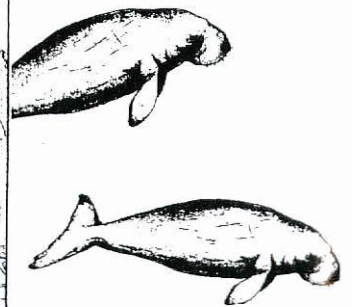
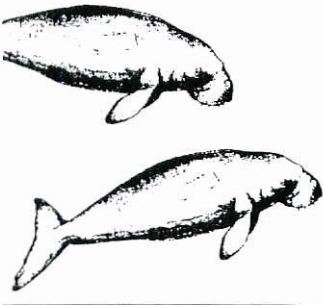
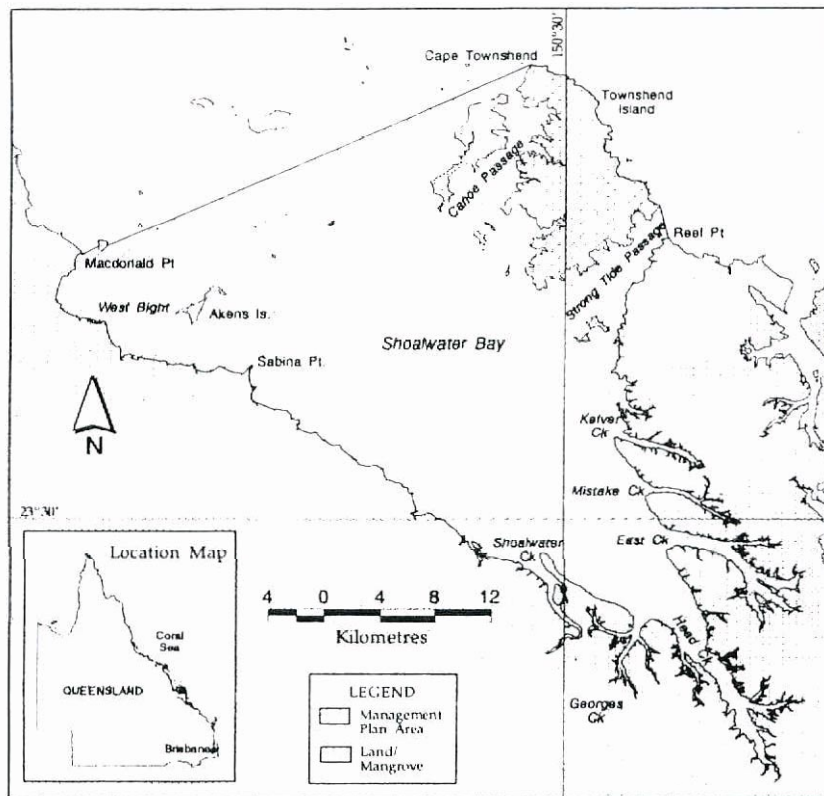




SHOALWATER BAY (DUGONG) PLAN OF MANAGEMENT



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MARINE PARK AUTHORITY

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GREAT BARRIER REEF
MARINE PARK AUTHORITY

PO Box 1379
Townsville Qld 4810
Telephone: (077) 500 700
Facsimile: (077) 726 W3

Commonwealth of Australia
Great Barrier Reef Marine Park Act 1975
Shoalwater Bay (Dugong)
Plan of Management

SB01/96

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FOREWORD

Conservation of biodiversity in the Great Barrier Reef Marine Park is a core responsibility of the Great Barrier Reef Marine Park Authority. The Marine Park is within the Great Barrier Reef World Heritage Property, and one of the reasons for its inclusion on the World Heritage Area list is that it provides major feeding grounds for large populations of the dugong, *Dugong dugon*.

In 1995 the Authority was advised of a number of incidental captures of dugongs in mesh nets in Shoalwater Bay. At about the same time, a commissioned report was received presenting results that a significant decline of the dugong population in the southern section of the Marine Park had been detected.

Shoalwater Bay is an area of significant regional importance for dugongs because it has the most important habitat for one of the most substantial populations of the species remaining in the southern section of the Marine Park. The conservation of this reservoir population is regarded as essential for the long-term viability of the regional population. As the Bay is within the Marine Park, this plan was initiated to address threats to the species in the area. It has been prepared under Part VB of the *Great Barrier Reef Marine Park Act 1975 (Commonwealth)* which provides for preparation of plans of management for species or ecological communities that are or may become vulnerable or endangered within the Marine Park.

The actions set out in this plan will contribute to the development of a broader management regime for the species by various management agencies. It will also provide guidelines for conserving the dugong population throughout the broader Shoalwater Bay Military Training area.

