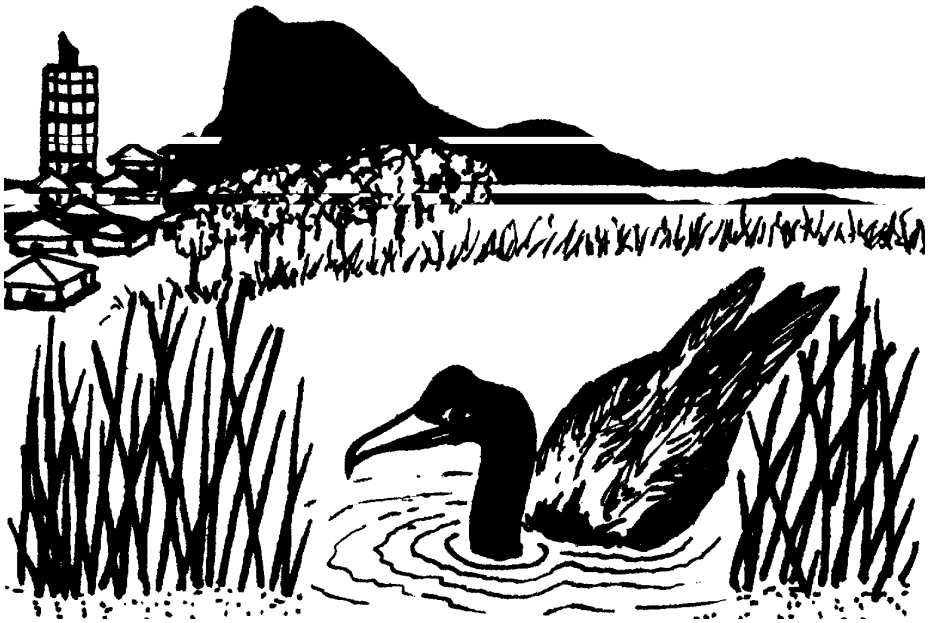
SECTION 3: Water, Wetlands and Waterways

KEY PRIORITY

To ensure protection of water quality and quantity for use by residents, the commercial sector and ecosystems, through integrated consultation, planning, management and monitoring



RIVERINE AND WETLAND SYSTEMS

The landscape of the Townsville-Thuringowa Coastal Plains is characterised by the larger tropical floodplains of the Ross and Black Rivers in the southern section, and many short and narrow catchments in the northern section, where the Paluma Range runs close and parallel to the coast.

On the coastal plains, the many ephemeral, intermittent and perennial wetlands represent crucial habitats for native and migratory birds, frogs, fish and other aquatic animals. They also provide natural systems for water quality control and aquifer recharge. Some wetlands of the Townsville-Thuringowa area are Internationally significant. Bowling Green Bay is one of only four sites in Queensland listed under the Ramsar Convention (an International Convention for the protection of important wetlands). The popularity of recreational fishing and other water related recreational activities confers considerable economic and social values on our wetlands and waterways. As an integral and characteristic component of the local landscape, these areas are also essential cultural resources for local indigenous communities.

Human activities threatening waterways and wetlands in Townsville-Thuringowa are summarised in Appendix I. Major priorities in this Section include the integration of current knowledge about

ecological and catchment processes with local management policies, and the development of innovative and strategic approaches to land and water management.

WATER QUALITY AND WATER SUPPLY

Water quality and water supply are major issues for natural resource management in Townsville-Thuringowa. It is fundamental to minimise impacts on water quality and to use our water supplies in efficient and ecologically sustainable ways, due to the urban and industrial nature of the area, and the rate of growth of our population and industrial activity. Table I1 (in Appendix I) summarises natural resource management issues affecting waterways in Townsville-Thuringowa.

Major priorities identified by this Section include:

- ✓ the need to integrate management and monitoring across Townsville-Thuringowa in catchment management units;
- ✓ the need to minimise impacts of urban storm-water quality on wetlands and the marine environments;
- ✓ the need for effective community participation in setting environmental objectives and targets for water quality management; and
- ✓ the need to improve community awareness of the causes and implications of decreased water quality in Townsville-Thuringowa.

STRATEGY 3.1 PROTECTION AND MANAGEMENT OF WETLANDS

❖ WHAT ARE THE ISSUES?

About 80 percent of Queensland's wetlands are already lost. Two major problems that threaten our wetlands are:

- Low appreciation of their significance for sustainable natural resource management and biodiversity conservation.
- A lack of formal protection and adequate management for different wetland types.

At present, our wetlands are threatened by a host of factors including: land reclamation and clearing; invasion by weeds and pest animals; changes to hydrology and natural drainage patterns; decreased water quality from pollution and siltation; detrimental recreational activities (e.g. littering and uncontrolled access); inappropriate fire regimes; and conflicting uses.

Public perceptions of wetlands as smelly and worthless do not help the problems. Although some wetlands currently have some legal protection (e.g. Town Common Conservation Park; Bowling Green Bay National Park), protection is mainly limited to tidal wetlands. No deep freshwater lagoon systems or paperbark swamps are currently protected in the area. These systems are remnants of threatened ecological communities and are vital refuges for water birds and wildlife during droughts.

