

Chapter 1: Executive Summary: Overview, conclusions and chapter summaries.

This chapter provides an overview as to the state of the Gold Coast Environment and a brief summary of the information in Chapters 2 to 9 of this report.

1.1 Overview

Since the Gold Coast was first settled, over 100 years ago, there have been many changes that have significantly changed the environment of the City. It is not possible, and in many cases not desirable, to turn the clock back but it is important to recognise the changes that have occurred over this time. For example, the coastal heath that once existed between Coolangatta and the Spit has been mostly removed and is now an urban area popular with both residents and visitors. Land clearing for forestry and agriculture in the hinterland altered considerable areas of lowland woodlands and scrub. Today, most remnant forests and bushland areas only remain in the more inaccessible terrain.

The City has grown over the last 100 years, and continues to grow at a rate of around 4.8% per year. This adds a further 15,000 people each year to the City's population of around 360,000 in 1996. This population growth is the main source of pressure on the environment of the area.

Despite these changes, and continuing population growth, the City still has considerable environmental assets based around its remaining bushland areas, its wetlands, waterways and beaches, and its near-shore ocean-reefs. These assets are vital, not just to the fauna and flora within them, but also to the quality of life for the City's residents and visitors, and to its economy.

Remnant bushland is concentrated in the hinterland, particularly on the hills and ranges to the west, but also to the less developed north of the City. This bushland covers some 52% of the City's total area and underpins the City's high level of species diversity. The recent Draft Nature Conservation Strategy indicated that the Gold Coast may be Australia's most biodiverse city. The high levels of species diversity, and relatively large remnant bush cover, are definite positives for the City's environment. However, no conclusions can be drawn as to the long-term health of these ecosystems except that their continued health depends on maintaining the level of diversity that already exists.

In addition to significant bushland ecosystems the City also has five main rivers and many streams, lakes and canals within its boundaries. Because the catchments of most of these waterways lie completely within the City, the Council and the community play a major role in determining the quality of the City's waters resources. On the whole the water in the Waterways of the Gold Coast mostly appears to be of high quality and regular monitoring has shown it to comply with national standards. However, the frequency of sampling may not adequately capture the most important events. There are still areas of the City where the water quality could be improved.

Clean water has also been identified as fundamental to the enjoyment of the Gold Coast's waterways and beaches by residents and visitors. With that in mind the Council is aiming to treat all sewage waste to tertiary level and is careful about the discharge of these wastes into the Southport Seaway. Studies have shown that faecal contamination of the waterways is coming mainly from pet faeces in stormwater and possibly from the many registered boats that regularly use Gold Coast waterways.

The City's population and businesses generate solid wastes which must be handled properly so as to minimise the impacts on the environment. The Council currently collects household and business wastes, litter, and green wastes and handles them at the landfill sites around the City. The life of these landfills has been estimated to cater for the needs of the city into the middle of next century.

Reuse and recycling are activities being undertaken by the Council. The Council actively encourages the reuse of greenwastes by separating these at the landfill sites and mulching them for industrial reuse. The Council also actively promotes and subsidises recycling activities. However, improvements in waste separation for recycling by residents and improved technology that removes all compostible material from the waste stream would greatly improve waste management in the City and reduce the cities reliance on landfill as the sole means of handling solid wastes.

The City appears to have few current problems with respect to air quality or noise. However, there is little data on air quality for the city as a whole and limited data on noise. Most of the issues related to air quality and noise are related to transport, although some localised issues relating to insufficient buffering between residential areas and light industry, wetlands and mangroves. As the city grows, it is likely that problems associated with air quality and noise will become more acute.

The social and economic environment of the City appears to be on a par with the rest of Queensland and Australia except in its mix of industries, income levels and demography. The demography of the Gold Coast differs greatly from that of the rest of Queensland and Australia. While there are as many men as women in the City, the proportion of elderly people is higher than the rest of Australia and Queensland. There are proportionally fewer people under 15 on the Gold Coast. There are more manufacturers on the Gold Coast than any other single industry group. However, many of these are light industry and related to tourist and recreational goods. Most other enterprises on the Gold Coast are in the Construction, Property and Business Services, and Retail industries and together these make up the bulk of all enterprises.

