred from this facility to a controlled landfill at Englands Road Coffs Harbour

An additional waste transfer station has been constructed at Woolgoolga. All waste from the waste transfer stations is transported to the Englands Road facility

6.3.2 Liquid Waste

A sewer rehabilitation program is in place to rectify sewerage catchment infiltration problems.

Concept reports for the augmentation of Coffs Harbour and Sawtell treatment plants, and improvement of effluent quality, are presently being undertaken.

A trade waste policy is in place to prevent the discharge of harmful substances to the sewer.

The existing sewage treatment plant at Woolgoolga has been upgraded. Provision of sewerage services to the Northern Beaches area has halted pending further investigations into the satisfactory management of sewage effluent from the Northern Beaches areas.

The provision of reticulated sewer will eventually lead to a decline in the number of pump-out systems and resultant pollution.

Council has resolved to call tenders for the treatment or transfer of grease trap and oily wastes to acceptable environmental standards.

6.4 ACTIONS FOR 1996/97

6.4.1 Solid Waste

- Council will seek to increase the participation level in recycling and greenwaste services, and lower the level of contamination of recyclables and greenwaste to ensure acceptance by processors.
- Trials will be conducted to evaluate potential to include organic food waste in the kerbside greenwaste collection and processing system.
- The Management Plan for the Englands Road Waste Disposal Depot will be implemented.
- Council will encourage improvement of schools education programs on waste minimisation and recycling.
- A hazardous waste receival and transfer facility will be established at the Englands Road Waste Disposal Depot.
- The waste stream will be closely monitored using the new computerised weighbridge at the Englands Road Depot.
- Implement programs to reduce waste from commercial and industrial premises.

6.4.2 Liquid Waste

- Continue investigations into options for provision of sewerage services to the Northern Beaches.
- On-going enforcement of Council's trade waste policy.
- Completion of concept reports for augmentation of Coffs Harbour and Sawtell treatment plants.

Establish a facility for the treatment or transfer of grease trap and oily wastes.

7 NOISE

7.1 STATE

Council deals with approximately 130 barking dog complaints each year, with more from other animals giving rise to a further 20 complaints.

Domestic air conditioners and pool filter pumps contribute around 30 complaints, most often giving rise to problems during summer months when they operate during the night. The main contributory factor to these complaints is inappropriate location of air conditioning systems and pool filter pumps adjacent to neighbouring bedrooms.

Residential developments in new commercial/industrial areas, or vice versa, results in long term noise problems without solution.

Vehicular transport noise is not currently a significant problem in Coffs Harbour.

The location of the Coffs Harbour Airport near population centres, and increased air traffic, has caused noise problems in residential areas.

The Coffs Harbour community wishes to see minimisation of noise pollution in residential areas.

7.2 PRESSURES

One of the greatest pressures with regard to noise in Coffs Harbour is the rapid rate of development in the area. Because of this, there is significant potential for noise generating developments to be improperly located in sensitive areas.

With regard to the City Airport, there are two factors which have noise control implications. Firstly the amount of air traffic using the facility is steadily increasing. Furthermore, consideration is being given to upgrading of the Airport to facilitate increased traffic and larger aircraft.

7.3 RESPONSES

All development applications are carefully scrutinised by officers from Council's Planning, Environment and Development Department to assess their noise generating potential and the sensitivity of the surrounding area. The aim of this is to prevent noise pollution problems from arising in the first instance.

Any upgrading of the City Airport will be preceded by an Environment Impact Statement.

The growth in activity at the City Airport is carefully monitored by Council, with noise assessments being carried out. An Environmental Impact Statement is being prepared for the upgrading of the airport to cater for wide bodies jets.

Council, in association with Air Services Australia, has implemented noise abatement procedures to assist in noise management of the airport.

Council's environmental health officers provide a prompt response to individual noise complaints, normally achieving satisfactory abatement of nuisance through relocation of noise generating equipment, sound proofing measures, and time management.

7.4 ACTIONS FOR 1996/97

- Continued scrutiny of development proposals to eliminate or minimise noise nuisance at the planning stage.
- Continued prompt response to noise complaints by Council's Environmental Health Officers (within 24 hours of receipt).
- Current aircraft noise assessment and noise modelling will be done in association with an EIS.
- Continue preparation of EIS for the upgrading of the airport.

8 ABORIGINAL AND NON-ABORIGINAL HERITAGE

8.1 STATE

8.1.1 Aboriginal Heritage

The Coffs Harbour area was originally inhabited by the Kumbaingirri tribe, whose territory extended from the Clarence River in the north to the Nambucca River in the south.

Relics and places of significance are important cultural assets to the Aboriginal people. They reveal a great deal of information regarding the history of Aboriginal occupation, their traditions and the general characteristics of the area.

Although there is abundant evidence of Aboriginal occupation within Coffs Harbour, most archaeological relics are not large or spectacular.

The Coffs Harbour community wants to see areas of Aboriginal heritage significance continue to be protected.

These sites are either sacred or relic sites. Working Paper No. 8 - Coffs Harbour Coastal Planning Study 1980 details the location, significance and management of relic and sacred sites within the Coffs Harbour area. In all, 35 sites have been identified and recorded as being of Aboriginal significance, all of which are protected under Section 90 of the National Parks and Wildlife Act, 1994.

Clause 37 of the Coffs Harbour Local Environmental Plan, 1988 requires Council to maintain a register of significant areas as notified by the National Parks and Wildlife.

8.1.2 Non-Aboriginal Heritage

Coffs Harbour is not an area rich in heritage sites or items. A Heritage Study of Coffs Harbour was prepared in 1986.

Within the Coffs Harbour City, only 17 items were identified as environmentally significant and worthy of preservation (see Appendix 13). A complete list of items protected under the New South Wales Heritage Act, 1977, within Coffs Harbour is in Schedule 1 of the Coffs Harbour Local Environmental Plan, 1988.

The Heritage Study of Coffs Harbour 1986, concluded that the majority of the items identified as worthy of conservation, were most significant from an historic view point. The study found that the area does not have a strong architectural heritage and that most of the items have only a local significance, items are generally linked to the growth and development of Coffs Harbour and the activities and industries which occurred here, such as coastal shipping and cedar cutting.

Items of significance are linked to the growth and development of Coffs Harbour.

8.2 PRESSURES

8.2.1 Aboriginal Heritage

The rapid rate of development in the Coffs Harbour area poses considerable potential for Aboriginal sites and relics to be inadvertently disturbed.

An Aboriginal land claim has been lodged with the National Title Tribunal for coastal land between Corindi and Bundagen.

8.2.2 Non-Aboriginal Heritage

Since Coffs Harbour is not rich in architectural heritage, and most items of significance are linked to development of the area, there is a possibility that buildings which should be retained and preserved through time may be overlooked.

Non Aboriginal heritage may suffer from deterioration and high maintenance costs.

8.3 RESPONSES

8.3.1 Aboriginal Heritage

Known Aboriginal sites are now notated on the Council's GIS. Any undisturbed areas being considered for urban expansion or rezoning require the completion of a relic survey by a qualified archaeologist.

Aboriginal sites are now notated on Council's GIS.

8.3.2 Non-Aboriginal Heritage

♦ **Schedule 1 of Local Environmental Plan 1988**

Additional to the existing list of heritage items, the following items have been proposed for possible inclusion in Schedule 1 of Local Environmental Plan, 1988:

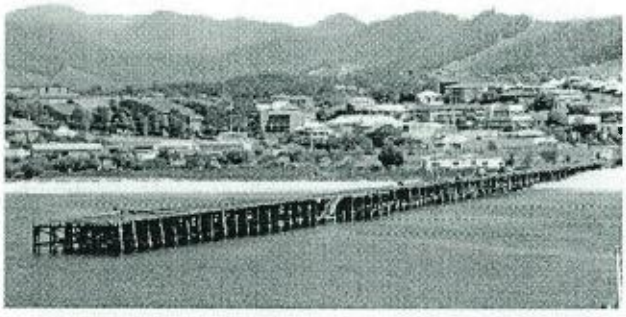
- The Jetty Post Office, corner High and Camperdown Streets, Coffs Harbour.
- Coramba City Hall, Dorrigo Street, Coramba (Lot 2, Section A, D.P. 3971).
- Police Residence, 213 High Street, Coffs Harbour (Lot 1, Section 11, D.P. 758258).
- United Church, 15 Elizabeth Street, Sawtell (Lot 10, D.P. 17282).
- St. Peters Anglican Church, Nana Glen.

