

# The Convention on Wetlands (Ramsar, Iran 1971) Framework for the protection, conservation and wise use of coral reefs Australia's experience

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## The convention on wetlands (Ramsar, Iran 1971)

### *Background*

In 1971, in the Iranian town of Ramsar, representatives from 18 countries signed one of the world's first global environmental treaties, a Convention to protect wetland ecosystems.

The Convention on Wetlands, also known as the Ramsar Convention, provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

There are presently 119 Contracting Parties to the Convention, with 1023 wetland sites, totalling almost 75 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance (As of 30 April 2000).

Australia was one of the first signatories to the Convention and listed the first wetland site, the Cobourg Peninsula Aboriginal Land and Wildlife Sanctuary in the Northern Territory.

Under the text of the Convention, wetlands are broadly defined as:

*«areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres».*

In addition, the Convention provides that wetlands:

*«may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands».*

As a result of these definitions, the Convention extends to a wide variety of wetland habitat types, including rivers and lakes, coastal lagoons, mangroves, sea grass beds and coral reefs.

Sites nominated as Wetlands of International Importance under the Ramsar Convention have special ecological character and criteria have been developed to assist the identification of wetlands of **international importance**.

The criteria, as discussed at the last ICRI meeting in Guadeloupe, relate to the representativeness, rarity or uniqueness of a wetland, or its value for conserving biological diversity (specifically relating to species, ecological communities, waterbirds and fish). The Criteria are listed at Appendix A.

A site must meet at least one of these criteria before it can be nominated to the List of Wetlands of International Importance.

Currently, in the Asia Pacific region, there are seven (7) Ramsar sites that either have corals as the main wetland type or include corals as a wetland type. There are five sites in Australia and two in the Philippines. A brief overview of the ecological values, use and management issues of the seven Ramsar coral reef sites in the Asia Pacific is provided at Appendix B.

### *The “Wise Use” Principle and Management Planning*

The Ramsar Convention promotes the “wise use” of wetlands in recognition that wetland ecosystems are important both for the conservation of biodiversity and for the well being of human communities.

The Ramsar Convention has adopted the following definition of wise use:

*“the wise use of wetlands is their sustainable utilisation for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem”.*

Sustainable utilisation is defined as:

*“the human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.”*

Contracting Parties to the Convention agree to formulate and implement planning to promote the “wise use” of wetlands in their territory. This includes ensuring that individual wetland sites are properly managed, particularly sites on the list of Wetlands of International Importance.

Contracting Parties to the Convention are encouraged to develop management plans for all Ramsar listed sites to ensure the ecological values of the site are maintained and enhanced.

Management planning broadly involves developing ways to maintain the natural characteristics of wetlands whilst achieving a balance between the conservation and use of the wetland’s resources.

## Work plan of the convention

### *Conservation of Coral Reefs under the Convention on Wetlands*

The Strategic Plan of the Ramsar Convention 1997-2002 provides a framework for the future action under the Convention to protect coral reefs and associated ecosystems. Listing of coral reef sites under the Convention is seen as an appropriate first step towards conservation and sustainable use of these wetlands in the long term.

Accordingly, the Strategic Plan has an operational objective to increase the area of wetland designated for the List of Wetlands of International Importance, and particularly wetland types under-represented either at global or national level such as coral reefs. Action 6.2.3 under the Strategic Plan states that Contracting Parties should:

*“give priority attention to the designation of new sites from wetland types currently under-represented on the Ramsar List, and in particular, when appropriate, coral reefs, mangroves, sea-grass beds and peatlands”.*

The need for conservation and wise use of coral reefs and associated ecosystems under the Ramsar Convention was discussed at the 6<sup>th</sup> Conference of Contracting Parties to the Convention on Wetlands held in Australia in 1996. Contracting Parties were made aware of:

the degradation of many of the world’s coral reefs and their associated ecosystems;

the benefits coral reefs provide through food production, tourism, recreation, aesthetics and shoreline protection;

the socio-economic, ecological, cultural, and recreational importance of coral reefs and associated ecosystems for Small Island Developing States and other countries;

the under-representation of these important wetland habitats in the work of the Convention;

the value of these ecosystems as areas of high biodiversity and production, and that they be accorded high priority for identification and protection; and

the role of the International Coral Reef Initiative (ICRI) in the sustainable management of coral reefs.