Most employment comes from these major industries and the proportion employed in the Construction, Wholesale and Retail, finance, property and business services sectors is higher than that for Queensland or Australia. There are more low-income earners and families (<\$12,000) and fewer higher income earners and families (>\$40,000) on the Gold Coast than for Queensland or Australia.

Based on a trial survey by the Australian Bureau of Statistics, the Council currently uses around 30% of its operational resources in managing the impacts of the city on the environment.

Most of this expenditure is in the areas of water supply and waste management and treatment. Local government, collectively, spends more on environmental management and mitigation than State and Federal Governments combined. This commitment of resources demonstrates the role of local government as environmental managers.

Overall the environment of the City appears reasonable given the pressures being faced. However, there remain areas for improvement and there is a need for clear goals and targets to be set that will move the City toward its vision. In particular the City needs to ensure that biodiversity and water quality are maintained or enhanced. These two factors form the basis of what may be called the quality of life for residents and visitors and underpin the economy as well as the many ecosystems.

1.2 Chapter summaries

The following seven sections present summaries of each of the chapters in this report.

1.2.1 Chapter 3: Land

Land is a primary resource that underpins the local environment, the society and the economy. The community makes choices as to how it uses the land that is available to it. However, inappropriate land-use, or poor land management, results in degradation of the land resource. This, in turn, leads to a reduction of the capability of the land to sustainably support preferred land use.

State

There are four key land management issues that apply to the Gold Coast such as soil erosion, beach erosion, vegetation cover and floodplain development.

Soil erosion, while a natural phenomenon, is accelerated due to poor land clearing and management practices. Most concern in the community arises from visible sediments that settle quickly. However, there is also a significant problem that arises from the smaller sediment particles which settle more slowly and can affect the turbidity of waterways.

Vegetation cover on the Gold Coast has been dramatically affected since European settlement. Some 50% of the total city area is covered by native vegetation with most impacts of clearing being sustained on the flat lowland areas. However, in recent times increased rates of clearing and settlement have been occurring on the lower slopes of the Hinterland ranges.

The floodplains of the City provide significant habitat for wildlife, and detention storage for floodwaters. Many of these lands have been developed for agriculture due to the higher fertility of some of the soils, their proximity of fresh water and the ease of cultivation. Drains were constructed to lower the water table and improve agricultural production. This drainage resulted in increased rates of oxidation of the underlying acid sulfate soils, which in turn resulted in aluminium and other heavy metals acid water leaching from the soils.

As urban development encroaches on these areas, there is an increased risk of environmental harm resulting from acid sulfate soils unless careful management of the soils is established.

Only around 23% of the City is urbanised, 28% is used for rural residential, 14% is used for rural production, 14% is protected as National Parks and reserves, 14% as other parkland. The balance, 7% is water bodies.

The City has 801 potentially contaminated sites many of which are current service stations.

Pressure

To accommodate the growth of the City around 300 ha/year are developed for urban use. This rate has declined from peaks in the 1980's for both former local authorities.

Response

The Council has developed responses to a range of these issues including, a review of the Planning Scheme, the Hinterland Density Formula, the Nature Conservation Strategy and the Merrimac-Carrara Floodplain Committees and the Environment, the Urban Design, and the Property Industry Advisory Committees.

Conclusion

While there are programs and strategies in place that will improve the management of the City's land resources, there is also a limited of detailed and accurate land resource data to further improve the City's management.

1.2.2 Chapter 4: Air

State

The air quality in the City of Gold Coast is currently believed to be of a high standard. This is based mainly on the fact that the Gold Coast does not yet have the industry or population levels to have significant air quality problems. In addition short-term monitoring has not revealed any significant air quality issues. Studies of the Brisbane Air-shed indicate that some northern parts of the Gold Coast around Coombabah may be affected, at times, by air pollution from Brisbane's central business district.

Pressure

However, the population growth rates for the Gold Coast and high vehicle use rates, particularly with low occupancy rates, indicate potential future problems. Studies in conjunction with the Pacific Motorway have identified potential air-quality black-spots along the Pacific Highway.

