

The Great Barrier Reef World Heritage Area and its Value

2.1 Location and Description

The boundaries of the Great Barrier Reef World Heritage Area are shown in figure 1.1. It extends from the tip of Cape York to just north of Fraser Island and from low water mark on the Queensland coast to beyond the edge of the continental shelf. It is 351 400 km² in area and includes all islands within its boundaries. The Great Barrier Reef Marine Park covers 98% of the World Heritage Area.

The main physical and biological characteristics of the World Heritage Area are summarised in table 2.1.

The Great Barrier Reef has developed over the past 8000 years on a limestone foundation. The reef in its present form is largely a result of limestone accretion of minute skeletons of

single-celled animals called polyps and a cementation process associated with coralline algae. There are about 2900 individual reefs in the World Heritage Area as well as many small bare sand cays, vegetated cays and continental islands. There are 300 reef islands including 213 unvegetated cays and 83 permanently vegetated sand cays.

The reef and surrounding waters support a rich diversity of plants and animals. The myriad of interdependent plants and animals are specially adapted to their complex physical environment. The species composition varies across the reef shelf because of microclimates created by the interaction of siltation, availability of nutrients, light intensity, ocean currents, and many other factors (Gilmore 1988). Living on the limestone foundations are 400 species of hard and soft corals as well as numerous other animals, including sponges, sea urchins, fish, birds and turtles. Whales are also frequent visitors to the marine park.

The Great Barrier Reef is a source of many highly valued goods and amenity services. The reef environment supports many organisms exploited by humans. Commercial and recreational fishers harvest a range of fish and shellfish. However, non-extractive uses of the reef are becoming the most highly valued. The aesthetic appeal of the reef and its diverse and

Table 2.1 Great Barrier Reef World Heritage Area

| Characteristic | Number or size |
|---|-------------------------|
| Area of the Great Barrier Reef World Heritage Area | 351 400 km ² |
| Approximate length of Queensland coast at low water | 3 400 km |
| Number of reefs | 2 900 |
| – fringing reefs | 760 |
| – continental reefs | 618 |
| Number of reef islands | 318 |
| Number of cays and wooded systems | 300 |
| Number of fish species | 1 500 |
| Number of hard and soft coral species | 400 |
| Number of molluscs | 4 000 |
| Number of bird species | 240 |
| Number of turtle species | 6 |

Source: Geen and Lal (1991)

abundant animal species and corals attract many tourists. Popular recreational activities include diving, snorkelling and viewing the corals from glass-bottomed or semi-submersible vessels (Geen and Lal 1991).

The Great Barrier Reef is the largest coral reef system in the world and one of the richest in biological diversity. It was inscribed on the World Heritage List on 26 October 1981. Under Article 4 of the Convention for the Protection of World Cultural and Natural Heritages (UNESCO 1972), the listing of the Great Barrier Reef Region and its associated islands as a World Heritage Property means that Australia accepts an obligation to 'do all it can to identify, protect, conserve, present and transmit to future generations the natural and cultural heritage situated on its territory'.

2.2 Biogeographic Regionalisation of the World Heritage Area

Commonwealth and State governments have been working together to develop a marine and coastal regionalisation for Australia. In 1996, an interim system of marine and coastal regionalisation was released (Thackway and Cresswell 1996). It is an ecosystem-based hierarchical classification that includes:

- 11 different broad marine provinces, and
- a system of 58 different inshore regions.

Under the Interim Marine and Coastal Regionalisation for Australia, the Great Barrier Reef World Heritage Area is almost entirely included within the North East Province. In terms of inshore regions, it embraces all or part of:

- the Ribbons region,
- the East Cape York region,
- the Wet Tropic Coast region,
- the Central Reef region,
- the Lucinda-Mackay Coast region,
- the Pompey-Swains region,
- the Mackay-Capricorn region, and
- the Shoalwater Coast region.

The Coastal Management Branch of the Department of Environment has used coastal and marine regionalisation data to help

develop a system of coastal regions for practical coastal and management purposes in Queensland. The coastal regions are:

- primarily based on a combination of biogeographic considerations such as catchment boundaries, terrestrial biogeographic regions and marine habitats, but
- also adjusted to coincide with local government boundaries which dictate the boundaries of terrestrial planning regions in Queensland.