Conference Recommendation 6.7 specifically addressed the Conservation and Wise Use of Coral Reefs and Associated Ecosystems, urging Contracting Parties to designate suitable areas of their coral reefs and associated ecosystems for inclusion as Ramsar sites in the List of Wetlands of International Importance.

While there has been some progress with the conservation and listing of under-represented wetland types, further action is required for coral reef ecosystems. There have been 151 sites designated under the Ramsar Convention since 1996. Of these sites, 55 include under-represented wetland types. The breakdown is: 12 sites with seagrass beds; 8 with mangroves; **2 with coral reefs**; 36 with non-forested peatlands; and 14 with forested peatlands.

At the 7<sup>th</sup> Conference of Contracting Parties to the Convention held in Costa Rica in 1999, Contracting Parties were made aware of Action 6.2.3 of the Strategic Plan and urged to give priority attention to the designation of new sites from *“wetland types currently under-represented on the Ramsar list, and in particular, when appropriate, coral reefs, mangroves, sea-grass beds, and peatlands”.*

In the National Reports prepared for the 7<sup>th</sup> Conference, 10 Contracting Parties stated they are considering the designation of coral reef sites.

### *The Ramsar Scientific and Technical Review Panel*

The working group on coastal management of the Scientific and Technical Review Panel (STRP) of the Convention is working on a number of projects relevant to coral reef ecosystems including:

1. A revision of available information on Integrated Coastal Zone Management (guidelines, case studies etc);
2. A draft list of information sources which has been made available through the Ramsar Wise Use Resource Centre;
3. An analysis of existing guidelines/case studies to determine whether they adequately address coastal wetland issues;
4. Based on the analysis in (3), defining a set of principles for integrating wetlands into coastal zone planning and management;

4. A review of existing Ramsar tools according to the set of principles defined in (4), and modifications will be suggested to existing guidelines under the Ramsar Convention or the development of new guidelines for integrating coastal wetlands into coastal zone planning and management; and
5. Draft additional guidance for the identification and designation of mangroves, coral reefs, seagrass beds and soft-bottom community wetland types as Ramsar sites.

The next meeting of the Working Group will take place on 26-30 June 2000 in Gland where progress will be reviewed and priorities defined for the intersessional period (one year).

Additionally, with the support of the United States, a consultant has been recruited to identify priority areas for Ramsar designation in the Wider Caribbean with special emphasis on coral reef and sea grass areas. During the next year, the Bureau hopes to provide technical and financial assistance to countries willing to undertake the designation of coastal wetlands as Ramsar sites.

Also with the assistance of the United States, a meeting to review priority areas for designation is planned to take place in Trinidad in September 2000. At present the Bureau is seeking a developed world partner proposing to designate a coral reef site under Ramsar site to use as a pilot/case study. The case study will identify the steps to be followed before and after designation, such as base information, boundary setting and mapping requirements.

## Coral reef Ramsar sites in Australia

Australia has listed 53 wetlands as Wetlands of International Importance under the Ramsar Convention. Five of Australia's Ramsar sites have coral reef ecosystems within their boundaries (Refer Figure 1 and Appendix B). Australia is also proposing to nominate a further coral reef site to the Convention, the Ashmore Reef National Nature Reserve in the East Indian Ocean, off the north-west coast of Australia.

The Australian Government has adopted the Commonwealth Wetlands Policy and is introducing new national environment protection legislation to protect its Ramsar sites. Environmental impact assessment and approval will be required for actions that have significant impact on the ecological character of Ramsar wetlands and management plans are to be prepared for Ramsar sites.

The Moreton Bay Ramsar site illustrates how policy can be applied to achieve the protection and wise or sustainable use of coral reefs and associated ecosystems, listed under Ramsar Convention. A case study of the policy and management framework for the Moreton Bay Ramsar site is provided in Section 5.

## Managing coral reefs in Moreton Bay

### *Description*

The Moreton Bay Ramsar site covers an area of 113 314ha and was listed in 1993. The Bay is a semi-enclosed basin bounded on its eastern side by two of the largest sand islands in the world. It is one of only three extensive intertidal areas of seagrass, mangroves and saltmarsh on the eastern coast of Australia that provide habitat for water birds. It is situated close to the southernmost limit of reef-building corals and contains a significant area of coral reef.