At present, there are no management plans for the conservation of dugongs in the Marine Park. A draft *Management Program for the Conservation and Management of dugong (Dugong dugon) in Queensland* is in preparation by the Queensland Department of Environment, and a national action plan is in preparation by the Australian Nature Conservation Authority. In 1994 the Authority produced a *Turtle and Dugong Conservation Strategy* which provides a framework for the conservation of dugongs in the Marine Park.



Ian McPhail
Chairperson
Great Barrier Reef Marine Park Authority

P R E F A C E

RECOVERY PLAN FOR DUGONGS IN SHOALWATER BAY

PART 1—INFORMATION ABOUT DUGONGS

Division 1—General

1.1 Description

The dugong, commonly known as the sea cow, is a plant eating (herbivorous) marine mammal belonging to the Order *Sirenia*. It is the only species remaining in the family *Dugongidae*. Its closest relative, Steller's sea cow, was hunted to extinction within 27 years of its discovery in 1741.

The dugong is rotund and spindle-shaped with smooth grey skin covered by sparse hair. The average adult weighs between 250-300 kilograms and measures 7.5 metres long. Dugongs have a dolphin-like tail used for propulsion, and rounded forelimbs for steering and manipulating food. The head is broad with a large down-turned muzzle adapted for bottom feeding. Dugongs have molar teeth for grinding seagrass and males have two tusks. Nostrils at the top of the snout allow dugongs to breathe at the surface while minimising exposure of the body.

1.2 Distribution

Dugongs are found in tropical waters of 43 countries of the western Pacific and Indian Oceans. In Australia, they are found in the northern waters between Shark Bay in the west and Moreton Bay in south-east Queensland.

1.3 Habitat

Dugongs require seagrass meadows of particular species for feeding, as well as places for resting, calving and transiting. They prefer areas that are sheltered from rough seas because of their need to surface often to breathe. Seagrass meadows occur in shallow coastal waters throughout the *Marine Park* and in some areas of deepwater (up to 30 metres) north of Cooktown. Dugongs tend to use regular routes to move between feeding meadows and resting places.

Recent satellite tracking studies of dugongs in the *Area* provide some data on the use of transiting habitat, and suggest that dugongs roam widely and frequently within the *Area* to access feeding areas.

Dugongs appear to select sheltered areas for calving to maximise protection against sharks and disturbance. Calving has been recorded on sandbars or in channels between them and on sandy beaches adjacent to shallow, protected bays.

1.4 Diet

Dugongs feed predominantly on seagrasses and show a preference for species of the genera *Halophila* and *Halodule* which are "pioneer species" that are low in fibre and high in available nitrogen and digestibility. Dugong grazing promotes sparse meadows of nutritious pioneer species such as *Halophila ovalis* and has also been shown to promote prolific regeneration. An average adult consumes an estimated 25 kilograms a day. Marine algae is also consumed when seagrass is scarce. Studies have also found that dugongs consume species of macro-invertebrates, particularly ascidians (commonly known as sea squirts) in the southern part of their range (for example, in Moreton Bay).

1.5 Behaviour

Dugongs are recorded as feeding during the day and night. They tend to select areas close to deepwater to avoid stranding. Feeding involves a cycle of short dives (for up to 3 minutes) and surfacing for air (for 1 or 2 seconds). Dugongs are able to hold their breath only for a maximum of 8 minutes and will drown within that time if kept submerged. Their hearing is acute and they communicate by a variety of sounds including soft squeaks or chirps (1-8 kilohertz) and louder barking sounds (around 1200 kilohertz). The chirps and squeaks are associated with territorial behaviour and mother-calf bonding, and the barks with warding off intruders. Dugongs are slow moving and are capable of only short bursts of fast swimming. Although at times they form groups, they are mostly solitary, except for mothers and calves which stay together for up to 18 months. Dugongs live for about 70 years.

1.6 Reproduction

Dugongs breed slowly, producing one calf every 3 to 7 years. Pregnancy lasts 13 months. Even under ideal conditions, a dugong population cannot increase by more than 5% a year.

1.7 Population estimates

The Australian dugong population is estimated at 80,000. About 12,000 live in the *Marine Park* of which about 1,700 are found in the southern region of the Park.

1.8 Reasons for concern about dugong numbers in **the** Marine Park

Dugongs are vulnerable to extinction because they have a low reproductive capability and live close to the shore where they are susceptible to human activities, for example, commercial netting (within the meaning of the *zoning plan*), *traditional hunting and gathering* and the use of *vessels*. A slight fall in adult numbers can cause a long-term decline in the population.