♦ **Jetty Area Development Control Plan**

The Jetty Area Development Control Plan requires that heritage assessment of buildings be carried out prior to removal.

♦ **Coffs Harbour Jetty**

The Department of Land and Water Conservation has commenced restoration of the Coffs Harbour Jetty at a cost of approximately $3,000,000. Upon completion, the management and maintenance of the Jetty will be transferred to Council.



Coffs Harbour Jetty.
The Department of Land and Water Conservation has commenced restoration of this historic landmark.

8.4 ACTIONS FOR 1996/97

8.4.1 Aboriginal Heritage

- On-going assessment of proposed development sites for Aboriginal heritage significance.
- Assessment and preservation of the recently discovered Aboriginal site near the City airport.
- Council register its interests as a party involved in the Aboriginal land claim.

8.4.2 Non-Aboriginal Heritage

- On-going consideration of sites and buildings of heritage significance for possible inclusion in the Local Environmental Plan.
- Completion of Jetty restoration works.

9 CONCLUSION

This year's SoE builds upon the process first commenced in the 1994 SoE report. It presents an overview of the status of our environment, the pressures affecting it, and the measures required to minimise environmental degradation.

The report shows that Coffs Harbour is endowed with a rich and diverse natural environment. The overriding pressure on our environment is population growth and demand for residential, commercial and industrial development.

Today, community values and legislation demands, more than ever before, rigorous environmental assessment of all development proposals and activities. This is evident by the numerous environmental studies undertaken, many of which have been identified in this report.

To ensure that projects undertaken are in accord with the community's values, community consultation is now essential. As the report shows, community consultation has been integrated into all aspects of environmental management. In recognition of the Council's achievement in this area, the New South Wales Litter Recycling and Research Association conferred the award for "Excellence in Communication".

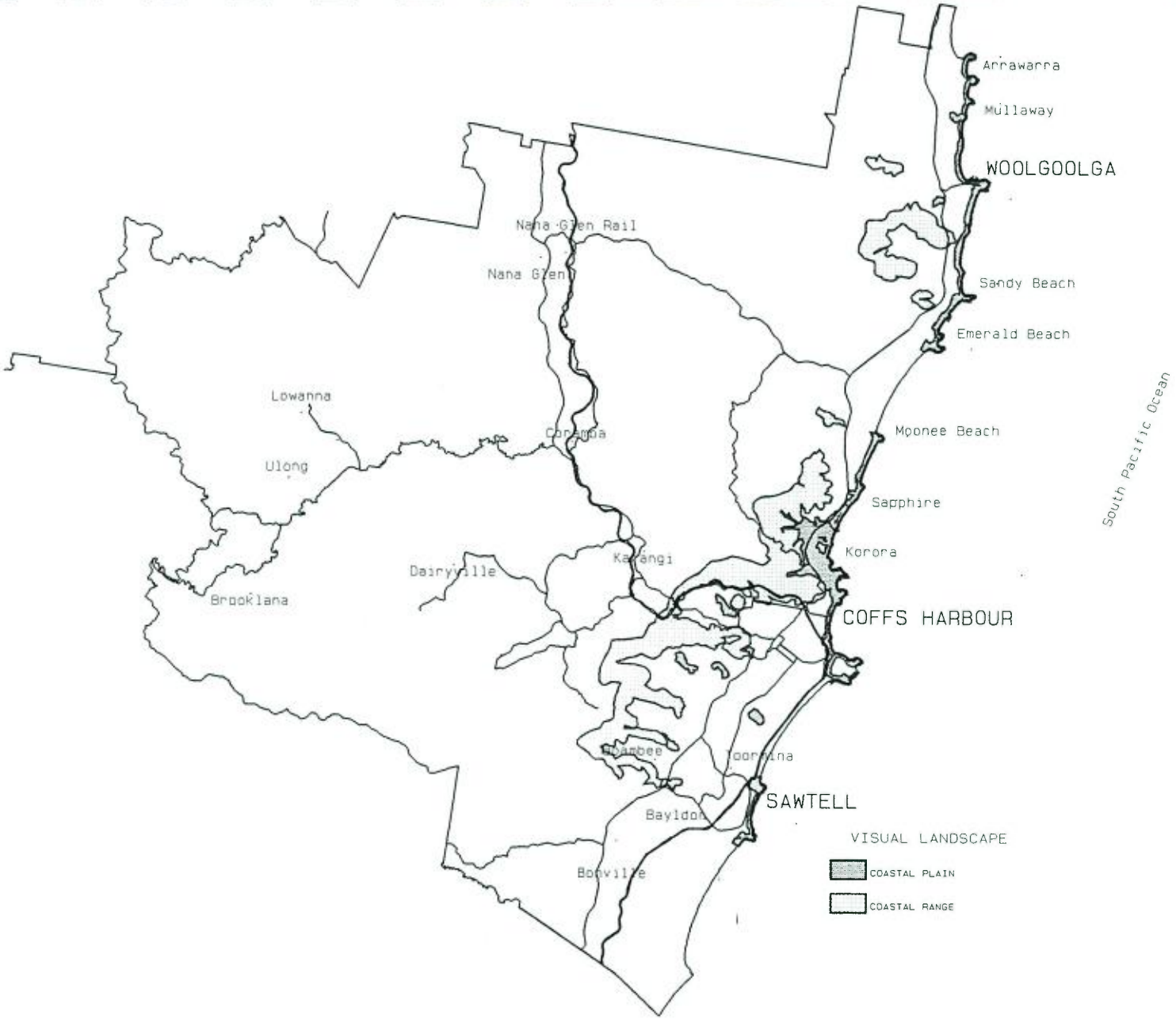
During this SoE period, major studies were undertaken to enhance our understanding and better manage our environment. Examples include the mapping of vegetation communities, the Urban Development Strategy, the Agricultural Land Review, the Jetty Masterplan and Rural Residential Studies.

Significant advances were made in waste management, which included the provision of an innovative kerbside recycling and greenwaste service to all residents.

We are all responsible for our environment. Council, government agencies, business and the community need to work in partnership. There are many examples in this report of community groups and individuals who have freely given their time and effort to engage in important environmental activities.

On an individual scale, we can all minimise our impact on the environment by taking simple steps, such as turning off light switches, separating our garbage and recyclables, repairing dripping taps, composting at home or planting native trees and shrubs.

The report shows that the community is accepting this challenge. Coffs Harbour has one of the lowest water consumption rates in New South Wales and one of the highest waste recycling rates. This demonstrates that individually and collectively, we can make a difference.