# Australia's Ramsar Sites

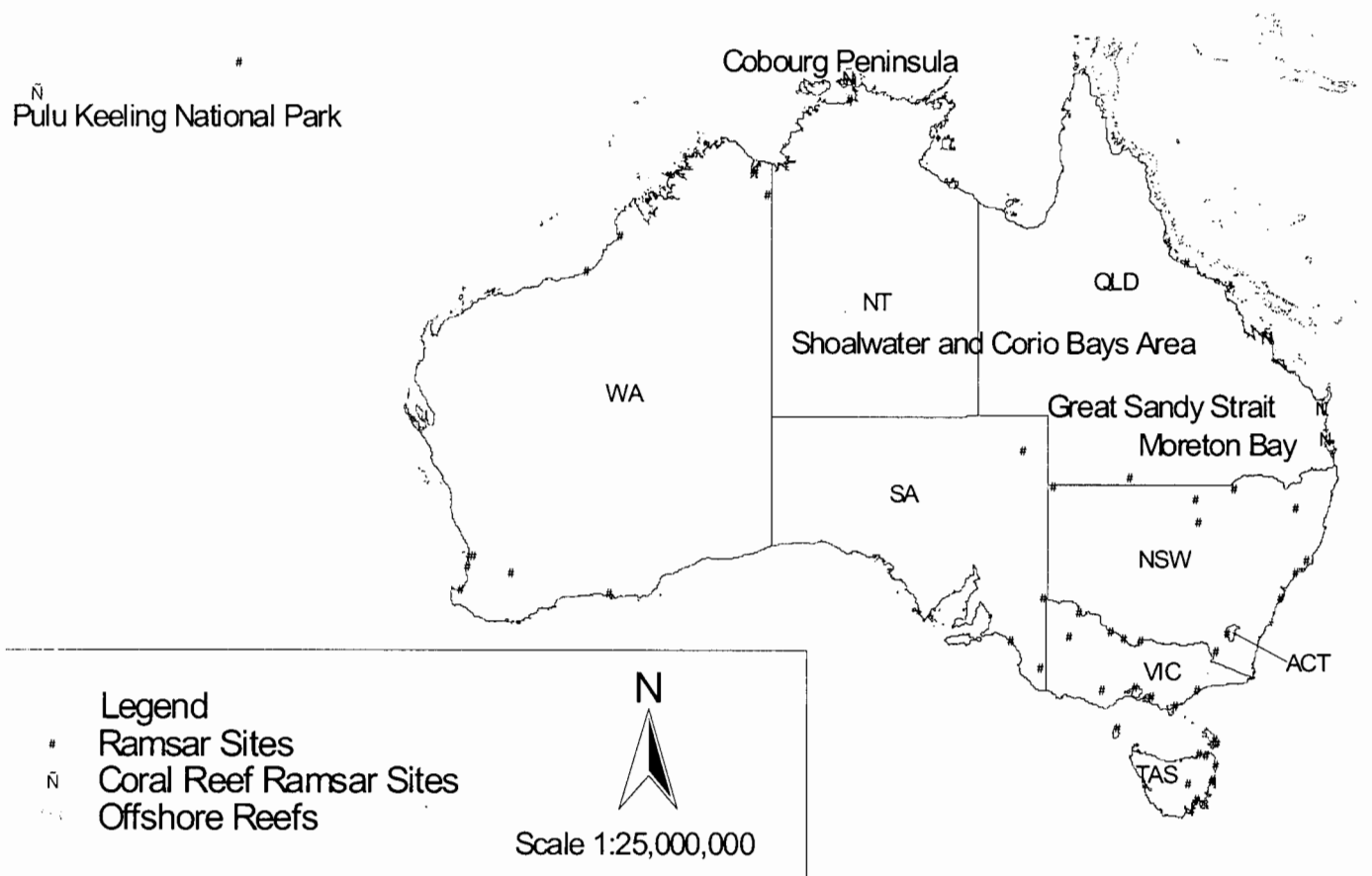


Figure 1  
Australia's Ramsar sites.