Response

The Council and the Department of Environment are discussing the placement of extra permanent air quality stations; one in the northern half of the Gold Coast where air quality decline may be experienced; and another in the south of the City.

Conclusion

At present there are no apparent major problems with air quality on the Gold Coast, although there are few data for this to be conclusive. An increase in air-quality monitoring on the Gold Coast is occurring. The growth in vehicle use and the development of the Pacific Motorway are expected to begin to cause problems of air quality on the Gold Coast in the next 20-30 years. The development of the City's Transport plan that seeks to encourage more efficient use of private vehicles, and a greater use of public transport, cycling and walking.

1.2.3 Chapter 5: Water

Clean water is essential to the environment, the society and the economy of the Gold Coast. Not including the extensive beaches, some 6% (8706 ha) of the area of the Gold Coast is water including Southern Moreton Bay. This water is in some 480 km of rivers and streams, as well as 774 ha of lakes, dams and canals which wind their way through the Gold Coast landscape.

State

There is considerable information on the quality of the water in the Gold Coast. However, most of this data focuses on the drinking and surface waters of the area. The quality of the drinking water consistently meets all health standards and the quality of the surface waters currently meets national guidelines for all waterways, at most times. While this is encouraging, the frequency of sampling may not be sufficient to adequately record the water quality during major runoff events. The groundwater resources of the Gold Coast are not extensive and have not been considered economically significant. Consequently, the current quality of the groundwater resources is not well understood. The health of the riparian land and the stream beds is also not well understood.

Pressure

The Gold Coast faces considerable pressures in maintaining and enhancing the water quality. This task is made more difficult due to the growth of the City as well as the increasing number of tourists, visitors and daytrippers.

Response

The Council is responding to the state of the water and the pressures faced by implementing a number of programs and projects. These include:

- Gold Coast Catchment Management Strategy
- Waterwatch
- Gold Coast City Council's Water Consumption Reduction Strategy
- Improved Water Treatment and Re-use
- Northern Wastewater Treatment Strategy
- Hinze Dam Catchment Management Program
- Stormwater Awareness Program
- Stormwater Runoff Studies
- Local Development Guidelines
- Integrated Catchment Management Program
- Catchment Management Plans for Major Catchments
- Community and Industry Awareness Program
- Acid Sulfate Soil Management Policy

Conclusion

Water quality on the Gold Coast appears overall appears to be of a reasonably high standard, based on the available data. However, there remain areas for improvement. The Council is considering a number of future initiatives, including:

- Feasibility of a Groundwater Monitoring Program
- Biological Monitoring
- Event Monitoring
- Determining Environmental Flows
- Pollutant Export and Water Quality Modelling

1.2.4 Chapter 6: Biodiversity

Biodiversity is a measure of the number and abundance of different species. These measures reflect the health and stability of ecosystems. It is much more than a tally of rare or threatened species. However, there is little data compiled on the abundance of each species and therefore care needs to be taken when using species number as an indicator of biodiversity.

State

Southeast Queensland (SEQ) and the City of Gold Coast have a large range of ecosystems and habitats. The Gold Coast contains many areas of ecological significance to SEQ and the World; is possibly the most biodiverse city in Australia and has more bird species than Kakadu. In total there are at least 2680 vertebrate animal and vascular plant species on the Gold Coast and in the surrounding marine and freshwater environments. There are also many invertebrate species (insects etc.) and non-vascular plants (fungi etc.) but data on these species is less prevalent.

This biodiversity is underpinned by the extensive areas of remnant bushland on the Gold Coast. There is currently some 72,250 ha, or approximately 50% of the Gold Coast, covered by remnant bushland. Most of this area is considered to have regional ecological significance to SEQ and is in large or interconnected parcels. Of the total bushland only around 10% is committed to development, but a further 28% is highly likely to be affected by development of some kind. The conversion rate of land to urban uses appears to be around 300 h per year. Some 35% of the vegetation is completely protected by State and Council provisions and the remaining 27% is not likely to be developed.