The end result has been the delineation of 10 different coastal management regions along the eastern Queensland coastline. These regions are shown in figure 2.1. They will form the basis for regional coastal management plans being prepared under the Coastal Protection and Management Act.

There are 9 coastal management regions that include local government areas adjacent to the Great Barrier Reef World Heritage Area. The local government areas within each of these regions and the major river systems which drain into them are shown in table 2.2.

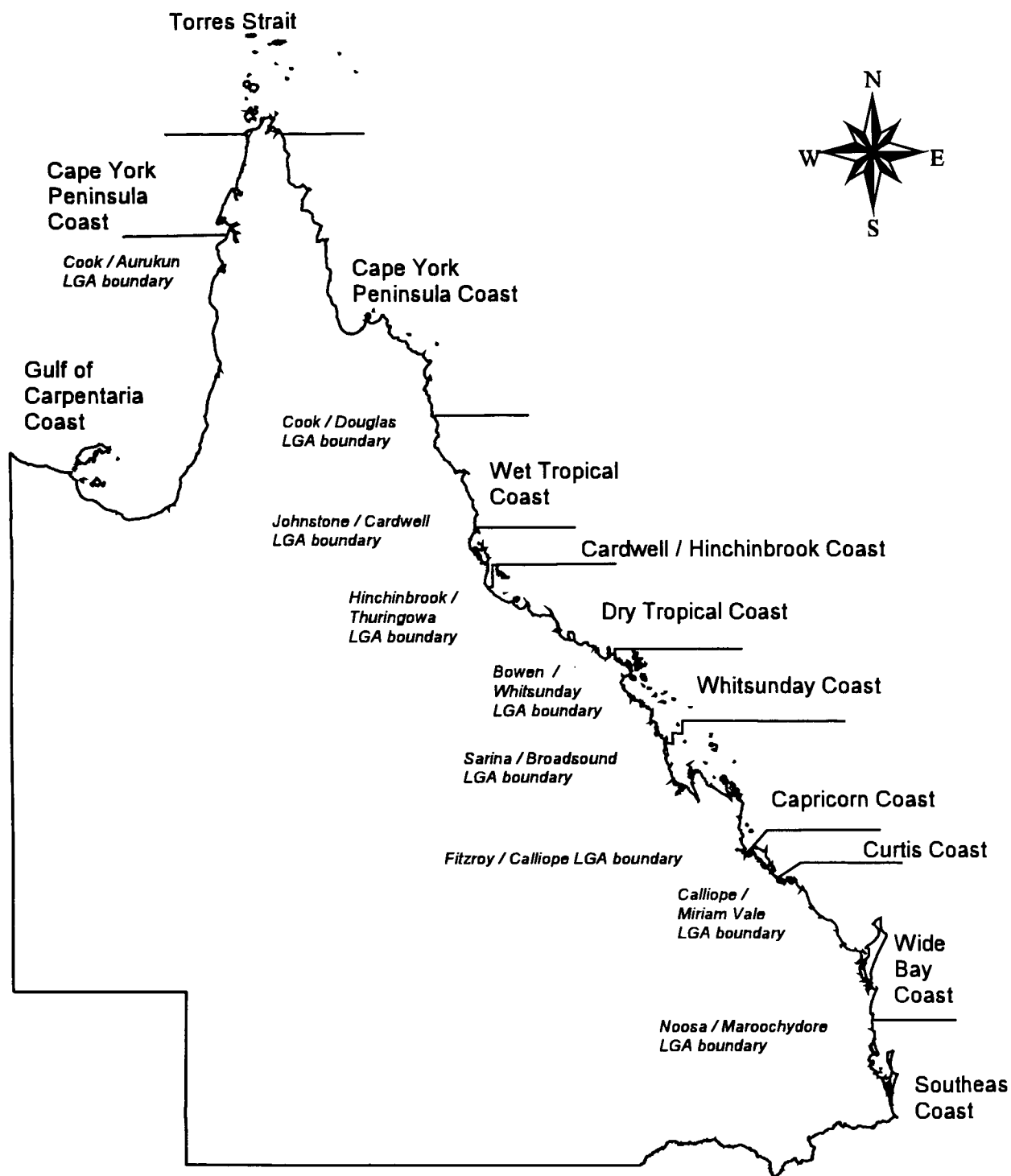
These coastal regions are used as the basis for defining coastal development regions in the balance of this report.