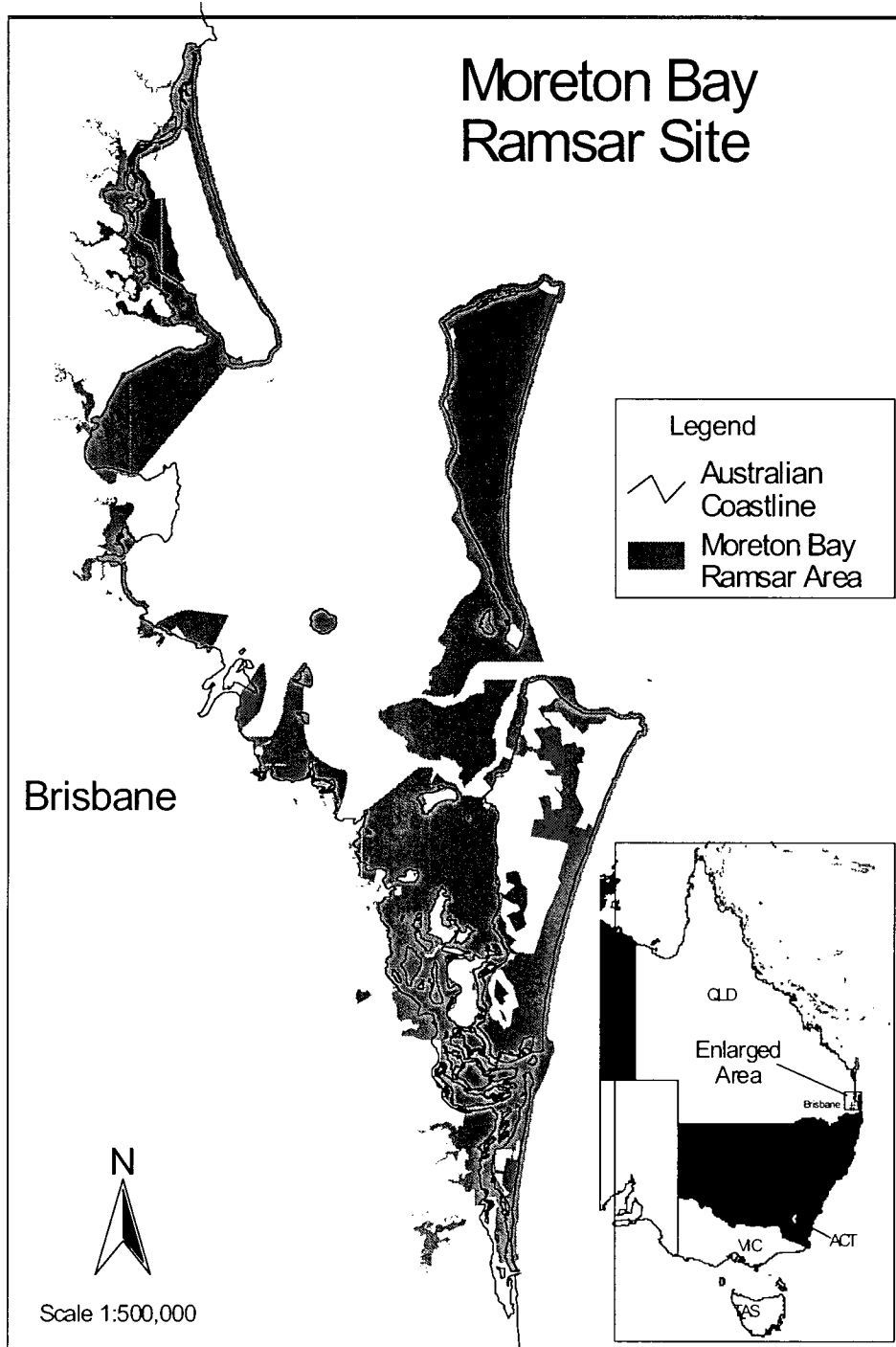


Figure 2  
Moreton Bay Ramsar sites.

## *Existing Use and Values of Moreton Bay*

Moreton Bay is a natural and cultural heritage resource for more than 1.5 million people living in south-east Queensland, one of the fastest growing regions in Australia. The Bay has significant economic importance in the immediate region and to the state of Queensland supporting the Port of Brisbane, commercial fishing and extractive industry

Moreton Bay supports one of the most productive fisheries in Queensland, representing just under three percent of the Queensland coastline while annually producing about 20 percent of Queensland's commercial seafood catch by weight (Williams, 1991). The Bay is also a major area for recreational boating and water related activities offering opportunities for a wide range of water-based recreation including fishing, sailing, power boating, water skiing, parasailing, jetskiing, sailboarding, scuba diving, bird watching, marine study and snorkelling.

The three barrier islands (Moreton, North and South Stradbroke) have unspoilt beaches, topographic diversity within the dunal system and largely undisturbed natural scenery, forest and wetlands.