CITY OF COFFS HARBOUR

INFORMATION SERVICES GIS SECTION

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SCENIC QUALITY

APPENDIX 1
AREAS OF HIGH SCENIC QUALITY

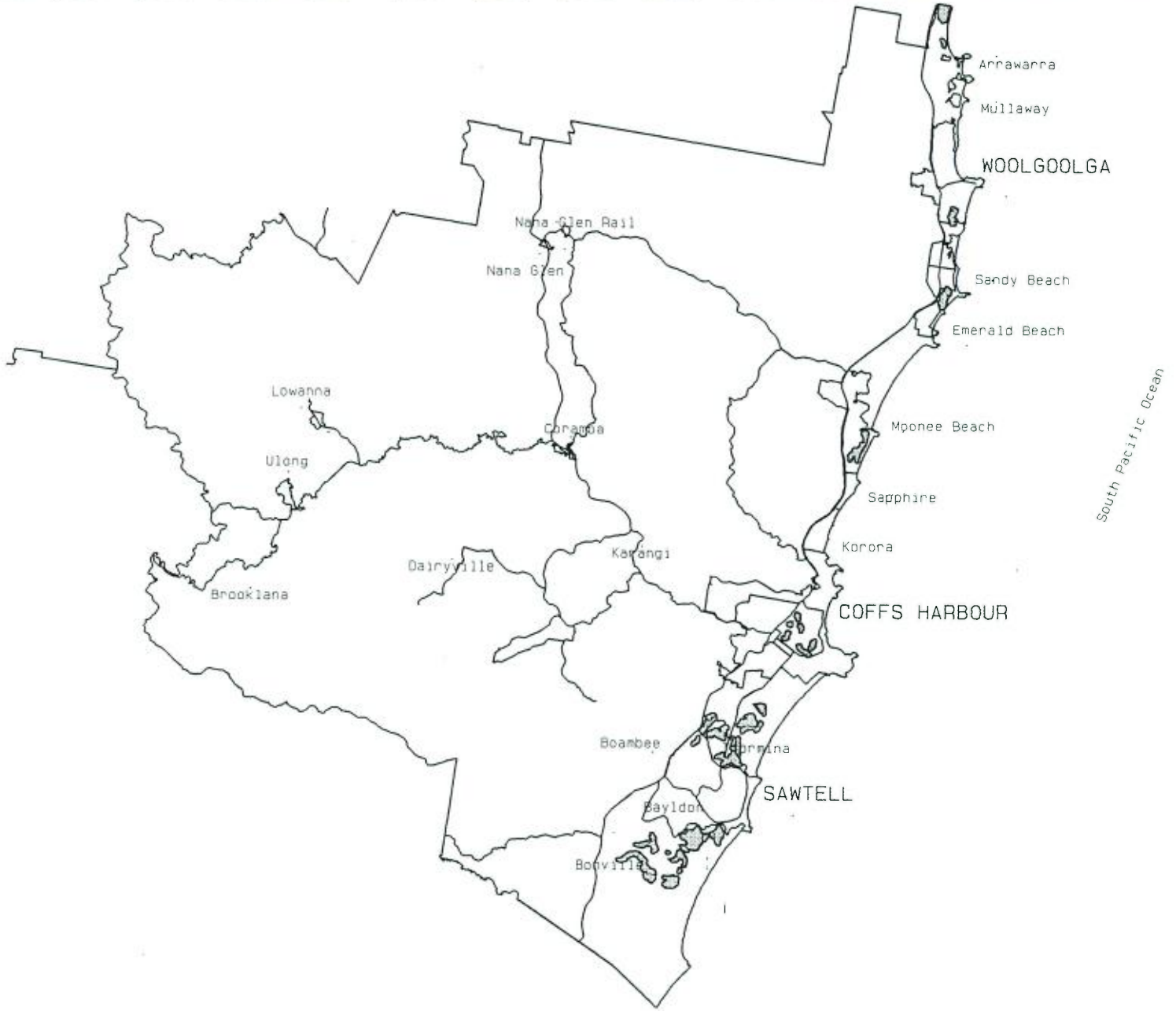
APPENDIX 2
BEACH RECESSION/EROSION STUDIES (MARCH 1995)

BEACH RECESSION/EROSION STUDIES
MARCH 1995

BEACH	REPORT TITLE	DATE	PERIOD OF ANALYSIS	SHORELINE RECESSION	COMMENTS
Sawtell	Sawtell Beach Photogrammetric Analysis	March 1995	1942-1993	O m/year	Update of earlier report
Boambee		1988	196901986		38,000 m3/year accretion above 0 m AHD
Jetty		1988	1942-1986		1,00 m3/year accretion above 0 m AHD
Park	An Assessment of Coastal Processes affecting Park Beach, Coffs Harbour	Sept 1984	1942-1980	0.5 m/year recession	Includes infilling rates of Coffs Harbour
Park		1988	1942-1986	0.6 m/year recession	Results on A1 drawing
Park	Park Beach Photogrammetric Analysis	May 1993	1942-1989	0.5 m/year recession	Update of earlier report
Macauleys	Macauleys and Charlesworth Bay Beaches Photogrammetric Analysis	May 1989	1942-1986	0.3 m/year	Update of earlier report
Charlesworth Bay				0 m/year	
Hills	Hills Beach Photogrammetric Analysis	March 1992	1943-1989	0 m/year	
Campbells	Campbells Beach Photogrammetric Analysis	May 1993	1942-1988	0.3 m/year	
Green Bluff-White Bluff	Green Bluff-White Bluff Photogrammetric Analysis	Sept 1992	1943-1988	0.3 m/year	
Woolgoolga	Woolgoolga Beach Photogrammetric Analysis	Feb 1990	1943-1986	0.2 m/year	Update of earlier report
Ocean View	Ocean View Beach Photogrammetric Analysis	In preparation	1943-1993	0 m/year	
Corindi	Corindi Beach Photogrammetric Analysis	March 1995	1943-1993	0 m/year	

Note: The Department of Land and Water Conservation has arranged for aerial photography to be taken of all beaches following the recent extensive erosion. This will be analysed and more up to date shoreline recession information will be established.

Anecdotal evidence suggests that the above rates are on the low side.



CITY OF COFFS HARBOUR

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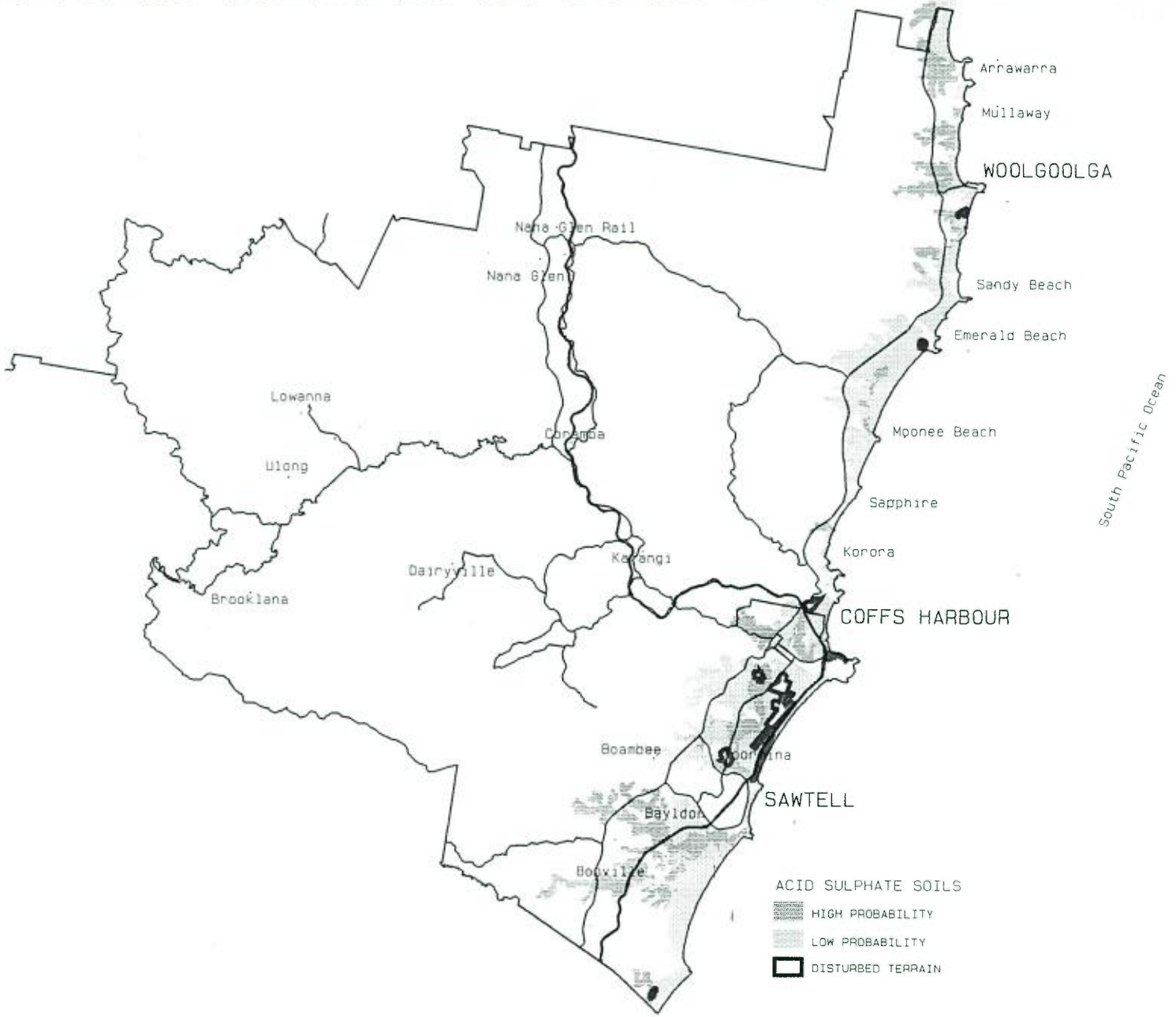
SEPP 14 - WETLANDS