Pressure

Despite the encouraging statistics on species diversity there are many species that are rare, threatened or endangered in the City. There are 76 known animal species and around 160 known plant species recognised, under legislation, as being at risk.

Clearing and habitat destruction, which is the primary threat to biodiversity, is often associated with the growth of the City. This growth is largely due to the lifestyle and leisure-based development of the City. Road traffic and inappropriate fire regimes are examples of a number of other factors associated with urban and non-urban land management practices that threaten biodiversity.

Response

There are a range of levels of protection afforded to the biodiversity of the area by governments, including Federal laws and agreements, State laws and Crown land, National Parks and reserves, Council local laws and policies. The most effective protection of biodiversity, other than quarantining land into parks and reserves, was found to be local structure plans, open space provisions, and the incorporation of environmental objectives into the strategic plan.

In addition to vegetation protection, the Council also actively controls pest animal and plant species on Council-owned and Crown lands in catchments and waterways. The Council is also developing a new Planning Scheme, vegetation policies, fire management plans and a Nature Conservation Strategy which are consistent with the conservation of biodiversity in the City.

There are other groups working to conserve the biodiversity of the City as well as Council. This includes community groups, private research foundations and State Government Departments. Their work contributes extensively to the knowledge base of the area and to the recovery of several threatened species.

Conclusion

Recent studies have shown the Gold Coast to have a higher diversity of land based species than Kakadu. Other studies have listed many species that exist in the waterways of the City. However, the level of knowledge and understanding that exists about these species is mainly restricted to vertebrates and vascular plants. To gain a clearer picture on the Biodiversity of the City information is required on identifying key species, functions and relationships between them and their relative abundance. Information is also required on invertebrates animals, non-vascular plants and marine and aquatic organisms. There are also problems in identifying the relevant authorities for recovery plans for threatened species.

1.2.5 Chapter 7: Noise

Noise is considered to be "unwanted sound" that causes annoyance to a person. Excessive noise over long periods has been shown to have significant health implications for individuals and communities. The Queensland Department of Environment has set draft guidelines for daytime and night time noise limits.

State

Noise monitoring of Industrial sites within the City is carried out on a complaint basis. There is no regular noise monitoring regime carried out in the Gold Coast City with respect to noise from industrial areas. Approximately 70% of noise complaints that are received by Council are generated from domestic or residential premises. As part of the City's dependence on private car-based transport, noise impacts on some existing roadways are significant and have been shown to be above acceptable noise limits for traffic noise in residential areas, as set by the Department of Transport.

Pressure

It has been found that the number of noise complaints received by Council increases during the summer months, when residents tend to leave windows and doors open for comfort. This allows noise to intrude into an area which it does not usually affect. Areas have appeared within the City where a residential area has been developed adjoining an industrial area. In addition to the existing and growing noise-problem arising from local transport, the further development and intensification of the Pacific Highway is predicted to cause noise 'black-spots' at Beenleigh, Pimpama, Coomera, and Helensvale.

Response

Noise related issues are dealt with by both the Council and various state government departments.

Conclusion

Regular local monitoring of noise is required to establish clearer baseline values that can be used to evaluate degradation of the noise-environment. There is likely to be a need to develop strategies to handle transport related noise at a number of locations throughout the city.

1.2.6 Chapter 8: Waste

Waste is a facet of human systems only. Natural systems don't produce waste as the by-products from one species form a resource for another.

State

The capacity of the current landfills and sewerage treatment plants is expected to last the needs of the City until the year 2035. All of the landfills and plants are licensed and comply with state legislation and standards.

Pressure

Growth of the City is expected to take the population to around 700,000 in the next 50 years from its current population of around 370,000.

The City generates around 343,000 tonnes of waste that goes to landfill each year, or around 1000 kg per resident. This figure is more than 200 kg greater than the national average and is likely due to the high numbers of visitors and day-trippers that also enjoy the city. Of the waste generated nearly 70% is compostible and only 7% is recycled.

On average the City generates 116 Ml of wastewater each day. All of this waste is treated to secondary level (removal of solids and some nutrients) prior to discharge. Some wastewater is treated to a tertiary standard. Up to 70% of treated effluent from some plants is reused in the City for irrigation.