The Bay supports a large sand mining industry. Silica and heavy mineral sands are extracted primarily from North Stradbroke Island. Silica deposits used include the northern bay banks, Middle Banks and Rous Channel. These sources are highly valued in a regional sense due to the diminishing resources available from mainland streams and terrestrial areas. Rutile and zircon exist in offshore deposits for which exploration leases are being considered.

The Bay is an important environmental and historical education resource for primary, secondary and tertiary education because of its diverse ecosystems and proximity to the regional population. Various organisation and tertiary institutions have established research stations and environmental education centres throughout the Bay.

The Bay is of continuing cultural and economic significance to the Aboriginal communities with historic and traditional association and connection with certain areas.

## *Protection and Management of the Moreton Bay Ramsar Site*

In 1993, the Queensland Government endorsed a policy framework for the Moreton Bay, adopting the Moreton Bay Strategic Plan and declaring a Marine Park over tidal lands and waters. The Queensland Environment Protection Agency is the lead agency responsible for managing the Ramsar Moreton Bay site.

The Moreton Bay Strategic Plan provides the broad framework for management of the Bay and binds the planning and management decisions of all Queensland Government Departments and agencies.

The Strategic Plan comprises

A goal

Aims and objectives

Management Categories detailed on a map showing preferred uses and levels of protection.

The goal provides for ecologically sustainable use of Moreton Bay and the protection of its natural, recreational, cultural heritage and amenity values. This is based on the principle that uses and activities now or in the future can continue provided natural processes and systems essential for maintaining the Bay's ecology are not threatened.

The goal is supported by Aims and Objectives for the key planning and management issues. A number of objectives are directly relevant to management of Moreton Bay's coral reef systems, including:

**Fishing and Collecting**

Identify and protect areas of significance for breeding or recruitment of targeted fish species

Ensure retention of a full range of habitats to allow a diversity of fishery types

**Recreation and Tourism**

Control anchorage methods at sites where damage to the substrate is unacceptable

**Water Quality**

Establish water quality guidelines to protect and enhance the quality of waters in Moreton Bay

Establish water quality monitoring programs to measure the effectiveness of water quality and waste management strategies.

The Plan identifies management categories for the Bay encompassing protection and conservation and, areas suitable for specific uses and development. The categories are: Protection; Habitat conservation; General use; Port and industrial; Marinas and harbours; Island village; and Special Management.

Significant areas within the Bay that contain coral reefs have been categorised as requiring Special Management. Peel Island western and north-western coral reefs and Green Island are included in this category. The need for protection measures such as anchoring restrictions, fishing limits and turbidity control measures for the most easily accessible and attractive hard coral assemblage in the Bay is identified.

### *Implementation of the Moreton Bay Strategic Plan*

The Moreton Bay Strategic Plan sets out the broad management intent for the Bay, which is implemented through specific management plans. These plans include the Marine Park zoning plan and local government planning schemes (which regulate use and development of the Bay) and also National Park, reserve and Species management plans.

The key means of managing and protecting the coral reef systems of the Bay is through the Moreton Bay Marine Park. The Moreton Bay Marine Park was declared in 1993 and extended in 1997 to cover most of Moreton Bay's tidal lands and tidal waters seawards to the limit of Queensland waters.

The Marine Park differs to a national park on land where all landscapes and wildlife are preserved to the greatest possible extent, a marine park allows most people to use the Bay while still protecting the natural environment.

**The Marine Park Zoning Plan**

A zoning plan has been developed for the Moreton Bay Marine Park with five zones plus six designated areas. Zoning provides a balance between human needs and the need to conserve the Bay's special values. Each zone has objectives defining activities that are allowed, those that require permits and those that are prohibited. Designated areas have special management requirements and are as important as the zones.

The most significant coral reef systems of Moreton Bay are covered by Protection and Buffer Zones. The Protection zone aims to preserve the area permanently to the greatest possible extent. All forms of taking (fishing, collecting or extracting) are prohibited because of the significant values of these areas. The Buffer zone applies around a specific coral reef, Flinders Reef, and is similar to the pro-



tection zone but allows trolling for pelagic fish. The intent and boundaries of the zones are described as follows:

#### ***Flinders Reef protection and buffer zone***

Flinders Reef supports the richest fish and marine invertebrate life in southern

Queensland. This small, isolated reef has the highest number of coral species of any sub-tropical or temperate reef along Australia's east coast.

The protection zone boundary extends 50 metres seaward of the reef (the part of the rocky shelf exposed at mean low water spring tide).

The buffer zone boundary is 150m from the perimeter of the protection zone.