APPENDIX 3
DISTRIBUTION OF WETLANDS ZONE 7(W)



CITY OF COFFS HARBOUR

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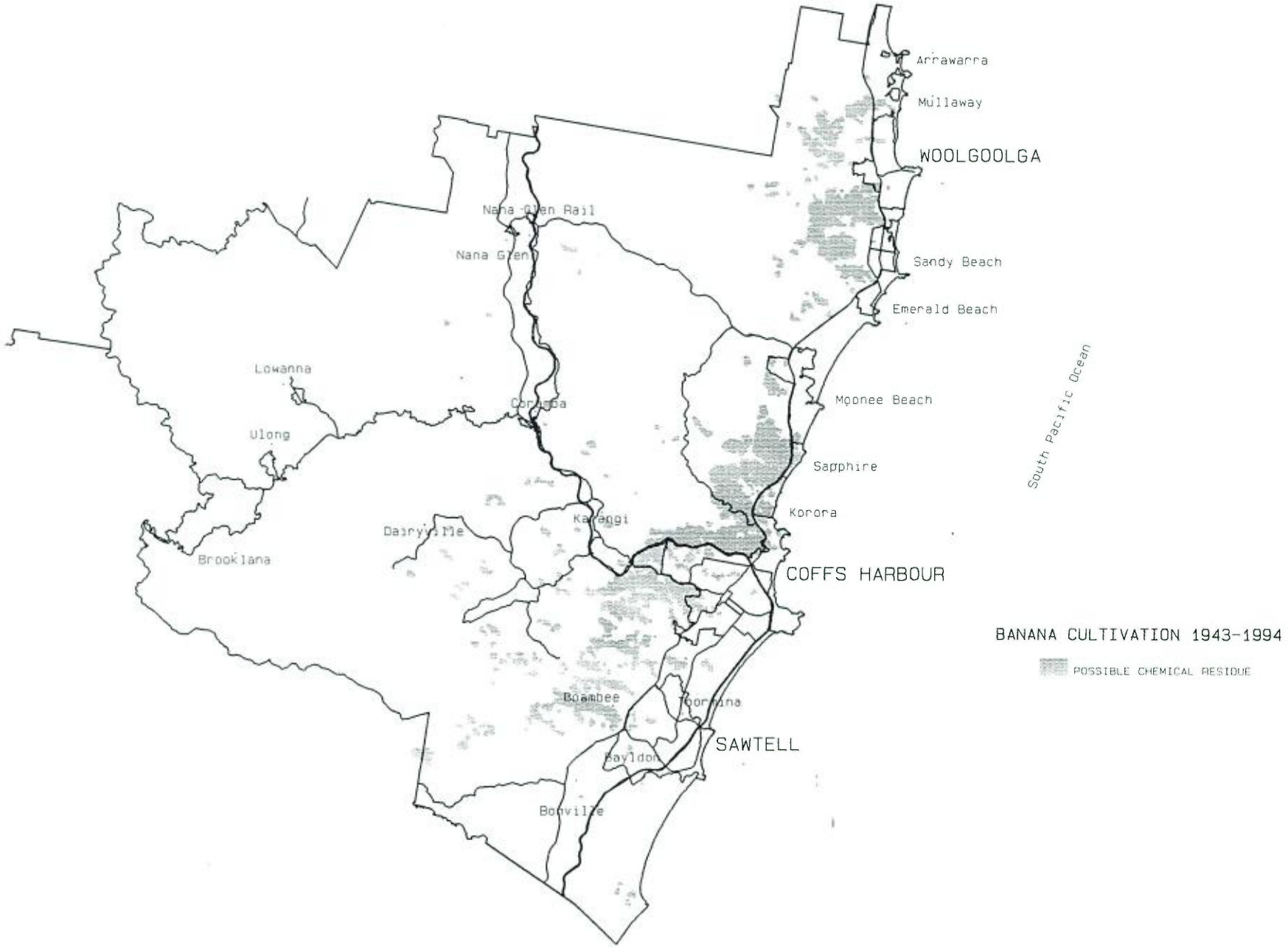
ACID SULPHATE SOILS

APPENDIX 4
DISTRIBUTION OF ACID SULPHATE SOILS



CITY OF COFFS HARBOUR

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BANANA CULTIVATION 1943-1994

APPENDIX 5
DISTRIBUTION OF BANANA LANDS 1943-1994

CITY OF COFFS HARBOUR

INFORMATION SERVICES GIS SECTION

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WATER CATCHMENTS

APPENDIX 6
CREEK SYSTEMS

APPENDIX 7
WATER SAMPLING PROGRAM

Water Sampling Regime - 1995

SAMPLE LOCATION	January				February				March					April				May				June				
Week ending -	06-Jan	13-Jan	20-Jan	27-Jan	03-Feb	10-Feb	17-Feb	24-Feb	03-Mar	10-Mar	17-Mar	24-Mar	31-Mar	07-Apr	14-Apr	21-Apr	28-Apr	05-May	12-May	19-May	26-May	02-Jun	09-Jun	16-Jun	23-Jun	30-Jun
RETICULATED SUPPLY																										
Ulmurra offtake - Eggins Cl				1				1					1								1					
Arrawarra - 2nd Ave				1				3					1								1					2
Safety Beach - Panorama Pde				1				1					1								1					1
Woolgoolga - Lake Rd				1				1					1								1					1
Sandy- Beach Dr				1				1					1				2				1					1
Emerald - Fiddamans Rd				2				1					1				1				1					1
Moonee - Beach Res.				1				1					2				1				1					1
Saphire - Saphire Cres.				1				1					1				1				1					1
Korora - Sandy Bch Rd				1				1					1				1				1					1
Coffs Harbour - Ocean Pde.		1				1					1				2				1					1		
Coffs Harbour - Council		1				1					1				1				1					1		
Coffs Harbour - Jetty Oval		1				1					1				1				1					1		
Coffs Harbour - Airport Depot		1				1					1				1				1					1		
Sawtell - Reserve		1				1					1				1				1					1		
Sawtell - Bonville waters Dr.		1				2					1				2				1					2		
Boambee Sea Breeze Pl		1				1					1				1				1					1		
Boambee - Hamilton Dr.		1				1					1				1				1					1		
Coramba			2				1					1				1				1					1	
Cochrans Pool			3				1					1				3				1					1	
RESERVOIRS																										
Woolgoolga				1				1					1				1				1					1
Coffs Harbour		1				1					2				1				1					1		
Sawtell/Toormina	1				1				1					1				1				1				
Karangi Dam			2													3										
CARAVAN PARKS																										
Banana Coast				1				1					1				1				1					1
Motel 77		1				1					1				2				1					1		
Bonville		1				1					1				2				1					1		
BIG		1									1				2				1					1		
CREEKS - Bathing areas																										
Arrawarra Ck	1				1				1					1				1						1		
Chinamans Ck	1				1				1					1				1						1		
Darkhum Ck	1				1				1					1				1						1		
Woolgoolga Lake	1				1				1					1				1						1		
Willis Lake	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hearns Lake	1				1				1					1				1						1		
Fiddaman Ck	1				1				1					1				1						1		
Moonee Ck	1				1				1					1				1						1		
Pine Brush Ck	1				1				1					1				1						1		
Jordans Ck	1				1				1					1				1						1		
Coffs Harbour Ck	1				1				1					1				1						1		
Boambee Ck	1				1				1					1				1						1		
Bonville Ck 1	1				1				1					1				1						1		
Bonville Ck 2	1				1				1					1				1						1		
Urumbilum River 1			P												P											
Urumbilum River 2			P												P											
Orara River (Coramba)			1				1					1				1				1					1	
BEACH SAMPLING																										
Sawtell 3 (beach - SLCC)			1				1					1				1				1					1	
Sawtell 5 (Nth Sawt.Bch)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Coffs 1 (Boambee bch)			1				1					1				1				1					1	
Coffs 2 (Boambee bch)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Coffs 3 (Hdlnd)			1				1					1				1				1					1	
Coffs 4 (Outfall)			1				1					1				1				1					1	
Woolga. 3 (Back bch)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Woolga. 4 (Woopi bch)				1				1					1								1					1
SEWAGE OUTFALL																										
Sawtell	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Coffs Harbour	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Woolgoolga	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GRAND TOTAL	21	19	22	29	21	19	14	21	8	21	29	14	20	19	24	19	19	18	17	14	17	5	19	19	14	19