2.3 Value of the World Heritage Area

The nomination for World Heritage listing of the Great Barrier Reef states that (Great Barrier Reef Marine Park Authority 1981):

The Great Barrier Reef is by far the largest single collection of coral reefs in the world. Biologically the Great Barrier Reef supports the most diverse ecosystem known to man. Its enormous diversity is thought to reflect the maturity of an ecosystem which has evolved over millions of years on the north-east continental shelf of Australia.

The Great Barrier Reef provides some of the most spectacular scenery on earth and is of exceptional natural beauty. The Great Barrier Reef provides major feeding grounds for large populations of the endangered species, *Dugong dugon*, and contains nesting grounds of world significance for the endangered turtle species, green turtle (*Chelonia mydas*) and loggerhead turtle (*Caretta caretta*).



**Department
of Environment**

(as of May 1998)

Figure 2.1 Coastal Regions

Table 2.2 Coastal Management Regions adjacent to the Great Barrier Reef Marine Park

| Coastal Region | Local Government Areas included in this Study | Major Drainage Basins |
|-----------------------------------|---|---|
| Torres Strait | Torres Shire (part) | Jackey Jackey Creek |
| Cape York Peninsula Coast | Cook Shire | Olive River Pascoe River Stewart River Kennedy River Normanby River Endeavour River Annan River |
| Wet Tropical Coast | Douglas Shire Cairns City Johnstone Shire | Daintree River Mossman River Barron River Mulgrave River Johnstone River |
| Cardwell–Hinchinbrook Coast | Cardwell Shire Hinchinbrook Shire | Tully River Herbert River |
| Dry Tropical Coast | Thuringowa City Townsville City Burdekin Shire Bowen Shire | Ross River Haughton River Burdekin River Don River |
| Whitsunday Coast | Whitsunday Shire Mackay City Sarina Shire Broadsound Shire | O’Connell River Pioneer River |
| Capricorn Coast | Livingstone Shire Fitzroy Shire | Fitzroy River |
| Curtis Coast | Gladstone City Calliope Shire | Boyne River Calliope River |
| Wide Bay Coast (northern section) | Miriam Vale Shire Burnett Shire | Kolan River Burnett River |

The nomination also notes that:

The area of this nomination contains many middens and other archaeological sites of Aboriginal or Torres Strait Islander origin. There are over 30 historic shipwrecks in the area, and on the islands there are ruins and operating lighthouses which are of cultural and historical significance.

The Great Barrier Reef was inscribed on the World Heritage List on the basis of its outstanding natural, cultural and historical features and its integrity as a self-perpetuating ecological system (Great Barrier Reef Marine Park Authority 1994). It satisfied all four of the natural heritage criteria, viz:

- an example of a major stage in the earth's evolutionary history,
- an outstanding example of geological processes, biological evolution and people's interaction with their natural environment,
- a place with unique, rare and superlative natural phenomena, and
- a place which provides habitats for rare and endangered species of plants and animals.

The inscription also recognises the area's cultural and historical significance, including the long-term presence of Aboriginal and Torres Strait Islander peoples and the presence of many archaeological sites and shipwrecks.

As management regimes for the World Heritage Area have progressively been put into place, the need for an increased understanding of and knowledge about the attributes and the outstanding universal value of the World Heritage property has become apparent. This has resulted in a number of recent investigations to document attributes and value. Key findings are presented below under the following headings:

- biophysical attributes,
- economic and financial values,
- cultural attributes,
- landscape and aesthetic attributes, and
- residential amenity attributes.

(i) Biophysical Attributes

The biophysical attributes of the Great Barrier Reef World Heritage Area have recently been assessed by Lucas et al. (1997). As part of this process, summary reports were prepared on the following natural heritage attributes of the World Heritage Area:

- algae,
- ascidians,
- birds,
- bryozoans,
- butterflies,
- crocodiles and terrestrial reptiles,
- crustaceans,
- echinoderms,
- fishes,
- flatworms,
- fringing reefs,
- geology and geomorphological aspects,
- geological aspects of continental islands,
- *Halimeda* banks,
- hard corals,
- mangroves,
- marine mammals,
- marine turtles,
- molluscs,
- octocorals,
- phytoplankton,
- polychaete worms,
- the Proserpine rock-wallaby,
- seagrasses,
- sea snakes,
- soft-bottom habitats,
- sponges, and
- terrestrial flora.

