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**IDENTIFICATION AND PROTECTION OF SPECIAL AREAS
AND PARTICULARLY SENSITIVE SEA AREAS**

Extension of Existing Great Barrier Reef PSSA to include the Torres Strait Region

Submitted by Australia and Papua New Guinea

SUMMARY

Executive summary: This document sets forth a proposal to designate the Torres Strait as a Particularly Sensitive Sea Area by extending the existing Great Barrier Reef Particularly Sensitive Sea Area. Two associated protective measures are proposed to prevent damage from international shipping activities:

1. Amendment of the existing charting measure in the waters of the Great North East Channel, Torres Strait to a Two-Way Route; and,
2. Extension of the present compulsory pilotage area into Torres Strait.

The Committee is asked to approve this proposal “in principle” at this session, inform the Sub-Committee on Safety of Navigation of this decision and subsequently approve final PSSA designation

Action to be taken: Paragraph 7.1

Related documents: Resolution MEPC.44(30), resolutions A.710(17) and A.927(22), MEPC 46/23 paragraph 6.19 and annex 13, MEPC 48/INF.14

1 Summary of the Proposal

1.1 Australia and Papua New Guinea propose the designation of the Torres Strait as a Particularly Sensitive Sea Area (PSSA) to protect this complex and vulnerable ecosystem. This proposal is consistent with the Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Assembly Resolution A.927(22)).

1.2 The objective of PSSA designation is to address the area’s vulnerability to damage by international shipping, increase marine safety and heighten seafarers’ awareness of the sensitivity of, and risks arising from navigation in, this area.

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1.3 Two associated protective measures are also proposed. The amendment of the existing charting measure in the waters of the Great North East Channel, Torres Strait to a two-way route through the Torres Strait and the extension of the existing Great Barrier Reef region compulsory pilotage area to the Torres Strait will improve the safety of navigation in an area where freedom of movement of shipping is considerably inhibited by restricted sea-room, and where there are obstructions to navigation, limited depths and potentially unfavourable meteorological conditions.

1.4 As indicated in MEPC 48/INF.14, this proposal follows a wide-ranging review of measures to promote ship safety and pollution prevention in the Great Barrier Reef and Torres Strait completed in 2002. This review followed the grounding of a container ship in a sensitive area of the Great Barrier Reef.

2 Description of the Area

2.1 The Torres Strait lies to the north and north east of Cape York and separates Australia and Papua New Guinea. It is about 90 nautical miles wide and 150 nautical miles long although useable routes for larger commercial vessels are limited to the Prince of Wales (PoW) Channel and the Great North East Channel (GNEC). These Channels are only a few hundred metres wide in places. The Strait has biogeographical importance as it represents the meeting of two ocean systems - the Pacific Ocean (Coral Sea) to the east and the Indian Ocean (Arafura Sea) to the west. The Strait was formed between 6000 and 8000 years ago, when the polar ice caps melted and the sea flooded the land bridge joining Australia and New Guinea.

2.2 The area is characterised by fast moving, shallow waters with 150 islands, islets, coral reefs and cays that support a complex array of marine life. The area is home to some 10,000 Indigenous Australian inhabitants, resident on 18 island communities, and some 20,000 Indigenous PNG nationals who live in the coastal villages both within and outside the Protected Zone declared under the terms of the Torres Strait Treaty. All of these people depend on the unique marine environment for subsistence fishing and gathering. Seafood consumption by these people is the highest in the world (Johannes and MacFarlane, 1991).

2.3 The complex and vulnerable ecosystems of the Torres Strait are characterised by extensive seagrass beds, resident dugong and turtle populations, coral reefs, sand cays, mangrove islands, inactive volcanic islands and granite continental islands.

2.4 The area lies within the exclusive economic zones of Australia and Papua New Guinea and includes some areas of the territorial sea and internal waters of both countries. The eastern boundary and part of the western boundary of the proposed PSSA aligns with the "nearest land" definition included in Annexes I, II, IV and V of MARPOL 73/78. The northern and a large part of the western boundary aligns with the Torres Strait Protected Zone (TSPZ) established by the Torres Strait Treaty between Australia and Papua New Guinea. Additional information on the Torres Strait Treaty is provided in Section 6.1 below. The coordinates of the proposed Torres Strait PSSA extension are set out in annex 1 as amendments to the existing Great Barrier Reef PSSA described in resolution MEPC.44(30). Annexes 2 and 3 are chartlets of the area showing the proposed boundaries and details of the new two-way shipping route respectively.

3 Significance of the Area: Ecological and Social, Cultural and Economic Criteria

3.1 Ecological Criteria

3.1.1 Uniqueness or Rarity

3.1.1.1 The area proposed for PSSA designation is the natural northern extension of the Great Barrier Reef, the largest coral reef system in the world. This area is subject to the influence of both the Pacific (Coral Sea) and Indian (Arafura Sea) Oceans. The tidal influences of these two ocean systems result in frequent anomalous tidal regimes and have a great effect on the area's biodiversity. The massive freshwater and sediment input from nearby coastal rivers, particularly the Fly River in Papua New Guinea, further influence this unique marine ecosystem. Benthic communities, fish assemblages, seagrass coverage and coral communities have all been well documented by a number of research organisations, including the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO). Work by CSIRO suggests that fish assemblages and communities near Mabuia Island are indeed unique to the area.

3.1.1.2 Extensive seagrass beds occur in the western and northern areas of the Torres Strait. The seagrass communities include mixed species reef-flat communities, as well as deep open coastline, mixed species open-ocean and subtidal *Halophila* communities. In the Warrior Reefs area a unique ecosystem of extensive seagrass on the reef-flat occurs. These seagrass beds support a population of dugong (*Dugong dugong*) estimated at about 14,000-24,000 making Torres Strait the most important habitat in Australia and probably the world. Dugong are listed as vulnerable to extinction in the International Union for the Conservation of Nature and Natural Resources (IUCN) Red Data Book of Threatened Species. These same seagrass beds also support a large population of foraging green turtles (*Chelonia mydas*) that are listed by the IUCN as endangered.

3.1.2 Critical Habitat

3.1.2.1 The Torres Strait provides critical habitats supporting commercial fisheries for tiger and endeavour prawns, Spanish mackerel, tropical rock lobster, reef fish, pearl oysters, trochus and beche-de-mer. A number of marine species of conservation interest listed under the Commonwealth Government's *Environmental Protection and Biodiversity Conservation Act 1999* also inhabit Torres Strait including 6 species of sea turtles, dugong, cetaceans, sawfishes (Family Pristidae), sea snakes, pipefish and seahorses.

3.1.2.2 Coral reefs and shoals along the edge of the continental shelf at the eastern end of the Torres Strait make up the northern-end of the Great Barrier Reef and provide habitat for a huge diversity of coral reef associated species. Coral reefs also make up the Warrior and Wapa Reef complex in the central Torres Strait and fringing reefs around the Torres Strait islands can be found on submerged rock outcrops in the western Torres Strait (Long *et al.* 1997). Hard corals, gorgonians, sponges and algae make up a significant part of extensive epibenthic 'garden' communities that attach to the sandy seabed in the western Torres Strait. Historically, the central and western Torres Strait has been the main collecting areas for the pearl industry (Williams, 1994).

3.1.2.3 The extensive seagrass habitats and number of seagrass species in the Torres Strait are the largest in Australian waters. Twelve seagrass species cover an estimated 17,500 km² (Poiner and Peterken, 1995). Distinct seagrass communities occur in Torres Strait including mixed reef top communities and open-ocean deepwater seagrasses.

3.1.2.4 Seagrass beds occur atop many reefs of the Torres Strait. During the early stages of the life cycle of commercial species of tiger and endeavour prawns, reef top seagrass beds provide shelter and feeding areas for juvenile prawns. Seagrass beds are crucial to the continued health and productivity of the Torres Strait prawn fisheries. The extensive and dense seagrasses on the large Warrior and Wapa Reef complex is one of the main reef-top seagrass nursery areas for the Torres Strait prawn fishery. High densities of juvenile prawns live in these seagrass beds throughout the year and migrate out into the fishery east of the Warrior Reefs. Also, the Warrior Reefs have historically been one of the major collecting areas for beche-de-mer in the Torres Strait.