SAMPLE LOCATION	July				August				September					October				November				December				
Week ending -	06-Jan	13-Jan	20-Jan	27-Jan	03-Feb	10-Feb	17-Feb	24-Feb	03-Mar	10-Mar	17-Mar	24-Mar	31-Mar	07-Apr	14-Apr	21-Apr	28-Apr	05-May	12-May	19-May	26-May	02-Jun	09-Jun	16-Jun	23-Jun	30-Jun
RETICULATED SUPPLY																										
Ulmurra offtake - Eggins Cl				1				1					1								1					
Arrawarra - 2nd Ave				1				2					1								1					1
Safety Beach - Panorama Pde				2				1					1								1					1
Woolgoolga - Lake Rd				1				1					1								1					1
Sandy- Beach Dr				1				1					3								1					1
Emerald - Fiddamans Rd				1				1					1								1					1
Moonee - Beach Res.				1				1					1								1					1
Saphire - Saphire Cres.				1				1					1								1					1
Korera - Sandy Bch Rd				1				1					1								1					1
Coffs Harbour - Ocean Pde.		1				1					1				1				1					1		
Coffs Harbour - Council		1				1					1				1				1					1		
Coffs Harbour - Jetty Oval		1				1					1				1				1					1		
Coffs Harbour - Airport Depot		1				1					1				1				1					1		
Sawtell - Reserve		1				1					1				1				1					1		
Sawtell - Bonville waters Dr.		1				1					1				1				1					1		
Boambee Sea Breeze Pl		1				1					1				1				1					1		
Boambee - Hamilton Dr.		1				1					1				1				1					1		
Coramba			3				1					1				1				1					1	
Cochrans Pool			3				1					1				3				1					1	
RESERVOIRS																										
Woolgoolga				1				1					1				1				1					1
Coffs Harbour		1				1					2				1				1					1		
Sawtell/Toormina	1				1				1					1				1				1				
Karangi Dam			3													3										
CARAVAN PARKS																										
Banana Coast				1				1					1				1				1					1
Motel 77		1				1					1				2				1					1		
Bonville		1				1					1				2				1					1		
BIG		1									1				2				1					1		
CREEKS - Bathing areas																										
Arrawarra Ck	1				1				1					1				1						1		
Chinamans Ck	1				1				1					1				1						1		
Darkhum Ck	1				1				1					1				1						1		
Woolgoolga Lake	1				1				1					1				1						1		
Willis Lake	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hearns Lake	1				1				1					1				1						1		
Fiddaman Ck	1				1				1					1				1						1		
Moonee Ck	1				1				1					1				1						1		
Pine Brush Ck	1				1				1					1				1						1		
Jordans Ck	1				1				1					1				1						1		
Coffs Harbour Ck	1				1				1					1				1						1		
Boambee Ck	1				1				1					1				1						1		
Bonville Ck 1	1				1				1					1				1						1		
Bonville Ck 2	1				1				1					1				1						1		
Urumbilum River 1			P												P											
Urumbilum River 2			P												P											
Orara River (Coramba)			1				1					1				1				1					1	
BEACH SAMPLING																										
Sawtell 3 (beach - SLCC)			1				1					1				1				1					1	
Sawtell 5 (Nth Sawt.Bch)			1				1					1				1				1					1	
Coffs 1 (Boambee bch)			1				1					1				1				1					1	
Coffs 2 (Boambee bch)			1				1					1				1				1					1	
Coffs 3 (Hdlnd)			1				1					1				1				1					1	
Coffs 4 (Outfall)			1				1					1				1				1					1	
Woolga. 3 (Back bch)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Woolga. 4 (Woopi bch)				1				1					1								1					1
SEWAGE OUTFALL																										
Sawtell	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Coffs Harbour	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Woolgoolga	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GRAND TOTAL	18	17	23	19	19	17	14	18	4	19	19	14	19	19	25	21	21	21	21	14	21	9	21	18	14	21