#### ***Peel Island protection zone***

The coral communities around Peel Island have the highest diversity of coral species inside Moreton Bay.

The boundary begins at the old jetty and runs west, north and north-east along the 2m depth contour to cover the sunken reefs. It runs east to the Hanlon Light, then follows the 2m depth contour around the edge of Lazaret Gutter to the eastern port hand side of the lateral mark, then south back to shore.

Other reefs such as Green Island have been identified in the Moreton Bay Strategic Plan for possible future extractive activity subject to environmental impact assessment, permits and approvals. This area is within the conservation zone of the Marine Park.

A range of uses/activities of Moreton Bay also require Marine Park Permits. The permit system allows for management of resource use, information gathering, limits conflicting uses and where necessary applies limits on the extent of activities in the Marine Park.

In terms of managing coral reefs, permits are required for activities such as discharging waste; mariculture operations; manipulative research; tourist programs; traditional hunting, building structures such as jetties, buoys or pile moorings, extraction and mining activities and other works.

### **Community Education and Awareness**

Community education and awareness is an integral part of managing significant coral reefs within Moreton Bay and the Environment Protection Agency has produced an Introductory Guide to the Moreton Bay Marine Park which covers issues in a clear question and answer format.

The guide identifies permitted activities within the Bay and any restrictions. There are restrictions on activities such as anchoring, fishing, collecting and water sports in the protection and buffer zones. By way of example, the following guidelines apply to fishing:

#### **What are the restrictions on fishing?**

Fishing is allowed in all zones except the protection zones and the buffer zone around Flinders Reef.

Trolling (fishing with a line trailed behind a vessel under way) for pelagic fish is

the only form of fishing allowed in the buffer zone around Flinders Reef.

Spearfishing is prohibited in the buffer zone and protection zones and is not permitted in any zone when using scuba.

### **Compliance and Monitoring Measures**

Restrictions placed on the use of some parts of the Bay (such as the closure of prime fishing areas around Flinders Reef) has generally been accepted by users as necessary to protect the fish resource.

There have been less than ten prosecutions for unlawful fishing since the commencement of the zoning plan. Off site, there have been prosecutions for pollution incidents upstream of the Bay. Permanent moorings are being established at Flinders Reef to prevent anchor damage.

Information gathering to document the abundance and distribution of reefs in Moreton Bay has largely been undertaken as part of research projects undertaken by local Universities.

Systematic monitoring of the condition of the coral reefs within the Bay has not been undertaken until recently. A monitoring project is being implemented at Flinders Reef. Video transects have been set up at two sites and seasonal monitoring will commence this winter. Growth and changes over time will be recorded by visual inspection.

The permit system for aquarium collectors is also being used to obtain species data for all coral reef sites within the Bay. Logbooks have been issued to collectors to record the species collected and location.

### **Proposed Implementation Measures**

The protection and conservation of Moreton Bay is also dependent on management of the terrestrial areas of the Ramsar site and the catchment beyond the immediate site boundaries.

While the marine part of Moreton Bay has a management plan in place, which is being implemented, management regimes are fragmented over the terrestrial areas of the site. Management plans are being developed for National Parks within the site and further areas of North Stradbroke Island are proposed as National Park.

Strategic and town planning for most terrestrial areas (and within the catchment) is the responsibility of local authorities who are required to have regard to the Moreton Bay Strategic Plan. The review of existing local planning schemes provides opportunity for the integration of the Strategic Plan's objectives and management intent in local land use and development controls.

There is also opportunity to implement improved waste management practices with local authorities. The treatment of domestic effluent discharge by regional local authorities for example is being upgraded to secondary level with tertiary level contemplated for the future.

## **Conclusion**

The need for conservation and wise use of coral reefs has been recognised and promoted under the Ramsar Convention. Coral reefs are under-represented wetland types on the Ramsar List of Wetlands of International Importance. Contracting Parties in the Asia Pacific region have been urged to list coral reef sites under the Convention, as an appropriate first step towards conservation and sustainable use of these wetlands in the long term.

Threats to reefs such as pollution, mining and misuse not only impact on the ecological character of the wetlands but also the ability of local communities to sustain livelihoods from the use of wetland resources.

Australia with five coral reef sites listed under the Ramsar Convention can provide useful case studies about the mechanisms to protect and managing coral reef sites, once listed.