3.1.2.5 Mangrove communities fringe the coral reef lagoons of the continental islands of Torres Strait (eg Badu Island) or form luxuriant stands on the low mud islands close to the Papua New Guinea coast (eg Boigu and Sabai Islands). Extensive stands of mangroves also occur on Cape York Peninsula. An estimated 20,000 ha of mangrove communities inhabit sheltered shorelines between Temple Bay and the Doughboy River (Danaher, 1995). Mangroves are important habitats for marine species in the diet of mainland Indigenous people and some Torres Strait Islanders (eg barramundi and mud crabs). A significant percentage (about 10%) of mangrove communities of the Cape York Peninsula are located along shorelines in or adjacent to the Torres Strait (Danaher, 1995). The most northerly reported incidence of the mangrove palm (*Nypa fruticans*) on the Australian mainland occurs in the Jardine River adjacent to the Torres Strait.

3.1.2.6 Deliverance Island (Warul Kawa) in western Torres Strait and Crab Island in southern Torres Strait provide the only breeding sites for the endemic and endangered flatback turtle (*Chelonia depressa*), while Sassie Island in central Torres Strait is the largest hawksbill (*Eretmochelys imbricata*) rookery in the world. These sites are of international significance. Limited terrestrial surveys undertaken have also found at least two endemic species, the nationally important Moa Island flying fox and the critically endangered Bramble Cay Mosiac-tailed Rat (*Melomys rubicola*). It is estimated the Bramble Cay *Melomys* population is down to 93 animals, making it vulnerable to any further ecosystem impacts.

3.1.2.7 The Torres Strait islands are also important for seabirds with Bramble Cay and other islets supporting many thousands of Common Noddies and Sooty Terns as well as smaller numbers of Brown Boobies and Crested, Black-naped and Bridled Terns. A major pelican rookery occurs at Kerr Islet. Many small gull and tern rookeries also occur throughout Torres Strait. The intertidal reef flats, especially in central and western Torres Strait are also important stop over foraging sites for migrating waders.

3.1.3 Dependency

3.1.3.1 The exchange of water between the Pacific and Indian Oceans through the Torres Strait is impeded by a maze of islands, reefs and shoals. However, strong local tidal currents can occur because of asynchronous tidal cycles in the Coral Sea and Arafura Sea. Sand and mud sediments are stabilised by the extensive shallow water seagrass habitats over much of the area west of the Warrior Reefs. This provides the structural habitat needed to harbour and feed the young of commercial prawn species. Water conditions in the western Torres Strait are shallow and turbid, due to suspended sediment in river runoff and their transport and re-suspension by tidal currents. Consequently, coral growth is poor in the western Torres Strait. To the east of the Warrior Reefs, the water is clearer and deeper which allows for greater growth of a diverse range of coral species. Significant reef associated species support commercial and indigenous fisheries in the eastern Torres Strait (e.g., rock lobster and Spanish mackerel).

3.1.3.2 The Torres Strait ecosystem is primarily based on healthy seagrass beds, mangrove islands and coral reef tracts. The extensive seagrass beds are a particularly important feeding ground for dugong and provide critical breeding conditions for the local prawn and lobster industries. The area also supports the breeding and feeding of three very important species of marine turtle. If these areas were harmed it would have a significant impact on these important species.

3.1.4 Representativeness

3.1.4.1 Torres Strait is an area of rich geographical, ecological and cultural diversity. It is characterised by a unique combination of tidal regimes, shallow waters, geological diversity and significant freshwater inputs from mainland PNG. These characteristics generate a continual modification to the system and cause significant variations and diversity in the marine habitat and its biota.

3.1.5 Diversity

3.1.5.1 Coral reefs and clear waters occur in the eastern part of the Torres Strait and are closely related to the northern area of the Great Barrier Reef. Distinctive deltaic reefs occur on the eastern edge of Torres Strait. These support a rich fauna of reef fish, molluscs, echinoderms and crustaceans. Mangrove forest communities are a dominant feature of sheltered coasts, bays and estuaries throughout the Torres Strait and its islands with close to forty species being recorded. Variations in geology, topography, salinity and tidal regimes result in a great variety of structures.

3.1.6 Productivity

3.1.6.1 Torres Strait is a biologically productive area whose waters yield large amounts of seafood for local consumption and for sale throughout Australia and overseas. Its natural productivity is far higher than other areas of the tropical Australian coastal shelf because its fast flowing tidal currents generate a more diverse and unique array of seabed habitats.

3.1.6.2 The prawn, rock lobster and Spanish mackerel fisheries contribute substantially to the economy of northern Australia (Table 1) and the Strait produces small quantities of beche-de-mer, trochus and pearls. Pearls from the Torres Strait are considered very high quality in Japanese markets and the Strait's blister pearls are among the best in the world. Reef and other finfish are also taken. Catches between 1988 and 1998 averaged about 86 tonnes per year.

Table 1. Torres Strait Fishery Production Estimates for 1999-2000

Fishery	Approximate Catch (tonnes)	Estimated Value (A\$ million)
Prawns	1800	27
Tropical Rock Lobster	360	5.4
Spanish Mackerel	390	2.4
Pearl Culture	-	0.4
Beche-de-mer	50	not available
Trochus	25	not available

3.1.7 Spawning and Breeding Grounds

3.1.7.1 The area proposed for designation as a PSSA is an important migratory route for several sea bird species, with the Torres Strait providing an important stop over for many migratory birds and marine mammals. Humpback whales frequent the area around the Murray Islands (Mer) and Darnley Island (Erub) during their northerly migration to calving grounds. Booby Island is an important stopover for a wide range of migratory seabirds.

3.1.7.2 Tropical rock lobsters migrate through Torres Strait waters from their feeding areas in the northern Great Barrier Reef and the Warrior Reefs to their breeding grounds in the Gulf of Papua and deepwater reefs along the edge of the continental shelf outside the far northern Great Barrier Reef. The Strait plays an important role in the rock lobster breeding cycle, as the lobster spawn in Papua New Guinea, travel south through the Strait with the tides, develop into adults in the Strait and then migrate north again. There is usually a 'hookah ban' (fishing restriction) during this time, developed under the auspices of the Torres Strait Treaty between Australia and Papua New Guinea.

3.1.7.3 Shallow water habitats with firm substrates, coral reefs and shoals of Torres Strait support fisheries based on sedentary bottom-dwelling animals including beche-de-mer, trochus and pearls. These animals rely on specific local circulation patterns created by tidal currents through the areas they inhabit to maintain their populations.

3.1.7.4 Torres Strait is extremely important for sea turtles. Six species of turtle occur: green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), olive ridley or Warana (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), leatherback (*Detmochelys coriacea*) and flatback (*Natator depressus*). Torres Strait supports one of the world's few remaining major hawksbill breeding grounds with rookeries in western, central and eastern Torres Strait especially Sassie (largest recorded), Hawksbury and Dayman Islands. Important hawksbill rookeries also occur on Zuizin, Mimi, Bourke, Aukane, Layoak, Bet, Saddle, Dadalai, Albany and Mt Adolphus Islands. The flatback rookery at Crab Island, near Bamaga supports several thousand nesting females annually making it the world's largest rookery for this species which nests only in Australia.

3.1.7.5 The islands running north from Hawksbury to Deliverance Island are another major flatback turtle rookery area. Bramble Cay and Murray Island support moderate levels of green turtle nesting. Torres Strait is also an extremely important migratory route and courtship area for the world's largest population of green turtles that breeds just south of Torres Strait on Raine Island in the northern Great Barrier Reef. Even though these turtle populations are large, they are not secure. The hawksbill turtle stock is declining at a serious rate; the green turtle population is believed to be in the early stages of population decline and the flatback population is also possibly declining. As Torres Strait is a major breeding ground for turtles it has also been recognised that some of the turtle population has a local gene pool unique to the Torres Strait.