In the southern region of the *Marine Park*, the estimated dugong population has declined from between 3479 and 3649 animals in 1987, to between 1682 and 1918 animals in 1994, making the species critically endangered in that region under standards set by the World Conservation Union. (A similar decline has occurred in the *Area* over the same period: from between 604 and 926 to between 328 and 484 animals.) Population models suggest

that the sustainable loss of dugongs from human causes is around 1% of females a year.

Division 2 — Dugongs in Shoalwater Bay

1.9 Location and description

Shoalwater Bay is a large estuarine area approximately 50 kilometres north of Rockhampton. 37% of the *Area* is shallow open water (less than 10 metres deep) supporting seagrass meadows, and 35% is mangrove communities. An extensive network of creeks and rivers drain into the *Area*, and a number of islands are scattered across the northern area.

The *Area* supports the most important dugong seagrass habitat, in the southern region of the *Marine Park*, and the largest dugong population in the Park south of Cardwell. It is remote from human settlement.

1.10 Distribution of dugongs in the Area

Recent satellite tracking research indicates that dugongs roam widely and frequently in the *Area* to gain access to the seagrass meadows of the inshore coast, rivers and creeks. The majority of seagrass meadows occur on intertidal banks at depths of between 0.5 and 8 metres. Most meadows are a mixture of *Halophila ovalis*, *Halodule uninervis*, and *Zostera capricorni*, which are species favoured by dugongs. In the southern reaches of the *Area*, seagrass meadows tend to form narrow strips, while more extensive meadows are found in the northern reaches of the *Area*.

Important seagrass meadows are located from West Bight to south of Sabina Point, around Triangular and Akens Islands, in Canoe Passage and Strong Tide Passage and in rivers and creeks. A small area of subtidal seagrass meadows (at depths exceeding 15 metres) is located in Canoe Passage, and adjacent to the south-western corner of Townshend Island. These meadows may provide important feeding opportunities for dugongs during low and neap tides.

Port Clinton, an area to the east of the southern section of the *Arm* that is not currently included within the boundaries of the *Marine Park*, also supports extensive seagrass meadows including species favoured by dugongs. Aerial surveys of the *Area* conducted since 1975 indicate that dugongs use Port Clinton, and recent tracking of dugongs fitted with satellite transmitters indicate that Port Clinton is one of several important feeding areas in the region for dugongs.

1.11 Human use of the Area

The main human use of the *Area* is under naval training operations which commenced in 1965. Naval activities are permitted in the *Area* under the *zoning plan*.

Commercial fishing is the main non-defence use of the *Area* (although limited recreational fishing also occurs from base camps at Macdonald's Point and other mainland locations).

The *Area* is also of cultural significance to indigenous inhabitants as it is part of the

territory of the Darumbal Aboriginal language group, which extends from the Styx River in the north to Raglan Creek in the south, and west to the Broad Sound-Boomer Range.

PART 2—MANAGEMENT RESPONSES TO THREATS

Division 1— Introductory

2.1 Introduction

Any unnatural dugong mortality in the *Area* is unsustainable. Management responses to the threats to dugong in the *Area* are set out below. The success of these actions will be monitored through surveillance, enforcement and research. If further dugong mortality occurs in the *Area*, and is shown, or is reasonably suspected, to be related to human activity, further action will be taken to remove the cause or causes.

Division 2— Commercial fishing threats

2.2 Mesh netting — general

Mesh netting is a significant cause of injury and mortality to dugongs. Studies undertaken in Cleveland Bay show that dugongs are highly susceptible to becoming entangled in nets.

It is difficult to obtain data on dugong mortality in mesh nets in the *Marine Park* for a variety of reasons, some of which include remoteness, the tendency for fishers to set nets at night and the lack of resources and staff to adequately oversee netting practices.

Many of the nets used in the *Area* have large meshes which can easily catch a dugong by its tail or pectoral flippers. Large mesh nets are also invisible to dugongs (and many other marine taxa) which do not possess sonar mechanisms to locate obstacles.

A dugong may die in a mesh net as a result of drowning or stress, or may be killed by a fisher to enable its removal from the net. The Authority is particularly concerned about the practice of cutting off the tail of a living dugong that is caught in a net, and the practice of sinking a dugong carcass by slitting its abdomen and removing its internal organs.

Studies show that dugongs are susceptible to death from the stress of becoming entangled in a net, and may subsequently die despite being released alive from the net. The rescue of entangled dugongs is also known to be difficult and mostly unsuccessful.