The Moreton Bay Ramsar site in particular remains largely in its natural state despite its location in the midst of the rapidly growing urban region and increasing economic and recreational use. The Queensland Government has recognised the need to adopt policy to manage competition for the Bay's

resources, conflicts of interest between user groups and the potential for over exploitation of resources and pollution.

The Moreton Bay Strategic Plan provides the broad policy framework to reduce and resolve conflict between competing uses whilst managing the ecological and other values of the Bay. The Plan is binding on State government agencies and local authorities must have regard to the Plan in preparation of planning schemes and in making development decisions

The Strategic Plan framework is being implemented in the marine areas through the Moreton Bay Marine Park. The Marine Park zoning system allows a range of recreational and commercial activities to continue without impacting on the coral reef resources of the Bay. The ecologically significant coral reefs are clearly zoned and protected from threats whilst other reef areas may be utilised subject to permitting and appropriate environmental controls.

Monitoring programs are being established to record the condition of the reef and species abundance.

The Moreton Bay Ramsar site therefore not only demonstrates the “wise use” principle at work but also the potential use of management plans as a tool to allocate and manage the use of wetland resources whilst maintaining the ecological values of the site.

## Appendix A

### *Criteria for listing wetlands of international importance under the Ramsar convention*

Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.

Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

## Appendix B

### *Overview of Asia Pacific coral reef Ramsar sites*

#### ***Cobourg Peninsula Aboriginal Land and Wildlife Sanctuary - Northern Territory Australia (The World's First Ramsar Site - listed 1974)***

**Site Area** - 220 700 ha, located in the northern most part of the Northern Territory.

##### **Site Description**

The site has extensive tidal flats, estuaries, fringing coral and rocky reefs, mangroves, riverine wetlands and paperbark swamps, dominated by eucalyptus forests. The hydrological regime varies widely due to the seasonal nature of rainfall. A steep salinity gradient exists between the estuaries and backswamps.

Several threatened animal species occur, including dugong, three species of marine turtles, and the saltwater crocodile, as well as numerous uncommon plants and 31 mangrove species. It is an important site for large numbers of waterbirds and migratory waders with at least 21 species listed under the Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA).

##### **Site Use and Management**

The majority of the site is freehold Aboriginal Land which is used in a semi-traditional manner. The Ramsar site corresponds to the Gurig National Park, with the park and its surrounding waters jointly managed by the Traditional Owners and the Parks and Wildlife Commission of the Northern Territory through the Cobourg Peninsula Sanctuary Board.

#### ***Moreton Bay – Queensland Australia (Listed 1993)***

**Site Area** - 113 314 ha, located in Queensland on the east coast of Australia.

##### **Site Description**

The site occurs near the southern limit of reef building corals, forms an extensive estuarine basin and is semi-enclosed by two of the world's largest sand islands.

As one of three extensive intertidal areas of seagrass, mangroves and saltmarsh on the eastern coast of Australia, it supports extremely high species diversity and is an important fishery. Several reptiles, amphibians and mammals that are rare, vulnerable or endangered are supported in significant numbers. Moreton Bay supports more than 50,000 wintering and staging shorebirds during the non-breeding season. The site is part of the east which supports

##### **Site Use and Management**

Areas of the site are being managed as National Park, Environmental Park, Fauna Sanctuary, Fish Habitat Reserve and Marine Park. Numerous canal estates have access to the Bay which is popular for water-based recreation and tourism. Up to one million tonnes of sub-fossil coral and 150 000 m<sup>3</sup> of sand are extracted annually. The Bay supports commercial and recreational fishing and major port activities.

### *Shoalwater and Corio Bays – Queensland Australia (Listed 1996)*

**Site Area** - 239 100 ha, located in Queensland on the east coast of Australia.

#### **Site Description**

The site is bounded by coastline and includes a variety of wetland habitats, including fringing coral reefs, seagrass beds, rocky marine shores, mangrove communities and fresh water waterbodies.

The area's terrestrial, estuarine and marine environments represent the largest area in east Queensland containing representative ecosystems in relatively undisturbed habitats for significant floral and faunal assemblages. It also includes populations of rare and threatened species. The area represents a climatic overlap zone with an annual mix of tropical, sub-tropical and temperate species. It is an important feeding area and provides high-tide roost sites for a diverse array of migratory shorebird species.

#### **Site Use and Management**

The site comprises areas managed as State Marine Park, National Estate and Fish Habitat Area. Human activities include military activities, use by Aboriginal people, tourism, commercial and recreational fishing.