3.1.7.6 In addition to providing moderate levels of green turtle nesting, the area around Bramble Cay is also an important annual spawning ground for a range of pelagic species, including the commercially important Spanish mackerel. The Torres Strait forms the boundary between two major genetically distinct Spanish mackerel stocks in Australian waters – a stock distributed across northern Australia and a stock distributed along the Australian east coast. Bramble Cay in the north-east Torres Strait is a significant spawning site for the northern stock that migrates seasonally between the Torres Strait and Gulf of Carpentaria.

3.1.8 Naturalness

3.1.8.1 Due to low population pressure, only 18 islands are inhabited. The Torres Strait thus retains a high degree of natural and wilderness value.

3.1.9 Integrity

3.1.9.1 The conservation of the Torres Strait depends on the maintenance of key physical processes, water quality and habitats. Local impacts are present in the marine environments but are generally limited to the near proximity of inhabited islands.

3.1.10 Vulnerability

3.1.10.1 Large-scale impacts on Torres Strait's fisheries resources and habitats have been documented and are suspected as being caused by pollution from both human-induced and natural events. For example, high mortality of oysters in pearl farms and serious depletion of major juvenile pearl collecting beds in the western Torres Strait followed an oil spill and clean up operation when the *Oceanic Grandeur* grounded in Torres Strait in 1970. Pearl oyster stocks are also subject to variation from natural causes including seasonal cyclonic weather patterns.

3.1.10.2 The Torres Strait is a migratory bottleneck for the movement of turtles travelling from eastern Indonesia and northern Australia to the nesting beaches in Torres Strait and the northern Great Barrier Reef. Negative impacts on the ecosystem of this small area of shallow seas could have a very detrimental impact on the total population of the endangered green, hawksbill and flatback turtles.

3.1.10.3 Significant natural seagrass die-back was reported in the north-western part of the Torres Strait between 1989 and 1993. Sedimentation and persistent water turbidity are thought to have contributed to a 10% loss of seagrass habitat in the Torres Strait, after major flooding of the Mai River on the Papua New Guinea coast.

3.1.10.4 Because of the limited water exchange in and out of Torres Strait, there are concerns that if Torres Strait water became polluted it would probably remain in the Strait for some time (Williams, 1994). This may pose a risk of adverse and prolonged impacts on ecological communities, indigenous and commercial fisheries and the life style of Torres Strait Islander people. The vulnerability of the Torres Strait is also underlined by the information on vessel traffic characteristics and potential harm set out in Section 4, below.

3.1.11 Bio-geographic Importance

3.1.11.1 The Torres Strait contains a variety of biogeographical qualities ranging from mangrove islands of terrigenous origin in the north, through to the sand cays in the central region, to the highly fertile volcanic islands in the east, to the granitic terrestrial islands in the west.

3.2 *Social, cultural and economic criteria*

3.2.1 Economic Benefit

3.2.1.1 Torres Strait is a remote area with a relatively low density of human habitation. Several thousand people live in small coastal communities on Cape York, on the islands off the southern coast of Papua New Guinea and on the larger islands of the Torres Strait itself. Indigenous people

of the Torres Strait traditionally hunt dugong and turtle and fish for a variety of marine species for food. Surveys indicate that the consumption of seafood by Torres Strait Islanders is amongst the highest in the world on a per capita basis.

3.2.1.2 The Australian Government policy and practice is to manage the shallow productive waters of Torres Strait in an ecologically sustainable manner. A commercial fishery estimated at 2,000 tonnes contributed approximately A\$35 million to the Australian economy in 1999/2000. The largest proportion of the catch is from the prawn and tropical rock lobster fisheries. They provide the source of stock for northeast Australia and southern Papua New Guinea. The fisheries around Warrior Reefs alone are worth \$12 million annually, which is the main source of income for the region. There is also a smaller fishery based on pelagic species such as Spanish mackerel and aquaculture (notably pearl culture).

3.2.1.3 The Strait supports major fisheries providing seasonal jobs and income for commercial fishers and traditional use by Indigenous people. In 1999, the Torres Strait fisheries had the following levels of participation:

- 79 licensed vessels in the prawn fleet;
- 277 licensed vessels in the rock lobster fishery and between 300 and 400 dinghies also operated from island and northern Cape York communities under community licensing arrangements;
- 347 licensed vessels in the Spanish mackerel fishery and up to 1,125 vessels operated under Indigenous community arrangements;
- 11 traditional inhabitant vessels authorised for the net fishery;
- 46 traditional inhabitant vessels and one non-Islander vessel operating in the reef line fishery;
- 28 vessel licences in the trochus fishery and an unknown number operating under community arrangements; and,
- 29 traditional inhabitant vessels have been licensed for the beche-de-mer fishery and a large number of dinghy-based operations continue to work under community fishing arrangements.

3.2.1.4 The Torres Strait Regional Authority (TSRA) and the Island Coordinating Council (ICC) endorsed in 1998 a Marine Strategy for the Torres Strait, which incorporates Torres Strait residents' desire to manage and maintain their unique environment. It facilitates marine, coastal and island management planning and enables Torres Strait Islanders and other local residents to work more effectively with the Queensland and Commonwealth Governments. A copy of the Strategy can be accessed on the TSRA website at www.tsra.gov.au. The TSRA have an Aquaculture Development Steering Committee and aquaculture is expected to grow as an important part of the economic development of the Torres Strait.

3.2.1.5 Pearl farms operate on Friday, Badu, Prince of Wales, Little Roko and Albany Islands. The income generated by this activity is difficult to estimate. Pearl shell, beche-de-mer and trochus have previously been of economic importance but are now in decline. The geographically extensive natural pearl shell grounds, while over harvested in the late 19th and early 20th centuries have begun to make a slow recovery. As mentioned previously, Torres Strait pearls have a reputation for excellent quality in the Japanese and world market.

3.2.2 Recreation/Tourism

3.2.2.1 Torres Strait has a small but expanding tourism industry. Tourism facilities exist at Punsand Bay, Seisia, Injinoo, Thursday Island, Horn Island and Coconut Island with further development planned for Entrance Island.

3.2.2.2 Tourism and recreation are closely related. Much of the tourism activity is based on opportunities to undertake outdoor recreation activities. The same outdoor recreation activities are undertaken by local residents. Tourists and local residents undertake those outdoor recreation activities in locations that have environmental and cultural attributes that are distinct, if not unique, to the Torres Strait. Outdoor recreation activities including swimming, SCUBA diving, snorkelling, fishing, motor boating, canoeing, sea kayaking and sailing are an important part of the lifestyles of many residents of the Torres Strait and the adjoining regions.

3.2.2.3 The distinctive cultural practices of the Torres Strait Islanders and opportunities to participate in outdoor recreation activities on the reef and islands are the cornerstones of tourism in the area. Torres Strait encompasses a wide range of land and seascape features including mangrove areas, coral reefs, sand cays and continental islands. The rugged, wild, and often remote, nature of these settings and the culture of the Indigenous peoples living in Torres Strait are important components of the overall visitor experience.

3.2.2.4 Thursday Island is a stop off destination for the more adventure-orientated cruise shipping trips. Most vessels cater to the 'boutique' market specializing in smaller vessel adventure cruising. For cruise ship passengers Thursday Island offers an opportunity to experience south Pacific Islander culture. Approximately 12 cruise ships visit Thursday Island each year and this number is increasing. There are also regular cargo vessels and yachts trading between Cairns and Thursday Island that cater for the 'backpacker' /adventure cruise market. Income is earned locally by providing passenger transfers from larger cruise ships using the quarantine anchorage and inbound day sightseeing trips to Thursday and neighbouring islands.

3.2.2.5 Usually, due to draft restrictions all but the more shallower draft small boutique cruise vessels are unable to come alongside and instead use the quarantine anchorage on the northern side of Friday Island. This is off the Inner Route and Prince of Wales Channel. The current quarantine anchorage off Friday Island is 3nm from Thursday Island. Cruise vessels are not permitted by law to use their own boats for passenger transfers greater than 2½nm. As a consequence a dumb barge is sent out from Thursday Island which is lashed to the lee side of the anchored passenger vessel and local water taxis and other small passenger craft provide the transfer services to Thursday Island and short sight seeing trips to the other islands.