2.3 Mesh netting in the Area

A number of kinds of mesh net are permitted in the *Area*, including river set nets, drift nets, shark nets and ring nets. Potentially, these nets are a risk to dugongs wherever they are used because of the species' propensity to roam widely.

About 10 mesh net fishers are believed to regularly harvest blue salmon, shark, barramundi, mullet and grey mackerel in the *Area* as a supplement to their main crabbing fishery. The number of occasional commercial or recreational fishers in the *Area* is unknown.

2.4 River set mesh nets

An assessment of the threat of river set mesh nets to dugongs was undertaken by the Authority in 1996. The assessment determined that, by their design and deployment, river set mesh nets are able to entrap and drown dugongs in the same way as set foreshore and set offshore mesh nets.

River *set* mesh nets have a mesh size of 150-215 millimetres, a drop depth of 50 meshes and a permitted length of 120 metres. A licensed commercial fisher is permitted to use 3 nets at any particular time, and is required by law to remain in attendance (that is, within 800 metres) of the nets. The nets may not beset more than one nautical mile apart, and the upstream limit for their use is the top of the tidal influence or freshwater. The nets may be used throughout the year, except during the barramundi closure from November to January. River set mesh nets are placed from a bank to halfway across a river, usually one hour before high tide (about the time that dugongs move into creeks and rivers to feed).

Studies have found that dugongs use rivers and creeks flowing into the *Area* and it is considered that river set mesh nets are a risk to the species. These rivers and creeks are located outside the *Marine Park* and are managed by the Queensland Department of the Environment.

2.5 Management response

The Shoalwater Bay (Dugong) Plan of Management has been prepared in response to mesh netting threats.

Division 3—Defence threats

2.6 Interpretation

In this Division:

"Defence Area" means the Shoalwater Bay Defence Area, as described in item 7 in the Schedule to the *zoning plan*.

2.7 Introduction

The Royal Australian Navy conducts various exercises in the *Area* involving surface and underwater detonation of explosive charges, amphibious landings and naval gunfire support. Mine disposal training does not currently occur but may resume in the future. Operations occur in 3 regions: near Townshend Island, near Sabina Point and within a 2 kilometre radius of Triangular Island.

2.8 Underwater demolition training

Underwater demolition training involves the detonation of a range of explosive charges (5 to 500 kilogram devices) during regular training sessions of several weeks duration each year. In the year to March 1996, the Royal Australian Navy Diving School undertook 4 training exercises. During each of these exercises up to 40 detonations occurred (100 to 500 kilogram devices). These exercises were conducted underwater mainly in the vicinity of Triangular Island, although some surface detonations were also conducted. The Navy maintains records of exercises conducted in the Defence Area.

2.9 Procedures for detonation

At Triangular Island, explosive charges are set at low tide and detonated at high tide. Detonation must comply with special conditions relating to a Department of Defence Environmental Certificate of Compliance issued by the *Authority* for the Defence Area.

If endangered species are detected, provision is made for either small explosive charges (0.5 kilogram devices) to be detonated in the water, or larger scare charges to be fired from the land, within 15 minutes of the planned detonation.

2.10 Mine disposal

Mine countermeasure vessels of the Navy may need to use the Defence Area in the future if operations are relocated from near Townsville. A maximum of 8 charges (105 kilogram devices) are expected to be detonated each year at a depth of between 5 and 35 metres. Precautions before detonation will include an area search using a ship mine-hunter sonar that is capable of detecting marine mammals.

2.11 Effects of underwater explosions on marine life

The use of explosives in the marine environment is potentially harmful to both fish and marine mammals, and can cause dieback in some seagrass communities. Species of fur seals, sea lions, sea otters, turtles, manatees, whales and dolphins are recorded as having been killed or injured by the detonation of 5 kilogram explosive devices. There have been no studies on the impact of underwater explosions on dugongs, but the *Authority* considers that, if carried out intensively, explosions could kill or injure dugongs and change local distribution patterns.

Explosions have two main components that affect marine animals:

Shock waves

- Shock waves create a rapid change of pressure that can cause damage to internal air spaces (for example, swim bladders of fish, or the lungs, ears and intestinal spaces in marine mammals), and can shatter bones of marine mammals. Effects can be direct (death) or indirect through injuries which lead to cardiac arrest, stroke and lung haemorrhaging. Behavioural changes leading to separation of mothers and young and abandonment of areas may also occur.
- The region of shock wave injury has been calculated for some marine mammals. For example, it has been recorded that manatees (a species of herbivorous mammal

related to dugongs) will be injured from a small explosive charge up to 40 metres away for adults and to up 85 metres for calves.