A summary of specific attributes under each of the above headings is provided in appendix 2. Collectively, the assessment draws the following conclusions about the biophysical attributes of the Great Barrier Reef World Heritage Area.

In so far as geological processes are concerned:

The Great Barrier Reef is the largest reef system the world has known, with 2904 coral reefs covering 20 055 km². Within this reef system are more than 300 coral islands and 600 continental islands, the latter comprised of mostly massive granites or silicic volcanics. The processes of geological evolution in this system are uniquely represented, linking islands, cays, reefs and changing sea levels, together with sand barriers, deltaic and associated dune systems. It is this interplay of all the coastal and marine geomorphological elements which give outstanding value to the Great Barrier Reef. The extraordinary size of the Great Barrier Reef and its morphological diversity capture a comprehensive record of past and ongoing processes in the development of coral reef and associated geomorphological systems. Major changes in sea level are recorded in the reef's structure and a total history of the reef's evolution is available. There are examples within the Great Barrier Reef of nearly all stages of reef development. Novel techniques have now yielded information about environmental conditions and processes extending back over many hundreds of years. There are also many less common formations including serpentine rocks of South Percy Island, intact and active dune systems, undisturbed tidal sediments providing an excellent record of Holocene sea level and vegetation changes and the exceptional examples of 'blue holes'. Great Barrier Reef *Halimeda* banks have been actively accumulating for up to 10 000 years. The extraordinary elevation range extends from sea level (sea-bed) to 1142 metres (Mt Bowen) and in addition to this elevation range for the terrestrial components, the cross-shelf extent provides the fullest possible representation of marine environmental processes within the reef system.

In so far as ecological and biological processes are concerned:

Within the reef system there is an extensive diversity of reef morphologies including deltaic, detached and dissected reefs. The high heterogeneity at a range of spatial scales gives rise to high habitat diversity with 359 species of hard corals recorded. Fringing reefs cover some 667 km² with most of this area adjacent to continental islands. The reefs contain some of the largest and oldest coral colonies with the genotype of some colonies suspected of being present on the reef for several thousand years. Inshore coral communities in southern regions may offer new insights into coral reef formation. The reef includes the most extensive actively accumulating *Halimeda* beds in the world.

Coastal seagrasses within the Great Barrier Reef occupy some 3000 km² and at least 2000 km² of deepwater seagrasses have recently been found. These seagrass beds provide outstanding examples of the ecological interaction between plants and animals including communities with numerous fish species, prawns and other animals including green turtles and dugongs.

Heterogeneity of the reef at various spatial scales provides an extensive range of habitats for the estimated 1500 species of fish found within the Great Barrier Reef. The Lizard Island region and Ribbon Reef shelf-break contain the major spawning ground in the world for the black marlin. Life histories of some species of fish demonstrate the connectivity of Great Barrier Reef habitats.

The Great Barrier Reef contains representatives from all marine phyla, for example algae, sponges, ascidians, echinoderms, fishes, polychaete worms, flatworms, corals, molluscs, crustaceans, marine mammals and bryozoans. It is clear that the combination of extensive latitudinal range and complete cross-shelf transect provides an outstanding example of ongoing ecological and evolutionary processes. Although much of the marine flora and fauna are shared within the Indo-Pacific Region, the state of preservation and prospects of survival, together with the scale, make the Great Barrier Reef unique.

There are some 2069 km² of mangroves in or directly adjacent to the Great Barrier Reef World Heritage Area and the presence of important trends at a range of spatial scales makes the Great Barrier Reef a prime location for research into mangrove ecology and evolution. Furthermore, mangrove habitats provide crucial nursery habitat for many fishes and crustaceans. The extraordinary richness of terrestrial flora within the Great Barrier Reef World Heritage Area and its distribution amongst a vast number of variable islands provides an outstanding example of the processes of dispersal, colonisation and establishment of plant communities within the context of island biogeography. So far, 2195 species of plants, some 25% of the total flora for Queensland, have been recorded from the continental islands. Many species occur at their latitudinal limits within the Great Barrier Reef and there are distinct latitudinal variations which display examples of evolutionary biogeography.