The *Strategy for the Conservation and Management of Queensland Wetlands* (1999) acknowledges the need for a network of wetland protected areas containing an adequate representation of wetland types. To ensure the protection of wetlands, our community needs an improved understanding of the important environmental functions performed by wetlands. Greater support is needed for government and community group initiatives for the long-term, wise-use of these important natural resources.

❖ WHY PROTECT AND MANAGE WETLANDS?

Wetlands provide:

- habitats for wildlife and important refuges during drought;
- ecosystems important for the conservation of biodiversity;
- ecosystems that support fisheries productivity for sustainable traditional, recreational and commercial use;
- major assets for local tourism;
- culturally and spiritually important sites for local indigenous and non-indigenous people;
- opportunities for environmental education for the whole of the community;
- visually attractive open space areas;
- natural water filters and buffers for storm-water and runoff to the coast and sea; and
- natural drainage and flood controls and important recharge areas for groundwater resources.

❖ WHAT CAN WE DO ABOUT IT?

We can ensure that there is adequate protection for a representative network of wetlands, and minimise degrading impacts from urban, industrial and rural land uses.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ A sound knowledge base of values and conditions of wetlands in Townsville-Thuringowa.

★★ Integrated management of all wetland sites for their environmental values, to avoid further loss and degradation and to ensure that ecological connectivity to other habitats is maintained.

★★ Establishment of a government-endorsed network of significant and representative wetlands.

★★ Rehabilitation and ongoing management of degraded wetlands, including improved aesthetics.

★★ Increased community understanding of wetland values and active involvement in their care (this outcome is addressed in Strategy 6.3).

STRATEGY 3.2 PROTECTION AND MANAGEMENT OF RIVERINE SYSTEMS

❖ WHAT ARE THE ISSUES?

Townsville-Thuringowa contains a large number of perennial, intermittent and ephemeral waterways and drainage lines. Current degradation of these waterways seriously threatens the values of fisheries, recreation, biodiversity, habitat connectivity, aesthetics and water resources. Stream degradation can aggravate localised flooding problems. Degradation of riparian vegetation is a major problem for many of our rivers and streams.

Trees and shrubs on the banks help to keep rivers clean and healthy, while clearing riparian vegetation results in stream bank erosion and decreased water quality. Decline in water quality across Townsville-Thuringowa is an increasingly pressing issue. Poor water quality affects the biological functions of plants and animals that live in the streams, and ultimately results in the loss of aquatic fauna and the pollution of coastal marine waters. Major risks to human health associated with micro-organism pollution (such as blue-green algae) may also result from the decrease in water quality.

Changes in the course of streams occur naturally. However, human-induced modifications of streambeds and banks due to inappropriate land management damage the health and integrity of watercourses and aquatic ecosystems. Changes to natural drainage patterns in urban, suburban and rural-residential areas, as a result of inappropriate drainage infrastructure, construction of artificial impoundments and filling of natural wetlands, also place severe pressures on streams. Other issues that impact on riverine systems include invasion by aquatic weeds, habitat loss for fish, and over exploitation of water for irrigation and domestic supply.

These issues are difficult to remediate and control. Responsibilities for the management of riverine systems and wetlands overlap several authorities. Our community must actively support and participate in co-ordinated efforts to protect the integrity and quality of waterways in our catchments.

❖ WHY PROTECT WATERWAYS?

Waterways and drainage lines provide:

- pristine riverine systems with high conservation values;
- habitats for aquatic animals and plants, including economically and recreationally important fish species;
- wildlife corridors and habitat connectivity, linking the ranges to the coast;
- culturally and spiritually important sites for local indigenous and non-indigenous people;
- catchment drainage into the marine environment and the Great Barrier Reef World Heritage Area;
- water supply for human, agricultural and industrial consumption;
- recharge areas for groundwater resources;
- opportunities for a range of recreational uses; and
- an accessible focus for community involvement and action.

❖ WHAT CAN WE DO ABOUT IT?

We can ensure that our waterways and associated habitats are protected, restored and used wisely, and minimise impacts from urban, industrial and rural land uses.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ A sound knowledge of environmental values and health of waterways in Townsville-Thuringowa.

★★★ Integrated framework for waterways management based on “whole-of-catchment” principles.

★★★ Protection of riparian vegetation from clearing and other disturbances, and rehabilitation of degraded riparian watercourses.

★★ Protection of the biological integrity and ecological functions of aquatic ecosystems, natural drainage patterns and environmental flows.

★★★ Increased understanding among the wider community of the multiple values of waterways.

STRATEGY 3.3 WATER QUALITY

❖ WHAT ARE THE ISSUES?

Surface and groundwater quality are primary issues in Townsville-Thuringowa, the largest population centre in Northern Australia. A number of processes associated with urban and industrial land uses impact on water quality in many local catchments and adjacent marine environments, including the Great Barrier Reef World Heritage Area.