3.2.2.6 The Aboriginal and Torres Strait Islander Commission has identified tourism as one of the three major goals (along with cultural and rural industries) for Aboriginal and Torres Strait Islander economic development. Torres Strait tourism is still in its infancy and with little baseline data accurately captured, has yet to have its economic contribution to the region quantified. Regional air service providers and charter boat operators advise that significant tourism growth is occurring in the region leading to increased private sector investment and employment. The environmental and cultural attributes of the Torres Strait and the labour intensive nature of the tourism sector, point to tourism as a key growth industry for the region in terms of sustaining the region's natural and cultural values, generating much needed employment and creating economic self-sufficiency.

3.2.2.7 Outdoor recreation and tourism in the Torres Strait is substantially dependent upon marine water quality. There is a growing demand for high quality remote, semi-remote and adventure outdoor recreation opportunities in exotic locations. The diversity of recreation activities and settings available in the Torres Strait region makes a significant contribution to the economy and to the quality of life of the region's residents.

3.2.3 Human Dependency

3.2.3.1 The population of the region is spread over 18 inhabited islands and two communities on the tip of Cape York called the Northern Peninsula Area (figure 1). Torres Strait Islander people predominantly inhabit the region. Torres Strait Islanders are Melanesian people, ethnically related to other Melanesians of the south-west Pacific. Torres Strait Islanders possess strong seafaring and trading traditions, and are bound to the sea by their customs, lifestyle and history.

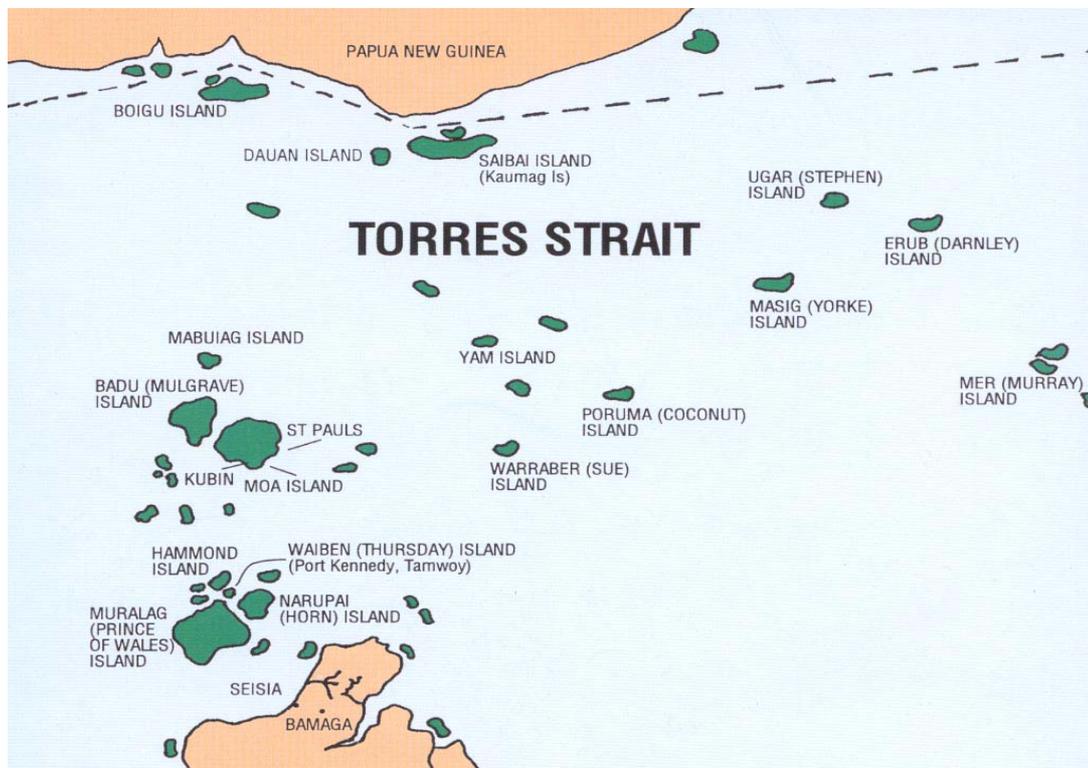


Figure 1: Indigenous and European Names of Torres Strait Islands

3.2.3.2 Torres Strait Islanders as a separate race of Indigenous people within Australia have a distinct culture referred to as Ailan Kastom (Island Custom) which provides a strong identity to all Torres Strait Islanders. This involves a range of cultural customs, traditions, observances and beliefs that form the basis of social organisation amongst Torres Strait Islander people. Ailan Kastom includes old traditions and new practices and is exemplified in many events including the celebration of special occasions with dancing and feasting, celebrating marriages, funerals, tomb stone openings, dugong/turtle hunting and rites of passage. Traditional fishing is an important way of life and references to sea animals, reefs, islands and the ocean are integral to Islander legends.

3.2.3.3 The Torres Strait Islanders are heavily reliant on the natural living resources of the region for both income generation and subsistence, including the traditional use of resident dugong and turtle populations. Seafood is the dominant traditional animal food in the Islander diet and Torres Strait Islanders are amongst the world's highest consumers of seafood. The living resource values of the region are very high.

3.3 Scientific and educational criteria

3.3.1 Research

3.3.1.1 The culture, marine ecosystems and fisheries of the Torres Strait are of high scientific interest and have been heavily researched with extensive studies being carried out to define the environmental values of the area as part of the Torres Strait Treaty negotiations. The Torres Strait Treaty between Australia and Papua New Guinea was ratified in 1985 and outlines both countries' rights and responsibilities in relation to Torres Strait. The Treaty defines the area to which the treaty applies, called the 'Torres Strait Protected Zone', and how the two countries should protect the marine environment and native flora and fauna in the Protected Zone. In addition, the Treaty protects the future of traditional and commercial fisheries through conservation and management. Research on the biological systems of the Torres Strait is an important area of activity for information to achieve conservation and sustainable use of the Strait's marine resources. Fisheries research has until recent years been in the order of \$750,000 per year. Research has also been used to protect the traditional way of life and the livelihood of the Torres Strait Islanders.

3.3.2 Baseline and Monitoring Studies

3.3.2.1 Arising from the Treaty based negotiations, a Torres Strait Baseline Study was conducted to research possible effects on the marine environment of the Torres Strait from mining operations in the Fly River catchment area of Papua New Guinea. Since the Treaty was ratified, there has been major research into physical processes, biological communities, fisheries and scientific monitoring in the Torres Strait. Foci of significant research include:

- physical processes such as tidal modelling (Bode and Mason 1995) and marine sedimentary processes (Harris, 1995(a)) and
- Torres Strait traditional fishing, tropical rock lobsters, beche-de-mer and effects of trawl fishing conducted by the CSIRO (eg Pitcher *et al*, 1991, Skewes *et al*, 2000).

3.3.2.2 Monitoring studies include:

- mapping of mangrove and seagrass communities in Cape York Peninsula (Danaher, 1995);
- monitoring of the status of commercial prawn stocks in the Torres Strait on an annual basis (eg Kung *et al*, 2002);
- a marine Geographic Information System for Torres Strait established by CSIRO as a tool to assist research and fisheries management. The GIS has been used to demonstrate a large-scale decline in seagrass in the north-west Torres Strait (Long *et al*, 1997);
- environmental levels of trace metals in sediments, indicator organisms and traditional seafoods consumed by Torres Strait Islanders (Gladstone, 1996) carried out by the Great Barrier Reef Marine Park Authority as part of the *Torres Strait Baseline Study* – an environmental impact assessment of the impacts of mining in the Fly River catchment on the Torres Strait; and
- a comprehensive assessment of heavy metal concentrates in Torres Strait environment and traditional seafoods between 1997 and 2000 (Haynes and Kwan, 2001).