- There have been no reports to date of direct mortality of dugongs from underwater detonations, however skeletal remains of a male dugong were found behind a detonation channel on Triangular Island in April 1996. The *Authority* considers it likely that dugongs may be at risk of death, injury and social disruption from detonations in the vicinity of seagrass meadows because the animals move in to feed at high tide when the explosions occur.

Noise

- The ability to communicate by sound is important for marine mammals that inhabit murky waters (such as exist in the *Area*), where sub-surface visibility is usually less than 10 metres. Sound is an efficient form of communication for these animals because it spreads quickly in water. Noise from underwater explosions may interfere with this communication and may cause deafness, hearing damage and social disruption. In mammals, the bond between mother and young can be weakened or destroyed, resulting in death of the young.

2.12 Use of explosives as wildlife deterrents

Scare charges and thunder flashes have proved to be ineffective in frightening species of pinniped and cetaceans, and can be harmful to them. There is no data on their effectiveness in scaring dugongs or other sirenian species. Dugongs are difficult to detect by boat searches in the *Area* because of the poor water clarity and shyness of the animals.

2.13 Impacts on seagrass meadows

Explosives can cause dieback in seagrass by damaging cells in the rhizomes. Increased sedimentation is also created, which can smother meadows and reduce light penetration to the plants. Nutrient changes may also occur, resulting in increased algal growth which can smother seagrass meadows.

An unusual coverage of filamentous green algae was recorded in meadows around Triangular Island, in Hideaway Bay and Little Bang Bay in 1995 and 1996. This growth may be indicative of seasonal growth patterns or nutrient enhancement. Because algal growth was not recorded in any other sites surveyed in the *Area*, the *Authority* believes that the occurrence at Triangular Island may be related to increased amounts of phosphates from explosives.

2.14 Management response

The *Authority* has agreed with the Royal Australian Navy that the Navy will take the following actions to ensure the safety of dugong during exercises involving underwater detonations:

- (a) future underwater detonations in the Triangular Island area will be restricted to Little Bang Bay, Big Bang Bay, and Barricade Passage with naval activities ceasing in Hideaway Bay (on the south east corner of the island);
- (b) boat searches for dugongs will be conducted before detonations.

Division 4—Indigenous threats

2.15 Traditional hunting and gathering

Although *traditional hunting and gathering* has not contributed to the recent decline in the dugong population in the *Area*, the elders of the Darumbal-Noolar Murree Corporation for Land and Culture have decided that it is not appropriate to hunt dugongs in the *Area* while the species is endangered.

2.16 Management response

Under subsection 39ZA (1) of the *Act*, the Authority entered into an agreement with the Darumbal-Noolar Murree Aboriginal Corporation for Land and Culture on 1 August 1996, to the effect that:

- (a) it would be inappropriate for indigenous hunting to occur in the *Area* for the time being; and
- (b) the appropriateness of hunting dugong will be reviewed by the *Authority* and the Corporation after considering recommendations made following a survey of dugong populations in 1999; and
- (c) the *Authority* and the Corporation will seek to inform other people of the Agreement and to explain its rationale; and
- (d) the *Authority* will liaise with the Corporation to enhance a cooperative approach to the conservation and management of the dugong population and other marine resources in the *Marine Park*.

Division 5—Threats from the use of vessels

2.17 Collisions with vessels

Vessels are a known cause of mortality to sirenian species, for example, the West Indian manatee (*Trichechus manatus*) off the coast of Florida, USA. The *Authority* is aware that *vessels* have collided previously with dugongs in the *Marine Park*. The *Authority* considers that increasing *vessel* activity in the *Area*, particularly in shallow areas of importance to local dugong populations, may threaten the safety of the animals. *Vessel* activity in the *Area* includes naval ships and commercial fishing boats, as well as recreational *vessels* (for example cruising yachts and motor boats).

Studies on the incidence of watercraft collision with manatees off the coast of Florida have found that medium to large watercraft are more likely to kill or injure manatees than small boats. Motors with more than 10 horsepower are the most dangerous and there is also an increasing risk to manatees from personal motorised watercraft (for example, jet skis). Most injuries are caused by blows from the hull of a *vessel* or from propeller cuts. Collisions may cause death or debilitating injuries and may reduce breeding capability. The *Authority* considers that similar risks may apply to dugongs in the *Area*.

2.18 Management response

The *Authority* is considering amendments of the Shoalwater Bay (Dugong) Plan of Management to restrict the use of *vessels* in the *Area*, and to require the use of propeller guards.

PART 3—RESEARCH

3.1 Introduction

Current research programs in the *Area* include seagrass monitoring and satellite tracking of dugongs to provide information on their movement and behaviour.