Most point sources of pollution in Townsville-Thuringowa have been designated as "environmentally relevant activities" under law and must be licensed because they may harm the environment. Non-point sources of pollution also represent a major threat to local water quality. For instance, drainage of urban storm-water into watercourses and the marine environment can seriously harm regional water quality. Urban storm-water is often a cocktail of pollution containing litter, decaying organic matter, bacteria, domestic animal droppings, heavy metals, motor oil, detergents, pesticides, herbicides and other toxic substances. Because urban storm-water flows off hard surfaces, it flows at high speeds, which increases the rate that it erodes exposed soils. A number of activities in rural and rural-residential areas also contribute to non-point source water pollution in Townsville-Thuringowa.

In rural areas, runoff containing herbicides, pesticides and fertilisers from sugar cane and horticulture pose threats to water quality in some catchments. Heavy grazing pressures in some parts of Townsville-Thuringowa has resulted in land degradation and soil erosion, which has increased the sediment loads and nutrient levels of some waterways.

In order to keep enjoying clean and healthy water and rivers, we need to understand how our daily activities influence water quality. We need to minimise our impact on this vital resource. Our community must ensure that the values we need and want to protect in our catchments and waterbodies are clearly recognised by all relevant management authorities. Ultimately, the sustainability of our natural resources, depends on the ecological health of waterbodies and waterways.

❖ WHY IS WATER QUALITY IMPORTANT?

The cleanliness and quality of natural and artificial waterbodies is important because they:

- drain into ecosystems of global significance, including the Bowling Green Bay Ramsar site, the Great Barrier Reef World Heritage Area, the Wet Tropics, and adjacent wetlands;
- support biological systems, including endangered ecological communities, endangered and vulnerable species and commercially important fish populations;
- provide potable water supply for human consumption;
- provide tourism and recreational opportunities, including swimming and fishing; and
- provide water supply for agricultural and industrial purposes.

❖ WHAT CAN WE DO ABOUT IT?

We can protect, manage, conserve and restore surface and ground water quality in a way that ensures a long-term healthy environment.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Integrated assessment, management and monitoring of water quality in Townsville-Thuringowa.

★★★ Improved understanding and minimisation of impacts of runoff from contaminated sites, sewage treatment plants and industrial activities.

★★ Improved public awareness of the impacts of urban storm-water quality and other threatening processes.

STRATEGY 3.4 WATER SUPPLY

❖ WHAT ARE THE ISSUES?

In Townsville-Thuringowa the bulk of our water supply comes from four different surface water sources (Ross River Dam, Paluma Dam and, to a lesser extent, Crystal Creek, the Burdekin Dam/Clare Weir) and some aquifers (e.g. Alligator Creek). Our water consumption is currently within the capacity of the supply system. However, recent state planning for urban and industrial growth in the region indicates that future demand for water may increase beyond environmentally sustainable levels. Our community needs to understand the importance of long-term planning for water supply to ensure that allocations remain equitable and consistent with the priority of human consumption requirements over other uses. We also need to minimise environmental damage resulting from our use of water supplies.

Major changes are occurring in global approaches to water resources management. There is an increasing trend towards corporatisation and reliance on market forces for allocation of water resources. These changes will have major impacts on the long-term sustainability of water resources, particularly the protection of water quality and water-dependent ecosystems. Informed and constructive public debate is needed on the implications of different approaches to clarify long-term directions in the management of essential water resources.

All individuals need to take responsibility for the wise and efficient use of water resources. Currently, there are no real incentives for local residents to apply the principles of Ecologically Sustainable Development to their use of water. We take water from the tap for granted, as we presently do not pay the true costs associated with water supply. Sustainable management and use of water resources will require the involvement of the wider community and a "household" approach. Our community must encourage state and local authorities to investigate and support more sustainable practices for water use, including re-cycling of waste water on private and public land.

We also need to consider the environmental impacts of our water use. Supply and allocation of water has traditionally been managed for human consumption and production systems. However, it has had potentially severe impacts on a number of ecosystems and habitats. In our region, these include barriers to fish movements; changes in hydrology due to watercourse regulation; and "starving" of ecosystems.

❖ WHY IS WATER SUPPLY IMPORTANT?

Surface and ground-water resources:

- represent essential renewable resources on which all living systems are dependent;
- support ecological processes and the biodiversity of aquatic and terrestrial ecosystems;
- provide potable and domestic water supply for human consumption; and
- support natural and man-made production systems of economic and traditional importance, including fisheries, stock and crop irrigation and manufacturing industries.

❖ WHAT CAN WE DO ABOUT IT?

We can ensure long-term equitable and sustainable water supply and protect water-dependent ecosystems from impacts deriving from the use of water resources.

❖ WHAT CAN THIS STRATEGY ACHIEVE?

★★★ Integrated quality and quantity planning of water supplies in Townsville-Thuringowa.

★★★ Efficient long-term water use for domestic, agricultural and industrial purposes, including water recycling.

★★ Protection of aquatic and other ecosystems affected by regulation of flows and extraction.