Terrestrial fauna also demonstrate ongoing ecological and biological processes including globally important breeding grounds for seabirds

as well as a rich but sparsely known fauna on continental islands. Important feeding grounds for international migratory species occur within or adjacent to the Great Barrier Reef World Heritage Area including extensive communities of shorebirds and breeding areas for the Torresian imperial pigeon. The role of this pigeon, and other birds, is crucial in the dispersal and establishment of much of the coral cay and continental island floras. The insect fauna is poorly known but despite limited studies, 30% of the Australian butterfly fauna has been recorded within the Great Barrier Reef (118 species) including some exceptional examples of overwintering aggregations by populations of *Tirumala hamata*. Island subpopulations appear to be showing evidence of recent speciation and there have been two endemic subspecies described.

In so far as natural habitats and biological diversity are concerned:

The Great Barrier Reef contains many outstanding examples of important and significant natural habitats for in situ conservation of biological diversity. Examples include fringing reefs which exhibit high species diversity and often high coral cover; fish species numbering around 1500 species in more than 130 families; 359 species of hard coral; 1500 species of sponges; 800 species of echinoderms; at least 5000 species of molluscs; at least 330 species of ascidian; between 300 and 500 species of bryozoans; an estimated 80 genera of octocorals; and high diversity in flatworms, crustaceans, polychaetes and algae. It is largely the extraordinary diversity of habitats, the product of latitudinal extent and cross-shelf completeness, which provides the Great Barrier Reef with the capacity to conserve such richness. The benthic flora is not constant across the soft-bottom areas of the Great Barrier Reef World Heritage Area, rather distinct zonation occurs, with a considerable increase in diversity occurring in mid-shelf regions due to the presence of 'natural isolates'.

The Great Barrier Reef is also a significant refuge for cetacean biodiversity with the Irrawaddy dolphin and the Indo-Pacific hump-backed dolphin unlikely to survive outside Australia. Apart from regionally important habitat for the dwarf minke whale, the Great Barrier Reef provides a breeding ground for the humpback whale and Longman's beaked whale, the rarest whale in the world, has also been recorded. Extensive seagrass beds provide important food resources for threatened dugongs, supporting 15% of the dugongs recorded within Australian waters. This species is classified as vulnerable

with poor long-term survival prospects outside Australia. The green turtle is also dependent on the seagrass beds. Six of the world's seven species of turtle are found in the Great Barrier Reef which contains globally important nesting and feeding grounds for the loggerhead, green, hawksbill and flatback turtles including one of the last significant breeding populations of the hawksbill turtle in the world, the largest green turtle breeding population in the world and 70% of the southern Pacific population of the loggerhead turtle.

Mangrove communities are amongst the richest in the world with 37 species recorded being 54% of the world diversity. Given this richness and combined with their protected status, the Great Barrier Reef mangroves are of exceptional value. The island vegetation communities include 79 rare or threatened species of plants and the least threatened remaining habitat of the endangered Proserpine rock-wallaby. Amongst the extensive breeding colonies of seabirds the Great Barrier Reef also contains populations of threatened species of birds including the roseate tern, the little tern and the vulnerable beach thick-knee. The internationally important Torresian imperial pigeon breeds in extensive colonies on Great Barrier Reef islands during its annual migration from Papua New Guinea.

Although the extensive biodiversity of the Great Barrier Reef marine and terrestrial flora and fauna contains few endemics, for many of the species there are few other locations in the world which provide secure in situ conservation.

The assessment also draws two other important conclusions. Firstly, the Great Barrier Reef World Heritage Area is in a relatively pristine state compared with other tropical coral reef ecosystems. Secondly, the size of the area means that a highly diverse suite of habitats and environmental regimes at a range of spatial scales are represented in the one World Heritage Area. The size and diversity of the Great Barrier Reef World Heritage Area underlies its 'outstanding universal value' – this value is a consequence of many attributes combining to produce a whole that cannot be reduced, without loss, to disconnected components.

(ii) Economic and Financial Values

Some of the economic and financial values of the Great Barrier Reef World Heritage Area have been assessed by Driml (1994). In this assessment, financial values are measures of the flows of dollars generated by human use of

resources through industries such as tourism and commercial fishing and expenditure on private recreation and research. Economic values generally include net financial values of commercial activities plus valued attributes of the natural environment which are not normally exchanged in the market place. They also recognise the costs of environmental damage often not accounted for in financial values.

A summary of the gross financial values generated by the World Heritage Area is provided in table 2.3.

In contrast to the biophysical attributes, it is possible to trace financial values back to particular parts of the World Heritage Area. For example, 95% of all current tourism use which operates under a permit occurs within 5% of the World Heritage Area in the offshore Cairns and Whitsunday areas (Vanderzee 1996).