CITY OF COFFS HARBOUR

Scale: 1: 270000
Date: 03/11/95
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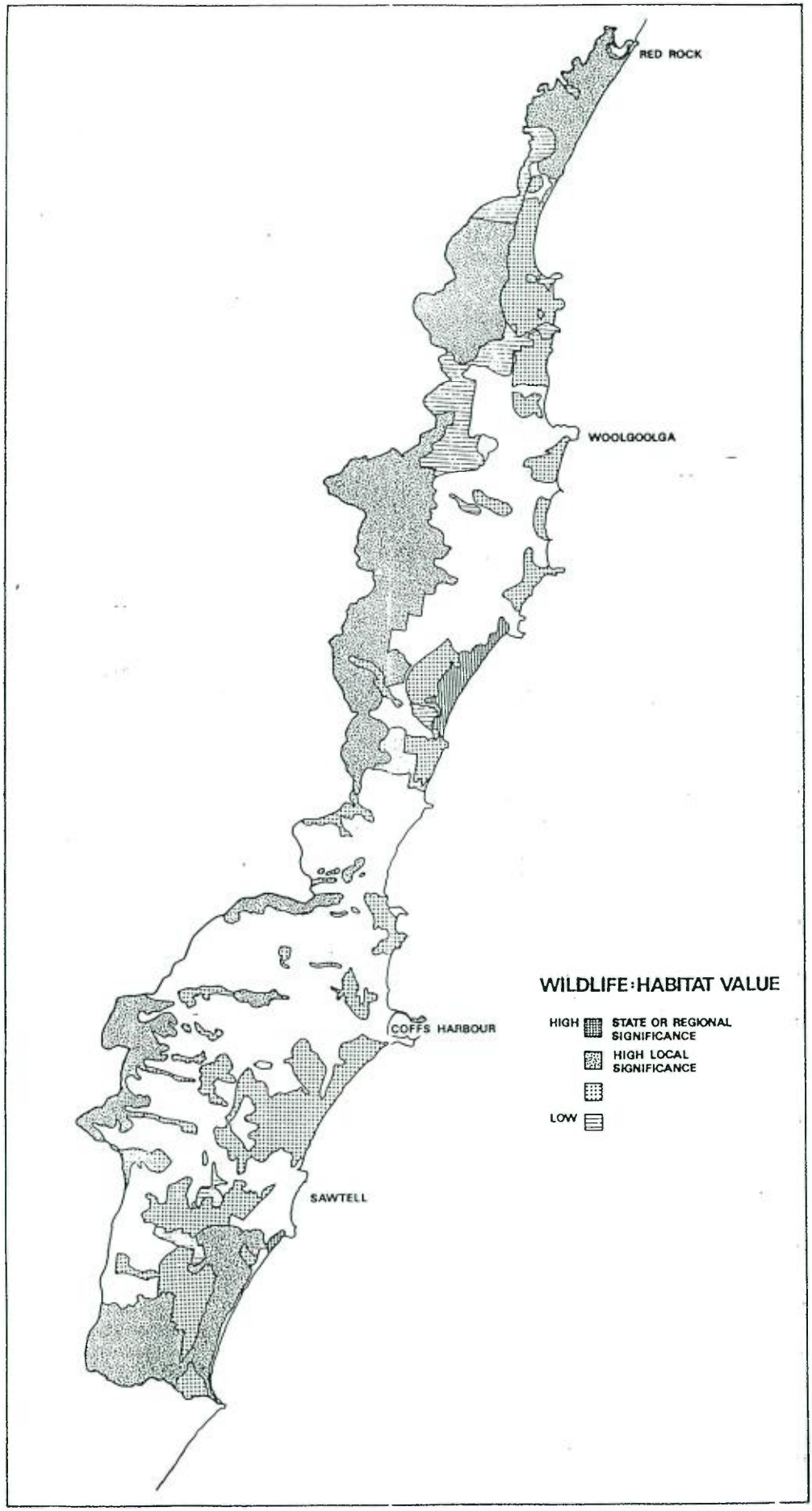
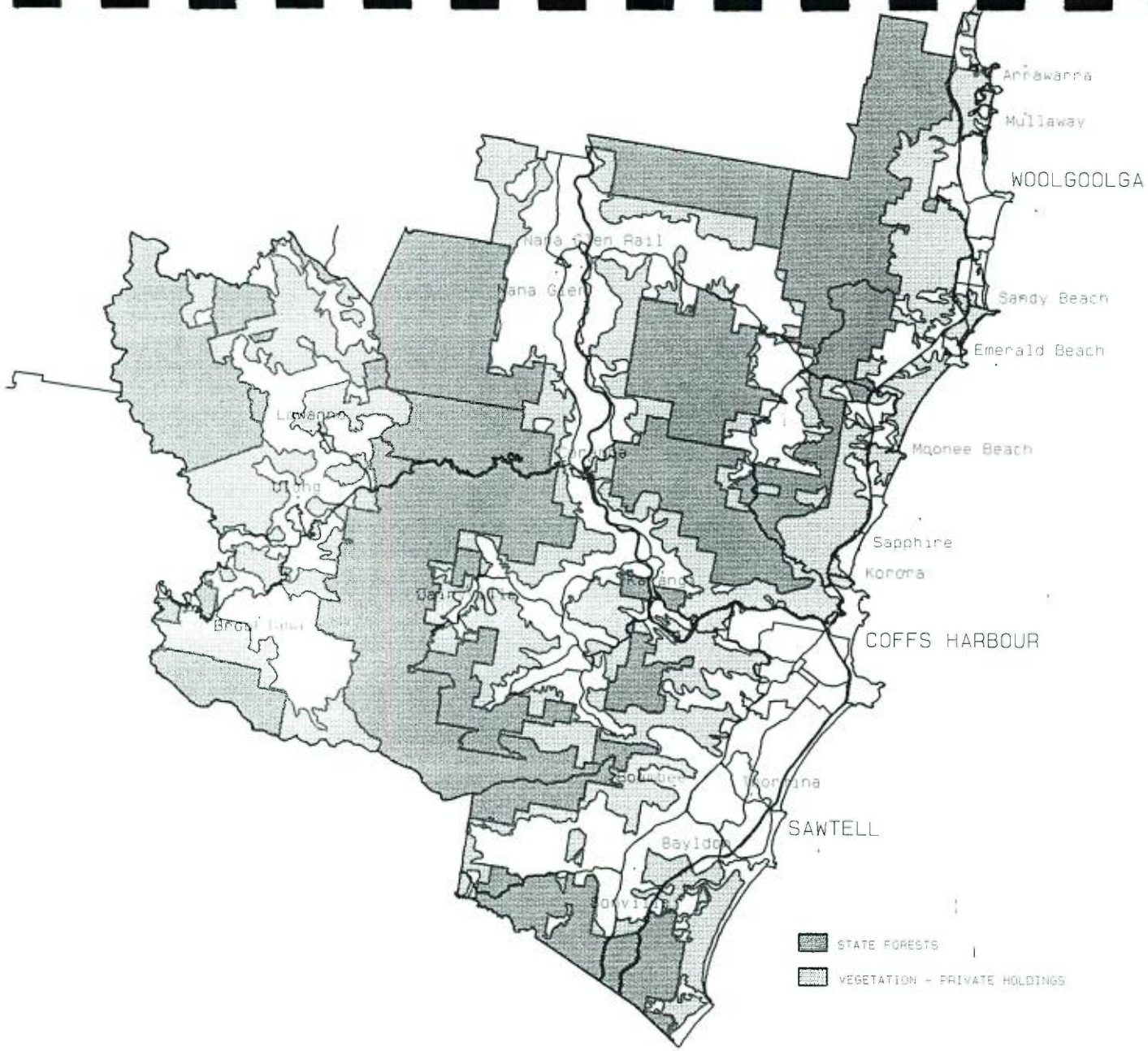
LITTORAL RAINFOREST AREAS

APPENDIX 8
LITTORAL RAINFORESTS ZONE 7(L)