3.2 Proposed research programs

The *Authority* has proposed that the following research be undertaken in the *Area* in relation to dugongs, and their habitat:

- (a) a 5 year survey of seagrass meadows;
- (b) the inclusion of the *Area* in the aerial survey of *Marine Park* dugong populations proposed to occur in 1999;
- (c) as agreed between the *Authority* and the Royal Australian Navy— an investigation into:
 - (i) effective methods of deterring dugongs from detonation sites; and
 - (ii) the impact of underwater detonations on seagrass meadows and dugongs.

Please Note: The information provided in this preface is based on scientific research. A bibliography of this research may be obtained from the *Authority*.

Commonwealth of Australia

Great Barrier Reef Marine Park Act 1975

Shoalwater Bay (Dugong) Plan of Management

SB01/96

THE GREAT BARRIER REEF MARINE PARK AUTHORITY, having regard to the protection of world heritage values of the Great Barrier Reef Marine Park, and the precautionary principle within the meaning of section 3.5.1 of the Intergovernmental Agreement on the Environment (a copy of which is set out in the Schedule to the *National Environment Protection Council Act 1994*), prepares the following plan of management under subsection 39W (1) of the *Great Barrier Reef Marine Park Act 1975*.

Dated 7th November 1996.



Chairperson

PART 1—PRELIMINARY

INTRODUCTORY NOTE

Shoalwater Bay is an area of significant regional importance for dugongs (*Dugong dugon*) because it has the most important habitat for one of the most substantial populations of the species remaining in the southern section of the *Marine Park*. The conservation of this reservoir population is regarded as essential for the long-term viability of the regional population.

This Plan has been prepared in response to the recent decline in dugong numbers in the southern section of the *Marine Park*. The Authority considers that a major cause of this decline is the accidental capture of dugongs in mesh nets in the Area.

This Plan provides a framework for managing use of the *Area* to ensure that dugongs are managed to enable their recovery and continued protection and conservation.

1. Citation

This Plan may be cited as the Shoalwater Bay (Dugong) Plan of Management.

[Notes: 1. This Plan (except Part 4) commences on the day on which the notice referred to in subsection 3YZE (4) of the Act is published in the Gazette: see Act, s. 3YZF (1).

2. Part 4 of this Plan commences on the day on which regulations made under paragraph 66 (2) (ba) of the Act declare that the Part takes effect: see Act, s. 39ZF (2).]

2. Interpretation

2.1 In this Plan, unless the contrary intention appears:

Act means the *Great Barrier Reef Marine Park Act 1975*;

Area means the Shoalwater Bay area described in the Schedule (and depicted generally in the map set out in the Schedule);

collecting has the same meaning as in the *zoning plan*;

Mackay/Capricorn

Section means the area assigned the name "Great Barrier Reef Marine Park—Mackay/Capricorn Section" by Proclamation made under subsection 31 (1) of the Act and published in the Gazette on 24 September 1987;

[Note: For the meaning of Gazette see Acts *Interpretation Act* 1901, ss. 17 (m) and 46 (1)(a).]

<i>relevant permission</i>	has the same meaning as in the Great Barrier Reef Marine Park Regulations;
<i>stowed or secured</i>	has the same meaning as in the <i>zoning plan</i> ;
<i>taking</i>	has the same meaning as in the <i>zoning plan</i> ;
<i>traditional hunting and gathering</i>	has the same meaning as in the <i>zoning plan</i> ;
<i>zone</i>	means a zone referred to in the <i>zoning plan</i> ;
<i>zoning plan</i>	means the zoning plan for the <i>Mackay/Capricorn Section</i> which came into force on 1 August 1988, copies of which may be obtained from the <i>Authority</i> .

[Note: Unless the contrary intention appears, words and expressions used in this Plan that are defined in the *Act* have the same meaning in this Plan as they do in the *Act*: see *Acts Interpretation Act 1901, s. 46 (1)(a)*. For example, the *Act* contains definitions of *Authority, Marine Park* and *vessel*.]

- 2.2 The origin of geographical coordinates used in this Plan is the Australian Geodetic Datum 1966 (AGD66).
- 2.3 The Preface, introductory notes, background notes and other notes do not form part of this Plan, and are provided for information only.

PART 2—MANAGEMENT ISSUES

BACKGROUND NOTE TO PART 2

Dugongs are considered vulnerable to extinction by the World Conservation Union. In Queensland, the dugong is listed as a vulnerable animal under the *Nature Conservation Act 1992 (Qld)*.