Response

The Council provides a range of waste services and levels of service to cope with the diverse needs of the City's residents and visitors. In addition to this the Council is undertaking accurate and regular surveys of existing landfill sites to improve their management and useful life. The Council is also investigating methods to increase the reuse of effluent in the City and to improve the quality of treatment.

Conclusion

The growing population of the City will place increasing pressure on the existing landfills and treatment plants. There is a need to consider options for increasing the level of organic waste composting and recycling to increase the life of the existing landfills and to convert wastes into resources. The City also needs to consider the level of treatment provided to wastewater as this may be an increasingly important resource in the future.

1.2.7 Chapter 9: Socio-economic environmental factors

The Gold Coast has been described as a classic sunbelt city that, in addition to tourism, has an economy based on settlement by retirees. Both of these groups come to the Gold Coast to enjoy the climate, the environment and the lifestyle. It has been long established that the environmental issues are given lower standing in times, or locations, of economic or social hardship. Consequently the social and economic basis of the City of Gold Coast, and the attitude of the community toward the environment, is fundamental to the sustainability of the City. Currently some 70% of Australians believe the environment to be at least as important as the economy.

State

The per capita gross regional product of the City, while significant, appears to be only around half of that of the State, or Australia. This situation is also reflected in the household income for the City which was \$29,500 in 1991 and is lower than that for Queensland (\$31,815) and Australia (\$34,987). Conversely the cost of living on the Gold Coast is similar to that for the rest of Southeast Queensland (SEQ) and the cost of accommodation is higher than for the rest of SEQ.

Most of the energy used on the Gold Coast is derived from external sources, there are few alternative renewable sources of energy used. This is despite the potential to use solar, wind and tidal /wave generators. Based on the gross regional product estimates and average per capita energy use in Australia, the Gold Coast appears to consume twice as much energy for every dollar produced than Australia as a whole.

Fewer people travel by public transport on the Gold Coast than for Queensland as a whole. If this tendency is not changed and the use of private cars continues at the same rate of today, travel times for short journeys within the City (14 km) will increase from the current time of 20 minutes to over 70 minutes and average speeds will fall to around 11 km/hr. Current transport systems are safer than they have been previously, based on the volume of traffic and the number of accidents.

The natural environment of the Gold Coast is not having noticeable negative effects on human health. For example, health statistics show that the Gold Coast is similar to the rest of SEQ with most people being hospitalised or dying of diseases of the circulatory

system. However, the social and economic environments may be having an effect on health. Injury related illness and death is significant particularly for the age groups below 34 years of age. Whereas crime rates on the Gold Coast do not show any particular trend and gross counts of crimes are in keeping with population growth. There appears to be some correlation between crime and population density and with an index of disadvantage.

Pressure

The Gold Coast has a number of culturally significant sites and buildings. Some of these are protected via the National Trust while others have simply been given heritage listing under the Cultural and Heritage Act.

In addition to population growth, the City accommodates a daily average of around 45,000 tourists and perhaps as many daytrippers. These relatively high ratio of visitors to residents may lead to tension between residents and visitors. Further, the increasing proportion of aged people on the Gold Coast compared with the rest of Queensland may lead to significant areas of social disadvantage.

Response

In Response to these states and pressures the Council provides a number of services to accommodate elderly and isolated groups in the City, particularly in terms of Library services and Council offices. The Council is also developing a Community Health Plan for the City. The State and Federal Government also provides support infrastructure for care provision in the Community

The Council is also working toward attracting environmentally sound industries to the Gold Coast that will broaden the economic base of the City. The Council is developing a Transportation Plan that strives to address issues related to the provision of an improved mix of transport modes that will reduce the reliance of people on the private car.

Conclusion

There appears to be no clear negative affects of the environment on the residents of the City. However, the current available data indicate reason for concern regarding the amount of energy consumed by the City and the nature and size of the City's economy. The demographic data indicate reason for concern as to the ability of residents to adequately value the environment due to their own needs to survive in the City. Overall, there is need for research to provide a better understanding of the relationship between society, economy and environment to help build sustainable communities.