AREAS OF SIGNIFICANT WILDLIFE HABITAT





GIS SECTION CITY OF COFFS HARBOUR

HIGH FIRE RISK AREAS

APPENDIX 10
HIGH BUSHFIRE RISK AREAS

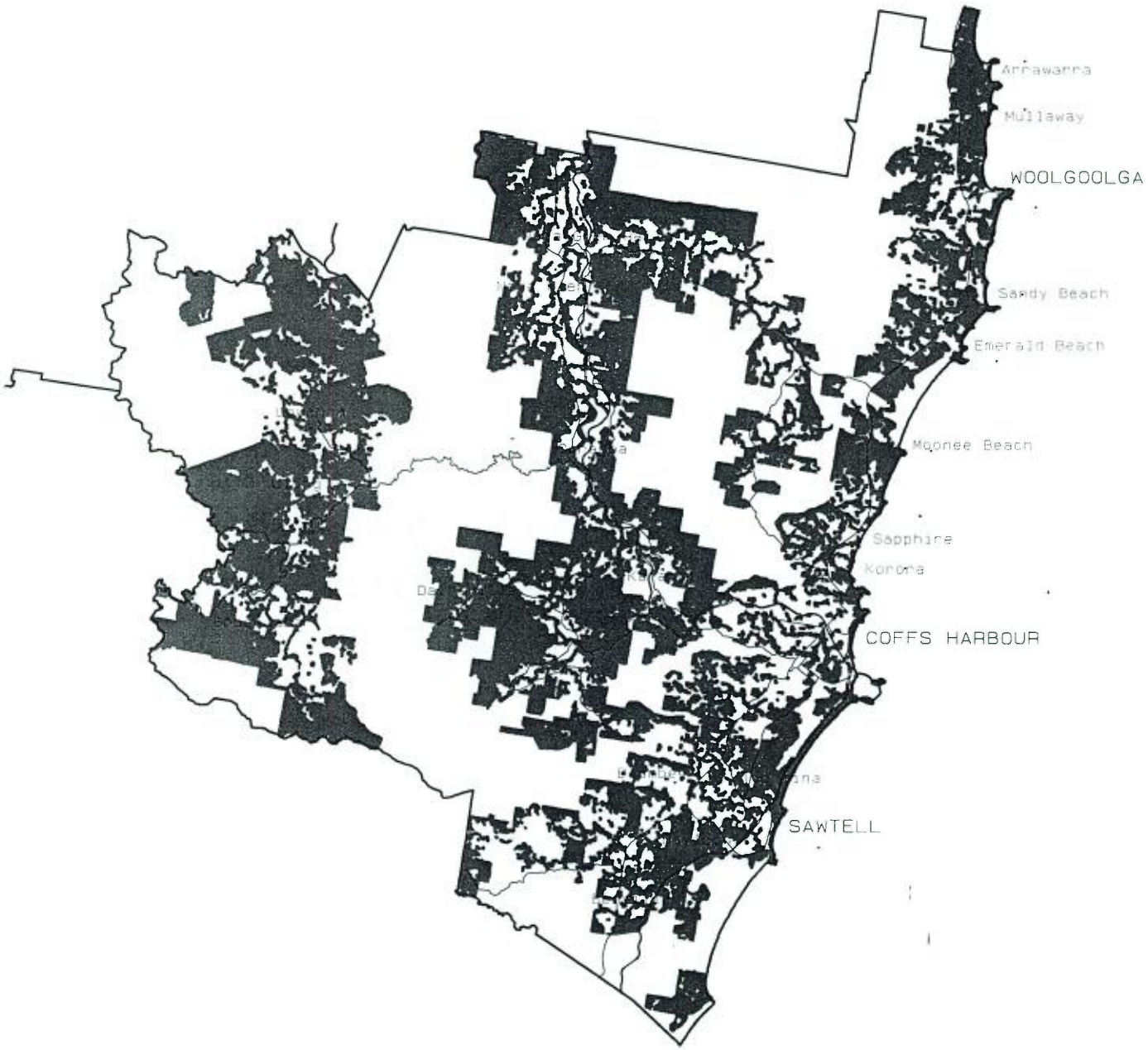
CITY OF COFFS HARBOUR

INFORMATION SERVICES GIS SECTION

Scale: 1: 270000
Date: 02/11/95
Drawn:

ENVIRONMENTAL PROTECTION ZONES

APPENDIX 11
ENVIRONMENTAL PROTECTION ZONES



GIS SECTION CITY OF COFFS HARBOUR

Scale: 1: 275000
Date: 15/10/96
Drawn:

1996 VEGETATION STUDY

APPENDIX 12
1996 VEGETATION STUDY

CITY OF COFFS HARBOUR

GIS SECTION

Scale: 1: 275000
Date: 15/10/96
Drawn:

ENVIRONMENTAL HERITAGE SITES

APPENDIX 13
ENVIRONMENTAL HERITAGE SITES

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
LAND (Chapter 2)				
Visual Amenity	* Area of high scenic quality/green backdrop to City. * Coastal reserves	* Land use pressures associated with development.	* Notation of scenic quality on GIS/ development control.	* **Approval and implementation of Urban Development Strategy.**
Coastal Foreshores and Tidal Zones	* Plans of Management for Sawtell Headland, Coffs Harbour Foreshore and Woolgoolga Lake detail current status. * Development generally controlled by NSW Government Coastal Policy 1990. * Current erosion/recession status of beaches listed in Appendix 2.	* Damage and destruction of coastal developments/coastline amenity by natural coastal processes.	* Coastal, Estuary and Floodplain Management Committee * Development of coastline management plan in progress.	* **Finalise Rural Residential Development Strategy for Korora Basin and West Korora.** * **Finalisation of Jetty Area Masterplan.** * **GIS notation of additional wetlands and saltmarshes in area.**
Wetlands and Saltmarshes	* Wetlands designated by Department of Urban Affairs and Planning are listed in LEP 1988 as 7(w) Environmental Protection (Wetland) Zones. * No inventory of saltmarshes available.	* Land use pressures associated with development. * Construction of Eastern Distributor Road/potential threat to designated wetland around Coffs Creek.	* Identification of additional wetlands and saltmarshes is currently in progress. * Preparation of an EIS for Eastern Distributor.	* **Incorporate Agricultural Land Classification findings into LEP.** * **Include potential and existing mineral extraction sites on GIS.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
LAND (Contd)				
Coastal Flooding	* Major development is confined to coastal strip where significant areas of flood prone land exist. * Flood studies exist for most existing and proposed urban areas.	* High intensity rainfall/small and steep catchments create high flood potential.	* Interim floodplain management studies and flood mitigation works as funding permits. * Notation of flood prone lands on GIS/Development Control. * Management via Coastal, Estuary and Floodplain Management Cttee.	
Acid Sulphate Soils	* 7% of land in district classified as 'probably affected by potential acid soil'.	* Potential environmental damage through development/disturbance of affected areas.	* Affected land notated on GIS/ Development Controls.	
Land Contamination	* Significant areas of former banana land used for residential development. * Contamination of former banana land liable to have resulted from application of hazardous chemicals.	* Continued pressure for development of banana land.	* Notation of past and present banana land on GIS/Development Controls.	

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
AQUATIC SYSTEMS (Chapter 3)	* Aquatic systems are an integral part of Coffs Harbour's environment. * Monthly sampling of major waterways and ocean beaches undertaken. * All waterways generally exceed recommended bacterial limits during heavy rainfall. * City's main water supply drawn from the Orara River. * Water consumption is only 80% of Sydney's per capita consumption. * Mains water supply services 17,077 meters, while the Coramba system supplies 140 premises.	* Urban and agricultural run-off, failure of septic tanks, siltation and industrial/commercial pollution. * City's water demand often exceeds Orara River's flow rate.	* Total Catchment Management Committee (TCM) established. * Schools 'Streamwatch' monitoring program. * Council waterways monitoring program. * Coffs Creek waterways improvement program. * Measures to minimise environmental impact of septic tanks. * Implementation of trade waste policy to reduce industrial/commercial pollution potential. * Conservation of riparian zones. * Development of stormwater pollution control policy. * Development of engineered stormwater pollution control devices. * Consideration of pollution control measures in floodplain management strategies. * Incorporation of pollution control mechanisms into North Boambee Valley Development Control Plan.	*** GIS notation of seagrass and mangrove areas.** *** Study of benthic organisms and estuarine health.** *** On-going pesticide and sediment sampling of Coffs Creek.** *** On-going bacteriological sampling of creek and beach water.** *** Completion of Stormwater Management Plan.** *** On-going improvement and enforcement of septic tank controls.** *** Revision of sediment and erosion control guidelines.** *** Investigation of funding for engineered pollution control devices to stormwater systems.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
AQUATIC SYSTEMS (Contd)			* Revision of Engineering Guidelines for Design and Construction of Stormwater Systems. * Study to ascertain impact of water extraction on aquatic life in Orara River. * Adoption of water demand management program. * Development of a Regional Water Water Supply Scheme. * Monitoring of septic pumpout systems.	* **Implementation of Peak Flow Rate Reduction and Stormwater Detention Policies.** * **Completion of Floodplain Management Plan for Bonville Creek and North Arm Coffs Creek.** * **Complete revision of Engineering Guidelines for Design and Construction of Stormwater Systems.**
BIOLOGICAL DIVERSITY (Chapter 4)	* Wide diversity of habitat and fauna from warm temperate to sub-tropical wildlife. * Relatively large populations of koala. * Significant vegetation includes littoral rainforest, Saw Banksia and hard corkwood communities, headland heath and grassland, and other important habitat corridors.	* Bushfires. * Saw Banksia and hard corkwood communities have been subject to heavy grazing and clearing. * Land use pressures associated with development pose threat to significant vegetation communities, habitat and wildlife corridors.	* Notation of high risk bushfire areas on GIS/Development Control. * Implement recommendations of EIS by Roads and Traffic Authority for proposed upgrading of Pacific Highway.	* **Preparation of Rural Residential Development Strategies for West Korora and Korora Basin.** * **Preparation of Generic Management Plans for Community Land.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
Biological Diversity (Contd)		* Potential impact on biological diversity resulting from specific projects such as: - North Boambee Valley Development. - Upgrading of Pacific Highway. - Englands Road Landfill.	* Assistance provided to a number of Land and Dune Care groups, in addition to various other projects involving habitat restoration and regeneration. * Six areas covered by Tree Preservation Orders. * Designation of Environmental Protection Zones within the City to preserve conservation value. * Prepare Draft Management Plan for Koalas.	*** Completion of Vegetation Mapping and Classification.** *** Completion of Koala Management Plan.**
AIR (Chapter 5)	* Air pollution not identified as a major problem in area. * Complaints arising mainly relate to backyard burning, burning of vegetation from land clearing operations, and dust nuisance from unsealed roads.	* No blanket EPA restrictions on open burning in Coffs Harbour. * Community concern over possible correlation between health problems and aerial pesticide spraying of banana plantations. * Costs of sealing roads.	* Introduction of kerbside greenwaste collection service has resulted in a reduction of backyard burning complaints. * Dust sealing of roads. * Department of Health study into pesticide levels in ambient air.	*** Promote increased participation in kerbside greenwaste collection service.** *** Continued dust sealing of roads.** *** Continue to impose restrictions on burning of vegetation from land clearing and subdivision operations.** *** Investigate options of implementing prohibition on open burning is residential areas.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
WASTE AND TOXIC HAZARDS				
Solid Waste	* 40,500 tonnes of waste generated per annum. * Estimated 50% domestic waste recyclable (includes 25% of greenwaste). * 5-10 years useful life remaining at England Road landfill facility in absence of any waste minimisation measures or steps to expand the landfill potential of the site.	* Continued population growth has contributed to significant increases in the waste stream. * Uncontrolled operation of Coramba and Lowanna landfill depots. * Absence of facilities for hazardous waste disposal. * Local recycling industries affected by higher transport costs and lack of the recycling rebate incentive schemes offered in metropolitan areas.	* Annual City clean-up days. * Implementation of City Waste Management Strategy. * Completion of EIS and Plan of Management for Englands Road landfill facility. * Implementation of integrated waste management system. * Construction of waste transfer stations at Woolgoolga and Coramba.	*** Implement programs to reduce waste from commercial and industrial premises.** *** Monitor waste stream.** *** Promote increased participation in kerbside recyclables and greenwaste collection.** *** Promote schools education program on waste minimisation and recycling.** *** Promote reduction in contamination levels of recyclables and greenwaste.** *** Conduct trials to evaluate potential to process food wastes.** *** Implementation of Management for Englands Road Waste Depot.** *** Establish hazardous waste transfer facility at Englands Road.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
Liquid Waste	* Three sewerage catchments at Woolgoolga, Coffs Harbour and Sawtell. * Treated wastewater, either discharged to ocean or reused for irrigation. * Sludge is stockpiled, composted and used for landscaping or sold as soil conditioner. * Approximately 650 premises are served by septic tank pump-out where sewerage is unavailable and on-site disposal is not possible. * Disposal of grease trap and oily wastes takes place in evapo-transpiration absorption ponds at Englands Road.	* Inflow /infiltration of all three sewerage catchments during storms. * Treatment plants at Coffs Harbour and Sawtell reaching design capacity. * Failure and abuse of septic tank pump-out systems. * Unsatisfactory disposal method for grease trap and oily wastes.	* Sewer rehabilitation program in progress to remedy sewerage catchment infiltration problems. * Concept reports for augmentation of Coffs Harbour and Sawtell treatment works, as well as improvement of effluent quality, are in progress. * Implementation of trade waste policy to control discharges to sewer.	*** Continue investigations into provision of sewerage services to Northern Beaches.** *** On-going enforcement of Council's trade waste policy.** *** Completion of concept reports for augmentation of Coffs Harbour and Sawtell treatment plants, and improvement in effluent quality.** *** Establish a facility for treatment or transfer of grease trap and oily wastes.**
NOISE (Chapter 7)	* Main sources of noise complaints are barking dogs, roosters, and other animals, domestic air conditioners and pool filter pumps.	* Rapid development poses increased potential for inappropriate location of noise generating activities.	* Scrutiny of development applications for noise control implications.	*** On-going scrutiny of development applications for noise control implications.**