Historically, dugongs have lived in waters of the western Pacific and Indian Oceans, but human activities have caused it to disappear in much of this region. The majority of its world population is now believed to exist in the tropical and sub-tropical waters of Australia, although much of this area has not been surveyed. The estimated population of the surveyed region is around 80,000, of which about 15% (around 12,000) live in the *Marine Park*. Since 1987, dugong numbers have declined by more than half in the southern region of the *Marine Park* (from Cape Bedford to Hervey Bay), which includes the *Area*. The *Authority* considers the *Area* to be the most important dugong habitat in the region.

Dugongs feed on intertidal seagrass meadows in the *Area*. These meadows are also harvested for fish by fishers using gill nets (mesh nets). At least 12 dugongs are believed to have drowned in gill nets in 1994 and 1995.

Further information about dugongs, and their conservation, is set out in the Preface (Recovery plan for dugongs in Shoalwater Bay).

3. Endangered species — dugong

For paragraph 39Y (b) of the *Act*, the *Authority* considers that *Dugong dugon* (commonly known as dugong) is an endangered species in the *Area*.

4. Management of use

For paragraph 39Y (c) of the *Act*, the *Authority* considers that the netting of fish is an activity that must be managed in the *Area* on the basis of ecologically sustainable use.

[Note: Section 39Y of the *Act* sets out the objects of plans of management. Those objects are:

- (a) to ensure, for particular areas of the *Marine Park* in which the *Authority* considers that nature conservation values, cultural and heritage values, or scientific values are, or may be, threatened, that appropriate proposals are developed to reduce or eliminate the threats; and
- (b) to ensure that species and ecological communities that are, or may become, vulnerable or endangered are managed to enable their recovery and continued protection and conservation; and
- (c) to ensure that activities within areas of the *Marine Park* are managed on the basis of ecologically sustainable use; and
- (d) to provide a basis for managing the uses of a particular area of the *Marine Park* that may conflict with other uses of the area or with the values of the area; and
- (e) to provide for the management of areas of the *Marine Park* in conjunction with community groups in circumstances where those groups have a special interest in the areas concerned; and
- (f) to enable people using the *Marine Park* to participate in a wide range of recreational activities.]

PART 3—RELEVANT PERMISSIONS

5. Collecting dugong

5.1 The *Authority* must not grant a person a *relevant permission* to enter into or use a *zone* in the *Area* for the purpose of *collecting* dugong, unless the *collecting* is for the conduct of research.

5.2 However, the *Authority* may grant a person a *relevant permission* to enter into or use a *zone* in the *Area* for the purpose of *traditional hunting and gathering* (including the *traditional hunting and gathering of dugong*).

PART 4—ENFORCEMENT PROVISIONS

INTRODUCTORY NOTES TO PART 4

1. Regulations may be made providing for giving effect to the enforcement provisions of a plan of management **or** to the enforcement provisions of an amendment of a plan of management: *see Act*, paragraph 66 (1) (ba).
2. The *Act* provides for offences in relation to:
 - (a) the use or entry of a *zone* for a purpose other than a purpose permitted under a *zoning plan*; or
 - (b) the use or entry of a *zone* without a *relevant permission* where permission is required under the *zoning plan*; or
 - (c) the contravention of a condition to which a *relevant permission* is subject.

See Act, ss. 38A, 38B and 38C.

6. Restrictions on the use of nets in the Area

- 6.1 A person must not have in the *Area* a net that is capable of being used for the *taking* of fish.
- 6.2 Subclause 6.1 does not apply to a person who has a net in the *Area* in accordance with a *relevant permission* granted for the conduct of research.
- 6.3 To avoid doubt, a person may be taken to have a net in the *Area* whether or not the net is *stowed or secured*.