It should also be noted that there are important flow-on multiplier effects of this expenditure. Driml (1994) has estimated that multipliers for the various sectors are:

- tourism – 1.7
- commercial fishing – 2.0
- recreational fishing and boating – 1.7

A recent study of the structure and economics of the marine tourism industry in the Cairns

Section of the Great Barrier Reef (Coopers and Lybrand 1996) has found that:

- total expenditure (direct plus indirect) is approaching \$650 million per annum, and
- marine tourism leads to an extensive amount of related expenditure in the areas of accommodation, shopping and travel – this is in the order of 1.75 times the amount spent on marine tourism specific activities.

Less work has been undertaken on determining economic values associated with uses and activities within the World Heritage Area. Most of the available measures are based upon estimates of consumers' surplus, i.e. the difference between what a person is willing to pay for a good or service, rather than go without it, and the lesser amount they usually have to pay.

Estimates of economic value provided in Driml (1994) are summarised in table 2.4.

The financial and economic values reported in Driml (1994) are primarily for 'direct compatible uses'. They do not include the financial and economic values associated with the development and operation of ports and harbours along the western boundary of the World Heritage Area. These include the major export ports at Gladstone, Hay Point, Mackay, Abbot Point, Townsville, Lucinda, Mourilyan, Cairns and Cape Flattery.

Table 2.3 Financial Values 1991–92

| Direct Use | Description (for 1991–92) | Financial value \$ million |
|-------------------------------------|--|-------------------------------|
| Tourism | 2.2 million visitors | 681 |
| Commercial Fishing | Around 16 000 tonnes catch | 128 |
| Recreational fishing and boating | 24 300 private boats | 94 |
| Research | Great Barrier Reef Marine Park Authority and AIMS | 19 |
| Total | | 923 |

Table 2.4 Economic Values

| Use | Economic Value | Method of Calculation | Source |
|----------------------------------|-------------------------------|---|-----------------------|
| Tourism | \$23 million to \$357 million | Consumers' surplus | Hundloe et al. (1987) |
| Commercial Fishing | approx. \$31 million | Gross revenue minus costs of production | Driml (1994) |
| Recreational Fishing and Boating | \$52 million to \$124 million | Consumers' surplus | Blamey (1991) |

An excellent overview of tourism use and visitation to the Great Barrier Reef World Heritage Area has recently been published as part of the Review of the Marine Tourism Industry (Tourism Review Steering Committee, 1997).

(iii) Cultural Attributes

It is only in relatively recent times that the cultural attributes associated with the Great Barrier Reef World Heritage Area have begun to be assessed. Smyth (1993a) points out that Aboriginal occupation of Australia predates the last substantial sea level rise which commenced about 20 000 years ago. Aboriginal people were therefore an integral part of the ecosystems which adapted to become the present coastal zone when sea levels stabilised at approximately their current levels about 6000 years ago.

There are parts of the Queensland coastline where distinctive Aboriginal coastal communities existed and depended almost entirely upon marine, island and coastal resources. Some of these communities engaged in extensive sea journeys between islands, between the mainland and islands and in pursuit of dugong, turtle and other marine resources. Even today, on Cape York Peninsula for example, Aboriginal and Torres Strait Islander people comprise the majority of the population and traditional subsistence uses of coastal resources are still practised.

However, as Smyth (1993a) points out:

Aboriginal and Torres Strait Islander utilisation of the coastal zone has always had more than an economic/subsistence value. Although there is considerable regional variation in Aboriginal social structure, language and mythological constructs across Australia, there are some important elements of the relationship between Aboriginal people and the coastal zone which are common to all regions.

Coastal landscapes and seascapes ('coastscares') are part of integrated cultural domains comprising defined, owned country (clan estates) to which small (usually patrilineal) descent groups belong, and from which they get their identity and customary right to exploit subsistence and other resources. The estates are integrated geographically in that boundaries embrace land, river, estuary, beach, reef, seabed and sea property. They are integrated sectorally in that traditional owners (descent group members) are responsible for the control of access to, and exploitation and allocation of, resources within those boundaries.

For Australia's indigenous coastal and island peoples, the relationship and sense of belonging to 'sea country' is as elemental as their affiliations with the land. Knowledge, use and occupation of 'sea countries', whether they are identified as 'home reefs and islands', or shoreline, nearshore or extended regional estate can be subtle and often elusive and enigmatic to outside observers.