ENVIRONMENTAL SECTOR	STATE	PRESSURES	RESPONSES	ACTIONS FOR 1996/97
Noise (Contd)	* Vehicular noise not currently a significant problem. * Some complaints arise from air traffic noise near the City airport.	* Increasing air traffic using the City airport.	* 24 hour response to noise complaints. * Implemented noise abatement procedures at airport.	* **On-going 24 hour response to noise complaints.** * **Undertake aircraft noise assessment and noise modelling.** * **Continue preparation of EIS for airport upgrading.**
ABORIGINAL AND NON-ABORIGINAL HERITAGE (Chapter 8)				
Aboriginal Heritage	* Archaeological relics not considered relatively abundant. * 35 sites of significance identified and notated on GIS.	* Rapid development poses increased potential for disturbance of Aboriginal sites. * Aboriginal land claim has been lodged for coastal strip.	* A relic survey is required before urban expansion or rezoning of undisturbed sites.	* **On-going assessment of proposed development sites for Aboriginal heritage significance.** * **Council register its interests in Aboriginal Land Claim.** * **Assessment and preservation of recently discovered Aboriginal**
Non-Aboriginal Heritage	* Area not considered to have an abundance of heritage sites or items. * 17 items listed in the 1988 Local Environmental Plan.	* Rapid development poses increased potential for loss of items worthy of presentation. * Deterioration and maintenance costs.	* Consideration of additional items for listing in the LEP. * Jetty Area DCP requires heritage assessment of building proposed for removal. * LAWC has commenced restoration of Coffs Harbour Jetty.	* **On-going consideration of sites and buildings of heritage significance for inclusion in the LEP.** * **Completion of Jetty restoration works.**

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GLOSSARY

Algae	*Water borne plants ranging from microscopic species to seaweeds up to 100 metres long.*
Bacteria	*These are microscopic organisms which are neither plants nor animals. They are located everywhere in the environment with many different types. Many are necessary components of an ecosystem, however, some can cause disease in man and animals (pathogens).*
Baseline information	*Information relating to a specific time or defined area of land or water, from which trends or changes can be assessed. It may be a 'snapshot' of conditions or an averaged representation of conditions (for example, water quality over five years) intended to take natural climatic variability into account.*
Biological diversity	*The variety of life - the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form.*
Catchment	*All the land which drains towards a particular waterbody, i.e. the ridges form the boundaries.*
Condition indicators	*Indicators of environmental conditions - the state of the environment - describe the quality of the environment and the quality and quantity of natural resources. Includes measurements of changes in environmental conditions over time.*
Database	*A collection of data or information often, but not necessarily, used to refer to data or information held in a computer.*
Diffuse Sources of Pollution	*Pollutant sources that by themselves would not cause significant environmental damage, but combined with other similar sources can cause environmental degradation.*
Ecology	*The scientific study of the relationships and interactions between a community of organisms and their surroundings.*
Ecosystem	*A defined community of organisms, their interaction, and their physical surroundings.*
Ecologically sustainable development	*Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.*

Ecological sustainability	*The capacity of ecosystems to maintain their essential processes and functions and to retain their biological diversity without impoverishment.*
Environment	*This term encompasses all conditions in which an organism lives, e.g. the land, the air, the water, et cetera.*
Environmental indicator	*Physical, chemical, biological or socio-economic measures that can be used to assess natural resources and environmental quality.*
Environmental stress	*Includes both the pressure caused by human activities on the environment (for example, through pollution or consumption of natural resources) and that generated by natural events such as storms and droughts.*
Faecal	*Material (excrement) originating from humans or animals*
Geographic information system	*A package of computer programs specifically designed to deal with data that are spatially related; a set of tools for collecting, storing, retrieving, manipulating, analysing and displaying mapped data from the real world.*
Leachate	*Water that has passed through soil or garbage and now contains soluble pollutants from the soil or garbage.*
Micro-organisms	*This is the general term given to all microscopic organisms. It includes bacteria, microscopic algae (plants) and microscopic animals (protozoans).*
Pressure indicators	*Indicators of environmental pressures describe pressures, positive and negative, on the environment, including the quality and quantity of natural resources. Such pressures can be caused by human inaction as well as action.*
Response indicators	*Indicators of response show the extent to which society is responding to environmental changes and concerns. Includes changes in attitude and individual and collective actions aimed at mitigating, adapting to or reversing negative impacts on the environment and reversing environmental damage already caused. Also includes actions to improve the preservation and conservation of the environment.*
State of the environment reporting	*A process that presents and analyses scientifically based information about environmental conditions and trends, focusing on the impacts of human activities and their significance for the environment.*