3.3.3 Education

3.3.3.1 The area provides a unique demonstration of the effects of strong tidal currents on shelf sediment properties.

3.3.3.2 Sea level rises commencing about 15,000 years ago ceased about 6,500 years ago (Harris 1995 (b)). Once part of a bridge of dry land that connected Australia with New Guinea, the formation of Torres Strait occurred only relatively recently and is barely 8,000 years old (Hopley, 1993). The Torres Strait is a patchwork of islands, reefs and shoals, a substantial part of which still awaits proper survey. Strong tidal currents also occur through the Strait the result of the intersection of two dissimilar tidal regimes in the Coral Sea and Gulf of Carpentaria (Bode and Mason, 1995).

3.3.3.3 Torres Strait waters are well mixed due to strong tidal currents oscillating through a dense reef and island matrix causing resuspension of sediments and distribution of nutrients through the water column. Productivity of phytoplankton is high but limited to surface waters because the water column is turbid and shallow (Furnas, 1995).

3.3.3.4 The Torres Strait is one of the few areas of the Australian continental shelf where measurement of shelf sediment properties has been undertaken in relation to other environmental parameters (Harris, 1995 (a)). Strong tidal currents through channels in the Warrior Reefs and the Torres Strait islands to the west scour the seabed of loose sediments. Gravel and limestone pavement sediments occur where the tidal currents reach their maximum. These high-energy areas also support the highly specialised epibenthic communities mentioned in paragraph 3.1.2.2 above. (Long *et al.* 1997).

3.3.3.5 Particles small enough to be moved by the current are broken down as they move across the seabed. Fine sediments are deposited in the waters of the central Torres Strait where they are subject to re-suspension by waves and tidal action. This contributes to the consistently high turbidity of waters of the central Torres Strait (Harris, 1995(a)).

4 Other Considerations

4.1 Vessel Traffic Characteristics

4.1.1 Operational Factors

4.1.1.1 The Torres Strait, including the Great North East Channel, is used primarily by large vessels trading between ports in southern Asia, Australia and New Zealand, South America, Papua New Guinea and Pacific Island nations although the majority of tanker traffic bound for the Australian east coast refineries also uses it to link with the outer route of the Great Barrier Reef. Vessels entering or leaving the inner route of the Great Barrier Reef also use the Prince of Wales Channel at the western end of the Torres Strait.

4.1.1.2 In March 2002, there were 413 recreational vessels greater than 10m overall length registered within the Torres Strait Council. As indicated above (see 3.2.1.3), there are a large number of licensed fishing vessels and traditional fishing craft existing outside this category that operate in Torres Strait waters.

4.1.2 Traffic Characteristics

4.1.2.1 In the 12-month period to November 2002, 1008 different vessels used the Torres Strait, making a total of 3,136 voyages.

4.1.2.2 Parts of Torres Strait are isolated, remote and very demanding on the navigator. Passage through these waters also involves navigation within confined waters for long periods, with limited depths of water being a constant threat. The average depth of the Torres Strait is 30-50 metres in the east and 10-15 metres in the west. Tidal streams can be strong and variable. Most of the region has a monsoon climate and visibility is frequently adversely affected by seasonal rain squalls. The area as a whole is subject to seasonal tropical storms and cyclones.

4.1.2.3 There are narrow fairways and areas of converging traffic that, while not heavy by some standards, represent a wide range of ship types from a variety of flag states, carrying a variety of cargoes, including dangerous goods and potentially polluting materials. Ships navigating the area may encounter concentrations of fishing vessels, tourist vessels and recreational craft that, by their very numbers, increase the dangers of marine incidents.

4.1.2.4 The two areas of greatest concern, having regard to navigational risk are Prince of Wales Channel and Vigilant Channel. A spill occurred in Prince of Wales Channel in 1970 (*Oceanic Grandeur*) and numerous other groundings and near misses have occurred due to the combination of shallow water, narrow channels, strong tidal streams and strong winds. The most recent incident occurred in September 2002 when the Philippines registered bulk carrier *Aegean Falcon* grounded on Herald Patches in the Torres Strait. There was no pilot on board the vessel at the time of the grounding. While in this incident the vessel grounded on a sandy bottom and was refloated without any pollution damage, the vessel was well outside the normal shipping route, and there was potential for a major spill. Had the vessel not grounded on the sandy bottom, it is highly likely that the vessel would have grounded on a rock outcrop several nautical miles further along the vessel's intended track.

4.1.2.5 The Prince of Wales Channel passes between the fringing coral reefs of Goods, Hammond and Wednesday Islands and is 1,500 metres wide at its narrowest point between Sunk and Mecca Reefs. At the eastern end of the Prince of Wales Channel the route is between Alert and Herald Patches, where the channel narrows to 800 metres. Both of these Patches are sand waves.

4.1.2.6 This Channel is subject to high rates of tidal stream and the tidal patterns are complex due to the confluence of two ocean systems in that area. The recommended maximum draft for ships passing through Gannet Passage is 12.2 metres which, for a large percentage of ships, provides an underkeel clearance of one metre at the higher stages of the tide cycle. Careful calculations are required by Masters and pilots of deep draft vessels to establish the timing of "tidal windows" for their passage through the Strait.

4.1.2.7 The navigation of Vigilant Channel is also of considerable intricacy as it requires two major course changes exposing large ships to substantial windage problems and the consequence of the east-west tidal set on the beam.

4.1.2.8 The Endeavour Strait lies between the Australian mainland and Prince of Wales Island in the south western sector of the Torres Strait region. Endeavour Strait can only be used at present by small ships as the western end is blocked by a sand bank with depths of between 6 and 7 metres. The remainder of Endeavour Strait appears to have depths of 10 to 15 metres.

However, many of these survey depths were originally measured by leadline and cannot be considered accurate enough to be recommended for safe use by larger vessels.

4.1.2.9 Most of the ships using Endeavour Strait are in the 50-70 metre range and operate from Queensland ports along the inner route of the Great Barrier Reef, trading into ports in the Gulf of Carpentaria and Torres Strait islands and this contributes to potential traffic conflicts in the proposed PSSA.

4.1.3 Harmful Substances Carried

4.1.3.1 In the absence of any limitations on the movement of particular types of cargo, the full range of materials listed in the International Maritime Dangerous Goods Code are carried through these waters, either as containerised deck cargo or in bulk. This includes hazardous wastes, chemical products and raw materials (including pesticides), bulk fertilisers, bulk cereals, crude oils, fuel oils and petroleum products, bulk coal, mineral concentrates, etc. Very few cargoes, if released in the event of a maritime incident, would not have an environmental impact. Even a completely inert cargo, such as fine silica sand, could smother seagrass beds with a significant impact on dugong feeding and prawn and lobster breeding.

4.2 *Natural Factors*

4.2.1 Hydrographical

4.2.1.1. Vessels transiting the Torres Strait will use either Varzin or Gannet Passages in the west, Prince of Wales Channel in the central section and then either the Great North East Channel linking Torres Strait to the Coral Sea or the Inner Route of the Great Barrier Reef to the south. Sections of the Torres Strait route are shallow and draught critical for vessels drawing more than 9 metres. Again, careful use must be made of “tidal windows” for transiting the Strait. There are no alternatives to this route through Torres Strait.

4.2.1.2. Under-keel clearances for many vessels using the Strait are tide dependent. A confluence of two ocean systems makes the tidal height regime extremely complex. Fluctuating sea levels at both ends of the Strait result in the actual tidal height frequently deviating from that predicted and a system of transmitting tide gauges is used to provide real-time tidal information. Tidal streams are strong and variable with rates of up to 8 knots regularly experienced.

4.2.1.3. The sea-floor in some draught critical areas comprises sand-waves which cause short term and unpredictable variations from the charted depths. The sea-floor in draught critical sections of Prince of Wales Channel is known to comprise hard rock with the potential to seriously damage a vessel’s hull or a grounded vessel.

4.2.1.4 The standard of hydrographic surveys for this shipping route are uniformly high. Modern charts of a suitable scale are available for this route. A vector Electronic Navigational Chart database is available for use with the Electronic Chart Display and Information System.