The World Heritage Area is also of more recent cultural significance to non-indigenous Australians. The Great Barrier Reef has an

important place in the early discovery and exploration of Australia's east coast and there are about 30 shipwrecks of historic importance known to exist within the World Heritage Area. There are also a number of lighthouses of historical value, with their significance derived from circumstances associated with the people involved in their construction, their architecture and/or their particular methods of construction.

(iv) Landscape and Aesthetic Attributes

Landscape and aesthetic attributes of the World Heritage Area have been assessed in Lucas et al. (1997). This assessment is based largely on the following work commissioned by the Queensland Department of Environment:

- a visual landscape evaluation procedure and a trial of this procedure in the Whitsunday Region (Catherine Brouwer Landscape Architects and Chenoweth & Associates 1994b), and
- an overview of scenic resources of the Queensland coast (EDAW 1996).

In terms of landscape and aesthetic attributes:

The Great Barrier Reef provides some of the most spectacular scenery on earth and is of exceptional natural beauty. The vast extent of reef and island systems produces an unparalleled aerial vista. Individual islands range from towering forested continental islands of immense size and exceptional beauty (such as Hinchinbrook Island rising steeply from sandy beaches to 1000 metre peaks), to small coral cays clad in rainforest and peripatetic (mobile) unvegetated sand cays.

Fringing reefs have very high aesthetic values also. Within the marine fauna there is a huge diversity in fishes size, shape and colour which provides very special experiences for visitors to the underwater environments. The great diversity of marine life includes numerous conspicuous and colourful animals which collectively produce an extraordinary spectacle. There are many species and groups of organisms involved, including the polyclad turbellarians, the echinoderms, in particular the feather stars, fishes, hard corals, octocorals and bryozoans, particularly the lace corals.

Within the Great Barrier Reef the presence of humpback whales and other marine mammals provides an additional superlative natural phenomenon which is highly valued by people.

Concentrations of large fish such as the potato cod near Lizard Island and the megafauna at sites like the *Yongala* wreck, have demonstrated their singular value through the attraction of numerous international tourists as divers and snorkellers.

Significant aesthetic value is also derived from large breeding colonies of birds and great concentrations of overwintering butterflies. The variety of environments represented by the latitudinal and cross-shelf dimensions of the Great Barrier Reef ensures extraordinary variety in aesthetic appeal. There are many examples of rich variety in landscapes and seascapes within a small area, such as the Whitsunday Islands, which includes sweeping beaches and rugged mountains with dense and diverse vegetation and adjacent pristine fringing reefs. Extensive mangrove communities provide another example of exceptional natural beauty including the outstanding mangrove channels of Hinchinbrook Island. The vast and relatively unpopulated extent of the northern section of the Great Barrier Reef may be seen as the marine equivalent of the Serengeti Plains. Within this region there are also occurrences of spectacular wildlife including immense whale sharks.

The evaluation work undertaken in the Whitsunday Region by Catherine Brouwer Landscape Architects and Chenoweth & Associates (1994b) has for the first time provided a systematic and relatively detailed assessment of scenic quality within a regional context. An interesting CRC research project by Birtles and Valentine is exploring the underwater landscape elements which are valued by snorkellers and the Great Barrier Reef.

The Department of Environment has also recently commissioned a consultancy to assess all of the landscape values (including cultural values) for the coastal regions for which regional coastal management plans are currently being prepared.

(v) Residential Amenity Attributes

The residential amenity of the Australian coastline is a real, but relatively unexplored attribute. As the Resource Assessment Commission's Coastal Zone Inquiry found (Resource Assessment Commission 1993c):

The coastal zone has a special place in the lives of Australians. Most Australians want to live there and if they can't they want to take their holidays there. It contains diverse ecosystems

and a high proportion of Australia's industrial activity occurs in the zone. It is a priceless national resource.

The coastline of Queensland which abuts the World Heritage Area has a number of important attributes which give it special value for residential purposes. These attributes include:

- areas of high scenic quality,
- safe and sheltered beaches despite the hazards of marine stingers and estuarine crocodiles in northern areas,
- easy access to excellent diving and fishing sites,
- opportunities for interesting and relatively safe boating, and
- a more 'agreeable' climate than many inland areas.