7. Interference with dugongs

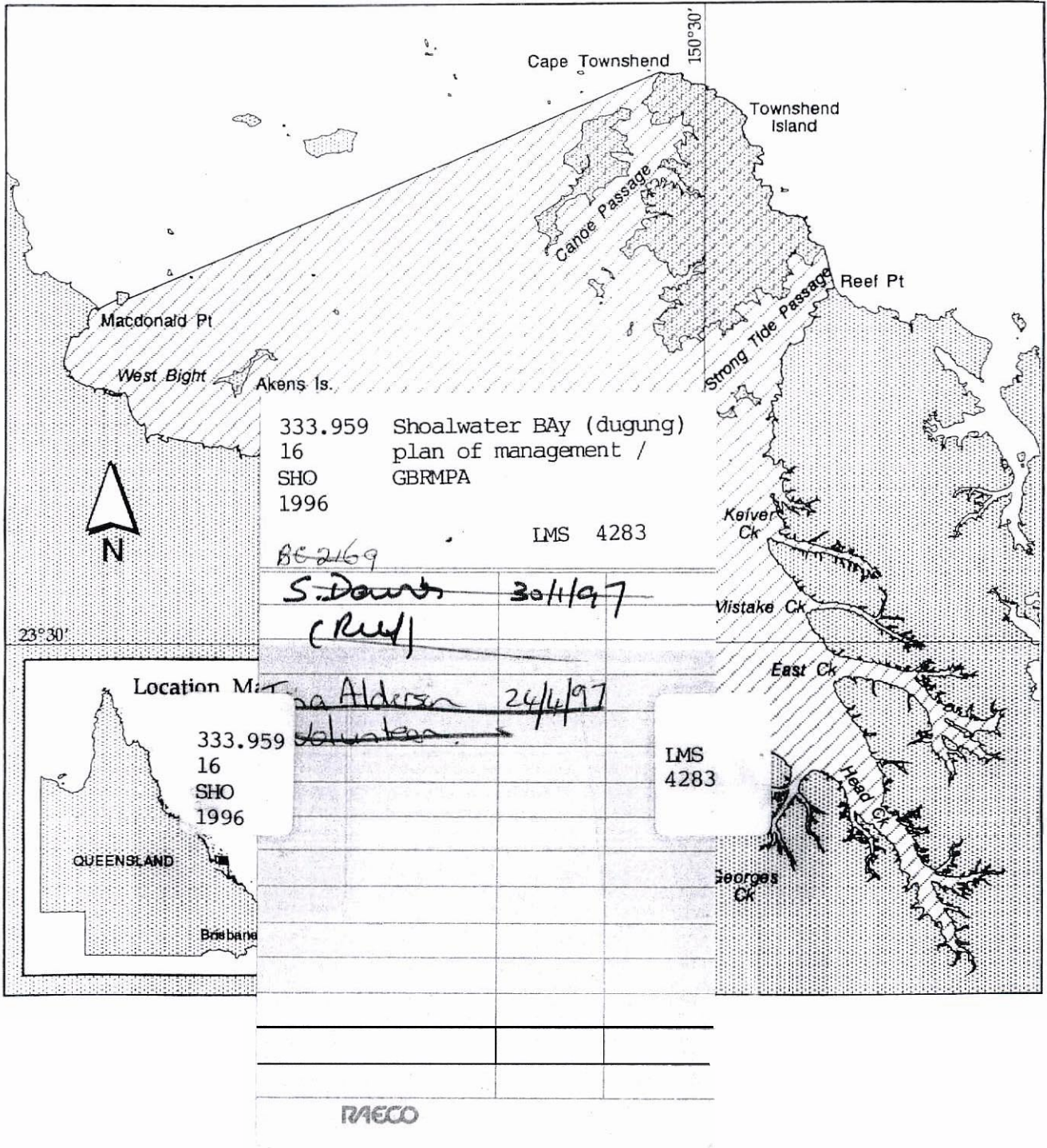
- 7.1 **A person must not interfere with a dugong, or the carcass of a dugong, in the Area, except in accordance with a written authority given by the Authority.**
- 7.2 **In this clause, "interfere with" does not include collect, whether by traditional hunting and gathering or by other means.**

SHOALWATER BAY AREA

The *Area* is that part of the *Marine Park* bounded by a line:

- (a) commencing at the easternmost intersection of the coastline of the mainland at low water by the parallel of latitude 22°19'38.6" south (that is, at Macdonald Point); and
- (b) running then generally north-easterly along the geodesic to the westernmost intersection of the coastline of Swan Island at high water by the parallel of latitude 22°19'19.8" south; and
- (c) then generally northerly, easterly and southerly along the coastline of that island at high water to the easternmost intersection of that coastline by the parallel of latitude 22°19'19.8" south; and
- (d) then generally north-easterly along the geodesic to the northernmost intersection of the coastline of Townshend Island at low water by the meridian of longitude 150°28'42.0" east, in the vicinity of Cape Townshend; and
- (e) then generally south-easterly, southerly, south-easterly and southerly along the eastern coastline of Townshend Island at low water to the easternmost intersection of that coastline by the parallel of latitude 22°17'50.8" south; and
- (f) then generally southerly along the geodesic to the northernmost intersection of the coastline of the mainland at low water by the meridian of longitude 150°33'55.1" east, in the vicinity of Reef Point; and
- (g) then generally south-westerly, southerly, south-easterly, westerly and north westerly along that coastline at low water to the point of commencement.

MAP OF AREA



NOTE

1. Notified in the *Commonwealth of Australia Gazette* on 20 November 1996.