4.2.2 Meteorological

4.2.2.1 Although the barrier of reefs and islands prevent ocean swells from entering Torres Strait, meteorological conditions have a significant influence on sea conditions.

4.2.2.2 The weather is dominated by alternating periods of wet and dry. The dry season, from May to October, is characterised by the south east trades, blowing persistently with speeds

over 20 knots for approximately two-thirds of this time. A period of relative calm follows with winds slowly veering and backing to northerly between November and December. This period is accompanied by increasing humidity and occasional thunderstorms.

4.2.2.3 From late December to April the north west monsoon season sets in bringing frequent but isolated squalls and storms. Winds often gust to 60-70 knots for a few hours and are accompanied by torrential rain. Passing tropical cyclones in the Gulf of Carpentaria and Coral Sea influence the Strait at this time but cyclones *per se* are infrequent in Torres Strait itself.

4.2.3 Oceanographic

4.2.3.1 The unique position of Torres Strait as an interface between the diurnal tidal regime of the Indian Ocean and the semi-diurnal tidal regime of the Pacific Ocean generates highly variable and unpredictable tides with tidal streams as fast as 8 knots in some channels. Unpredictable variations in sea level may be encountered and even the most sophisticated computer models normally used to predict water movements for search and rescue and oil spills are of little value under these conditions.

4.2.3.2 It is understood that the meeting of the eastern and western tidal systems is usually in evidence along a NNE/SSW line about 15 miles to the west of Badu Island. Tidal streams through the Great North East Channel are known to attain 8 knots at times, the set being across the main shipping channel.

4.2.3.3 In the southern part of the Strait, tidal streams vary in velocity from channel to channel, they also vary greatly with moon phase, prevailing wind and local bathymetry. The shallowness of the Strait allows sustained winds to establish significant sea level differences. In the north of the Strait, tidal levels have been measured at the equivalent of low water springs at one location while twenty nautical miles to the east, levels have been recorded similar to high water springs.

4.2.3.4 Large trading vessels rely on tidal height predictions and real time information from three broadcasting tide gauge facilities located in Prince of Wales Channel for passage planning. Information on tidal streams is derived annually by the Royal Australian Navy Hydrographer based on a 1940's formula. Anecdotal feedback suggests the forecast tidal streams are currently not always reliable. A project has commenced to address this problem (see paragraph 5.4, below).

4.3 Potential Harm

4.3.1 In Torres Strait there is an extremely high rate of water movement due to currents, tidal streams and surface winds. In the event of an oil or chemical spill, this would result in the rapid movement of oil or chemical plumes, possibly to even more remote areas. Logistical problems associated with moving response personnel and equipment to remote areas and the fact that much of Torres Strait is unsurveyed may cause considerable difficulties in mounting an on-water response to an oil or chemical spill.

4.3.2 The extremely high cultural, social and economic significance of marine resources to the people of Torres Strait could lead, in the event of an oil or chemical spill, to a total failure of their subsistence fisheries and abandonment of affected islands, or a completely imported diet, until the marine ecosystem re-established itself.

4.3.3 In March 1970, the tanker *Oceanic Grandeur* grounded on an uncharted rock off Wednesday Island in the Torres Strait. Between 1,400 and 4,100 tonnes of oil was released sporadically over several weeks while a ship-to-ship transfer was undertaken to remove the cargo of 55,000 tons of crude oil. While the oil impacted on mangroves on a number of islands in the Strait, favourable weather conditions and use of dispersants minimised the extent of environmental damage. The impact on those mangroves affected by the spill is, however, still evident. A 1997 study found a recovery rate of 75% some 27 years after the oil spill (Duke *et al*, 1997).

4.3.4 The three most recent serious groundings on the Great Barrier Reef (*Bunga Teratai Satu* on Sudbury Cay and both the *Peacock* and *Doric Chariot* on Piper Reef) did not generate any oil spills. However, they each required considerable assistance with refloating and resulted in severe localised damage to the impacted coral communities due to poisoning by antifouling paints abraded from the hulls.

4.3.5 Many minor groundings, where no assistance is required, may go unreported. In September 2002, the coal carrier *Aegean Falcon* ran aground in an area of highly mobile sandbars in Herald Patches near the eastern end of Prince of Wales Channel. The *NOL Amber* ran aground on Larpent Banks in November 1997 while waiting for sufficient depth of water to enter the western approaches to Prince of Wales Channel. The toxicity and persistence of TBT anti-fouling paint in the environment makes any ship grounding a potentially significant environmental issue with a high risk of long-term impact on local biodiversity at the grounding site. The high tidal streams in Torres Strait can readily spread the impact of the abraded anti-fouling paint over a much wider area. TBTs are of such high toxicity that they can have a detrimental impact on marine ecosystems at the level of a single nanogram per litre, that is one gram in a thousand megalitres. Minor groundings can also introduce invasive marine organisms with potentially serious long-term consequences on biodiversity.

5 Associated Protective Measures

5.1 Two associated protective measures have been identified to protect the Torres Strait.

5.2 The first is the amendment of the existing charting measure in the waters of the Great North East Channel, Torres Strait to a two-way route through the Torres Strait. The original charted route through the GNEC was surveyed and selected in 1945. Since that time ships have increased significantly in size, draught and in the range of cargoes that they carry.

5.3 The initiative for a new GNEC route arose during a study of shipping in the area undertaken in 1995, as well as the availability of new surveys conducted by the Royal Australian Navy Hydrographic Service. The initiative sought to utilise the deeper water identified in the surveys on the eastern side of the charted route, to eliminate the “dog leg” through Vigilant Channel and to avoid the shoals at the eastern end of Bet Reef that presented a hazard to deep draught vessels.

5.4 The following is a list of aids to navigation established by the Australian Maritime Safety Authority (AMSA) in order to assist the mariner in conducting a safe transit of the area:

- The proposed new two-way route will be marked by three new navigation aids – two lights and a day mark. Construction of these is expected to commence in October 2003.
- There is complete DGPS coverage of the area by the AMSA DGPS station at Horn Island.
- There are two Ship Reporting System (SRS) reporting points, from where communications with REEFCENTRE via VHF radio is possible.

- An AIS base station is operational at Hammond Island, in the Prince of Wales Channel.
- The entire southern and central section is under radar coverage (SRS radar at Sue Islet).
- Automated Position Reporting via INMARSAT C is being introduced as an alternative to the mandatory reporting by VHF radio in the region.
- Reliable tidal height predictions are available at 8 locations along the route.

5.5 The information supporting the detailed proposal that Australia has submitted to NAV 49 is set out in Annex 3, consistent with the General Provisions on Ships' Routing. The submission includes chartlets showing the proposed recommended shipping route and the key features mentioned above, as well as geographical positions. In accordance with the purposes of the Guidelines for the Identification and Designation of PSSAs, Australia has taken into account the views expressed by both the domestic and foreign shipping industry and the potential for adverse impacts to the marine environment.

5.6 The two-way route will reduce the navigational risk for ships in an area known for its environmental sensitivity and navigational complexity. It will allow deeper draught vessels to navigate more safely, using the southeastern section of the new two-way route. Further, it will eliminate the need for vessels to follow a single track, thereby reducing the risk of vessels meeting head-on.

5.7 The second associated protective measure is the extension of the compulsory pilotage requirements currently applicable in the Great Barrier Reef to apply to vessels when navigating the Torres Strait and the Great North East Channel. This measure would have the same application as the existing IMO-recommended pilotage regime implemented under IMO Assembly Resolution A.710(17) adopted in November 1991. This Resolution applies to vessels of 70 metres in length and over and all loaded oil tankers, chemical tankers or liquefied gas carriers, irrespective of size.