### *Pulu Keeling National Park (North Keeling Island) - Cocos (Keeling) Islands (1999)*

**Site Area** 122 ha being part of the Pulu Keeling National Park (North Keeling Island) which is part of the much larger Cocos (Keeling) Islands group which consists of 27 coral islands, located off the north-west coast of Australia.

#### **Site Description**

The site is a single, uninhabited atoll which has developed on top of an old volcanic seamount.

It forms a shallow lagoon which drains almost completely at low tide. The site is surrounded by coral reefs and includes sandy and shingle beaches. The natural ecological state of North Keeling Island has undergone slight modification and may represent the best example of the original vegetation typical of the island group.

It supports high biodiversity including many endemic plant species. Numerous species of seabirds, some endangered, use the area for nesting or as a rookery. Thirteen migratory bird species are listed under the JAMBA/CAMBA.

#### **Site Use and Management**

The island is owned under a Trust arrangement by the Cocos (Keeling) Islands Shire Council who provided a long term lease to the Commonwealth of Australia for the establishment of a National Park.

The island is to managed to conserve its unique flora and fauna and can only be visited in the company of the Government Conservator. The key threats to the island are illegal hunting of seabirds and possibly, recreation uses with increased tourism.

### *Great Sandy Strait – Queensland Australia (Listed 1999)*

**Site Area** - 93 160 ha, located in Queensland on the east coast of Australia

#### **Site Description**

The Great Sandy Strait is a sand passage estuary between the mainland and the Fraser Island World Heritage site.

It is the largest area of tidal swamps within the Southeast Queensland bioregion of Australia, and consists of intertidal sand and mud flats, coral reefs, extended seagrass beds, mangrove forests, saltflats, saltmarshes, and is often contiguous with freshwater *Melaleuca* wetlands and coastal wallum swamps.

It is an exceptionally important feeding ground for migratory shorebirds (numbers in excess of 30 000; 24 species listed under JAMBA/CAMBA) and it is important for a wide range of other water-birds and seabirds, marine fish, crustaceans, oysters, dugong, sea turtles, and dolphins.

#### **Site Use and Management**

Small areas of the site are contained in National Parks and environmental parks. Islands in the Strait are State land intended to be reserved for coastal management purposes. Small areas of freehold and leasehold land also exist within the site.

Evidence of Aboriginal presence dates back 5 500 years, and indigenous fishing is still a major activity. The Strait is highly valued for commercial and recreational fishing and boating and is also used for aquaculture of oysters, nature-based tourism, effluent disposal and conservation.

### *Olango Island Wildlife Sanctuary Philippines. (Listed 1994)*

**Site Area** - 5,800 ha, located in Cebu (10°16'N 124°03'E)

#### **Site Description**

A low-lying island surrounded by extensive intertidal sandflats, mangroves, seagrass beds, coral reefs and islets. One of the most important areas in the country for significant numbers of migratory water-birds, providing habitat for staging, wintering, roosting and feeding birds. Over 10,000 shorebirds have been recorded at one time, with total numbers approaching 50,000. The most important site in the Philippines for the rare waterbird species Asiatic Dowitcher. Ramsar site no. 656.

#### **Site Use and Management**

The site is managed as a Wildlife Sanctuary and a Shorebird Network Site. Inhabitants are dependent on coastal resources: harvesting sea urchins, fish and commercial shells, for their livelihood. Other economic activities include farming corn, cassava and coconut, and raising livestock.

### *Tubbataha Reefs National Marine Park Philippines (Listed in 1999)*

**Site Area** - 33,200 ha, located in the middle of the Central Sulu Sea about 150km southeast of Puerto Princesa City (08°52'N 119°52'E).

### Site Description

Considered the largest coral reef atoll in the Philippines, harbouring a diversity of marine life equal to or greater than any such area in the world. Some 46 coral genera and more than 300 coral species have been recorded, as well as at least 40 families and 379 species of fish. Sea turtles, sharks, tuna, dolphins, and jackfish are also found in the reefs. Ramsar site no. 1010.

### Site Use and Management

World Heritage site. The Tubbataha reefs are well known amongst fishermen in the southern Philippines and scuba divers around the world. No permanent residents are found within the Park, but indigenous inhabitants of Cagayancillo periodically visit the reefs to collect the eggs of nesting birds such as boobies, and scuba diving, snorkelling, and sport fishing are popular activities despite the relative inaccessibility of the area. There has been considerable damage in recent years because of rampant use of destructive fishing using dynamite and cyanide.

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II5

Volume spécial

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