5.8 Resolution A.159 (15S.IV) (27 November 1968) is also significant in this context. It contains a recommendation to governments that they should "*organise pilotage services in those areas where such services would contribute to the safety of navigation in a more effective way than other possible measures and should, where applicable, define the ships or classes of ships for which employment of a pilot would be mandatory.*"

5.9 Compliance with the existing recommended pilotage regime is declining and Resolution A.710(17) no longer provides an acceptable level of protection for Torres Strait. Data from shipping in Torres Strait in 1995 and 2001 showed compliance rates of 70% and 55% respectively. More recently, a detailed examination of data from September 2001 to August 2002 showed 840 transits through both the Prince of Wales and Great North East Channels and that compliance had further declined to 32% (139 out of 432) for vessels on eastbound voyages and 38.5% (157 out of 408) for west bound voyages. This amounts to over 500 unpiloted transits per year. As a consequence the risk of an accident remains unacceptably high and Australia and Papua New Guinea therefore consider that Resolution A.710(17) has proven to be inadequate to protect the Torres Strait.

5.10 The possible impact of the shipping route through the Torres Strait has remained a concern over many years for a number of the Island Community councils constituted under Queensland's Community Services (Torres Strait) Act 1994, including, in particular, Hammond, Warraber, Poruma, Yorke, Ugar, and Erub Councils. These island Councils are located along the Great North East Channel, near both the existing and proposed new two-way route and the communities witness the passage of vessels on a daily basis. The communities regularly highlight

the need for compulsory pilotage within their home waters, which are in an area that Torres Strait Islanders, who are an internationally recognised people, have occupied since time immemorial.

5.11 The carriage of a properly qualified, skilled person with local knowledge as a pilot considerably reduces the risk of a shipping incident throughout Torres Strait. The cost of pilotage is negligible in comparison to the cost, inconvenience and delay that would be incurred by the shipowner in the event of even a minor maritime incident. An analysis conducted by Det Norske Veritas in 2001 indicated that incidents where the influence of a pilot could be expected to improve safety, such as powered groundings and to a lesser extent collisions, are a particular concern in Torres Strait and that compulsory pilotage would reduce the risks by 35%.

5.12 Australia's submission is supported by and consistent with the United Nations Convention on the Law of the Sea (UNCLOS).

5.13 Article 42.1(a) permits Australia to adopt laws and regulations regarding the safety of navigation and the regulation of maritime traffic in straits, in a manner consistent with Article 41. Australia is entitled, therefore, to designate sea lanes and prescribe traffic separation schemes for navigation in the Torres Strait to promote safe passage of ships. Australia agrees that such sea lanes and traffic separation schemes must conform to generally accepted international regulations (Article 41.3) and will require the assistance and approval of IMO member states.

5.14 In the specific circumstances of the Torres Strait, which shares geographical and ecological characteristics with the Great Barrier Reef, a mandatory pilotage scheme is a necessary means by which to ensure the safe passage of ships through such sea lanes and prescribed traffic separation schemes and is therefore vital for the safety of navigation through the Torres Strait. This measure is also consistent with the principle of Article 211.6(a) that provides for the adoption of special mandatory measures in clearly defined areas of the exclusive economic zone for the prevention of pollution from vessels for recognised technical reasons in relation to oceanographical and ecological conditions.

5.15 Further, Article 39.2 of UNCLOS requires compliance with generally accepted international regulations, procedures and practices for safety at sea and for the prevention, reduction and control of pollution from ships. A mandatory pilotage scheme approved by IMO member states would reinforce the necessity of such practice for the prevention, reduction and control of pollution from ships.

5.16 Additionally, Article 194.1 places an obligation upon States to act individually or jointly in order to prevent, reduce and control pollution from any source. Article 194.3(b) requires States to take measures to minimise to the fullest possible extent pollution from vessels, in particular measures for preventing accidents. Article 194.5 specifically places an obligation upon States to take measures necessary to protect and preserve rare or fragile ecosystems.

6 Miscellaneous Issues

6.1 *Summary of Measures*

6.1.1 **Torres Strait Treaty** - The Torres Strait Treaty between Australia and Papua New Guinea came into force on February 15 1985 and defines conservation outcomes for the region. The main purpose of the Treaty is to set out in law:

- the importance of the preservation of the traditional way of life and livelihood of traditional inhabitants;
- the sustainable management of fisheries resources;

- the protection and preservation of the marine environment and indigenous flora and fauna; and
- the regulation of exploration and exploitation of seabed mineral resources.

6.1.2 In recognition of the special environmental vulnerability of the area, the Treaty establishes a Torres Strait Protected Zone (TSPZ), which covers both Australian and Papua New Guinea waters. The Treaty permits freedom of movement within the TSPZ by traditional inhabitants of the TSPZ. It also states that the traditional inhabitants may engage in traditional activities, including traditional fishing, within the TSPZ. The mining or drilling of the seabed or subsoil of the Torres Strait Protected Zone for mineral exploration purposes is currently prohibited by a moratorium under the Treaty.

6.1.3 In addition to the Treaty, there are a number of well-established conservation management tools in existence in the region. These include:

- the Torres Strait Regional Authority;
- the Research Protocol developed by the Island Coordinating Council (ICC) and TSRA;
- the Marine Strategy for the Torres Strait 1998; and
- Indigenous Protected Areas (IPAs) have been established near Mabuiag Island and Deliverance Island.

6.1.4 **Pilotage** - It was the Australian Government's concern for the protection and conservation of the Great Barrier Reef and the Torres Strait region that caused it in 1990 to seek the support of the international maritime community through the IMO in introducing navigational safety protective measures for ships transiting the inner route of the Great Barrier Reef and Hydrographers Passage. Compulsory pilotage covering the northern sector of the inner route and Hydrographers Passage was introduced under Australia's domestic legislation from 1 October 1991. Since that time, the rate of accidents within the Reef has more than halved. Between 1 January 1985 and 1 October 1991 (prior to compulsory pilotage), there were ten incidents in the area, giving an accident rate of 1.667 per year. In the eleven years since compulsory pilotage, there have been eight incidents, giving an accident rate of 0.727 per year.

6.1.5 The Torres Strait, including Prince of Wales Channel and the Great North East Channel, was not included in the compulsory pilotage legislation at that time. However, the risk of a shipping accident causing pollution of the local marine environment is increasing and pilotage by licensed pilots is a recognised method of reducing that risk. Australia therefore requested IMO to recommend pilotage through this area: this was achieved with the adoption of IMO Resolution A.710(17) in November 1991, replacing IMO Resolution A.619(15).

IMO Resolution A.710(17) *"recommends that all ships of 70 m in length and over and all loaded oil tankers, chemical tankers or liquefied gas carriers, irrespective of size, use the pilotage services licensed under Australian Commonwealth, State or Territory law, when navigating the Torres Strait and the Great North East Channel between Booby Island (latitude 10° 36' S, longitude 141° 54' E) and Bramble Cay (latitude 9° 09'S, longitude 143° 53'E)"*.

6.1.6 **MARPOL 73/78** – Annexes I, II, IV and V of MARPOL 73/78 include special provisions in the definition of “nearest land” for protecting the north-eastern coast of Australia, encompassing the Torres Strait and the Great Barrier Reef. No operational discharges are permitted in these areas.

6.1.7 **REEFREP** – The REEFREP ship reporting system (SRS) is designed to enhance the safety of shipping operations and the protection of the marine environment in the Torres Strait

and the Great Barrier Reef regions. REEFREP has been formally adopted by IMO under the terms of regulation V/8-1 of SOLAS and is mandatory for the following categories of ships:

- all ships of 50 metres or greater in over length;
- all oil tankers, liquefied gas carriers, chemical tankers or ships coming within the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, regardless of length; and
- ships engaged in towing or pushing where the towing or pushing ship or the towed or pushed ship(s) is a ship prescribed above or where the length of the tow, measured from the stern of the towing ship to after end of the tow exceed 150 metres.

6.1.8 It has recently been agreed that the Ship Reporting System will be upgraded from an Information Service to a Coastal Vessel Traffic Service (Information Service) in accordance with SOLAS Chapter V, Regulation 12 for the Torres Strait and the Great Barrier Reef Particularly Sensitive Sea Area region, with capacity to extend to the Outer Route when feasible.

6.1.9 **Torresplan** – The Marine Oil Spill Contingency Plan for the Torres Strait Region (Torresplan) was produced in 1994 to provide both a range of options for a spill response and guidance for the spill combat team, should a spill occur in the area. The Plan was revised in 2001 to reflect recent policy and operational changes in the management of oil spills in Australia. Torresplan is an integral part of Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances.

6.1.10 **SPREP Convention** – Much of the Torres Strait falls within the area of the Convention for the Protection of the Natural Resources and the Environment of the South Pacific Region (SPREP Convention) to which both Australia and Papua New Guinea are signatory. This Convention places an obligation on Parties to co-operate with competent global, regional and sub-regional organisations to establish and adopt recommended practices, procedures and measures to prevent, reduce and control pollution from all sources and to promote sustained resource management and to ensure the sound development of natural resources.

6.2 *Enforcement*

6.2.1 Consistent with Article 233 of UNCLOS, Australia may enforce measures against the violation of any laws regulating the recommended shipping route through the Torres Strait where the violation causes or threatens major damage to the marine environment. As a necessary adjunct to this traffic separation scheme, the mandatory pilotage scheme may also be enforced as a law regulating the recommended shipping route through the Torres Strait.

6.3 *Joint Proposals*

6.3.1 Co-operation and consultation between Australia and PNG on matters related to Torres Strait is undertaken by mechanisms established to progress the implementation of the Torres Strait Treaty. These are:

- Traditional Inhabitants Meeting (TIM) - a forum for traditional inhabitants of both countries to discuss issues and activity in the region, and report concerns to government through their Treaty Liaison Officer.
- Treaty Liaison Meeting (TLM) - conducted and attended by Australian and PNG agencies involved in the implementation of the Treaty. Meetings are held alternately in Australia and PNG and its main purpose is to address issues raised at the TIM and other Treaty

related matters such as free movement implementation, illegal activity, customs and police matters, health, environment, quarantine and fisheries.

- The Environmental Management Committee (EMC) meets annually and deals with environmental issues relevant to the region, including fisheries management, turtles and dugong, mining and marine pollution and shipping and maritime matters. The EMC is an advisory body to the Joint Advisory Council.
- Joint Advisory Council (JAC) – Peak advisory body of Australian and PNG officials, together with traditional inhabitant representatives. The Council meets annually and reports to the Foreign Ministers of Australia and Papua New Guinea.

6.3.2 In respect of oil spill preparedness and response, co-operation is undertaken in accordance with a Memorandum of Understanding between Australia and PNG developed in accordance with the principles of the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990. This MOU is integral to practical co-operation between Australia and Papua New Guinea at a regional/local level. To ensure quality control of the effectiveness of Torresplan an oil spill response exercise was conducted on Thursday Island in October 2002 which tested policy, operational arrangements and helped raise awareness of a number of cultural, environmental and jurisdictional issues that are of concern to the people of the Torres Strait.

6.4 *Implementation After Designation*

6.4.1 The Australian Hydrographic Office (AHO) will promulgate the new route by an Australian Notice to Mariners. This Notice to Mariners will be repromulgated internationally by other Hydrographic offices including the United Kingdom Admiralty and the United States Hydrographic Office. As the changes will be substantial the AHO will produce new editions of the charts affected and these will incorporate the new route. The new editions will also be reproduced by the UK Admiralty under an extant agreement with the AHO. In due course navigational publications such as Sailing Directions will be up-dated.

6.4.2 Information on the new compulsory pilotage arrangements will be provided to industry through IMO, Australian Marine Notices, as well as press releases and publications such as “Reef Guide”.

7 Action requested of the Committee

7.1 The Committee is invited to approve in principle the proposal to designate the Torres Strait Region as a Particularly Sensitive Sea Area by extending the existing Great Barrier Reef PSSA, inform the Sub-Committee on Safety of Navigation of this decision and subsequently approve final PSSA designation.

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ANNEX 1

**Description of the Particularly Sensitive Sea Area for the Great Barrier Reef
and Torres Strait**

Note: The geographic positions in italics are those adopted in 1990 to define the Great Barrier Reef Particularly Sensitive Sea Area and are unchanged.

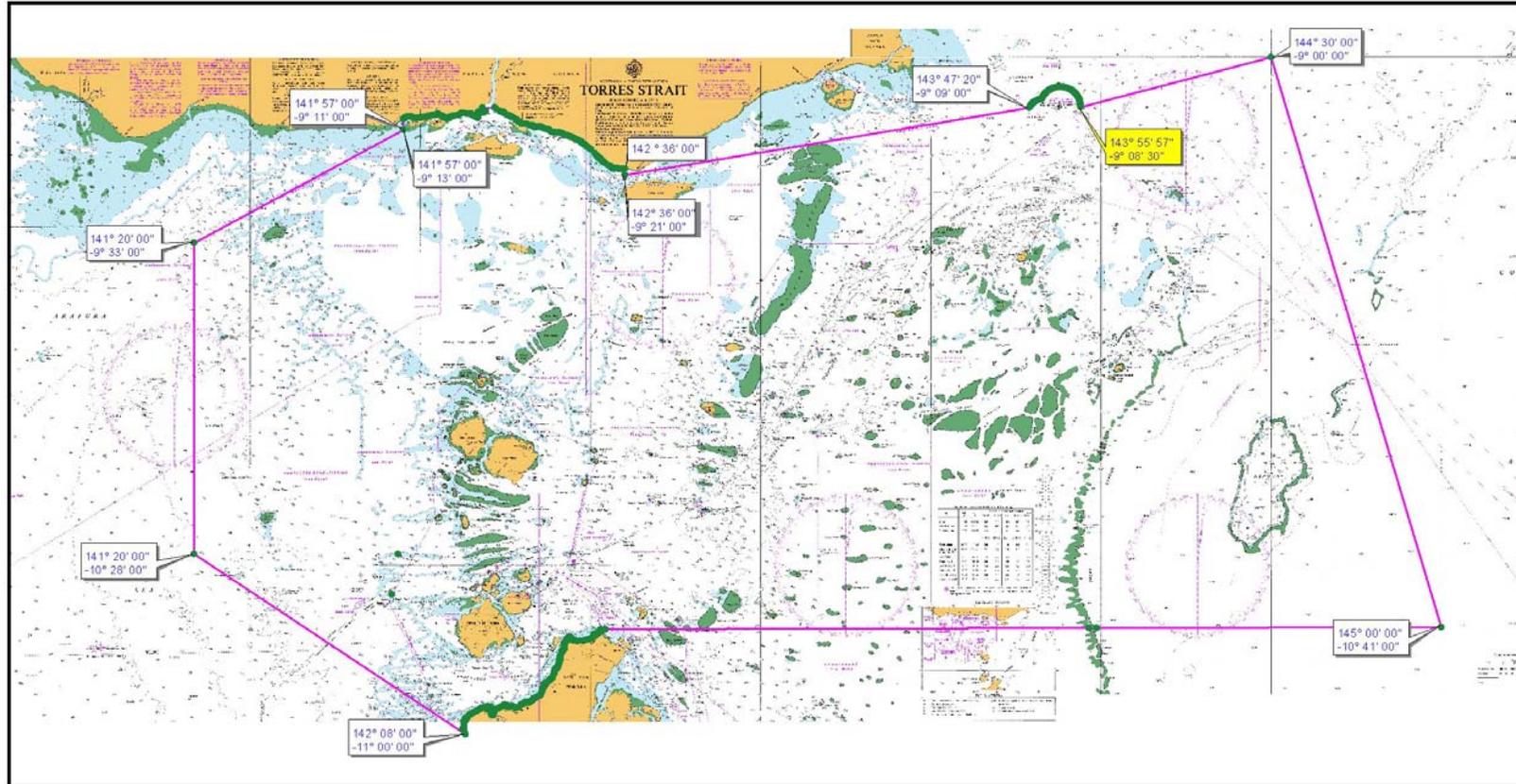
The area is defined by a line

- (a) commencing at a point on the coast of Australia in latitude 11° 00' South, longitude 142° 08' East;
- (b) running thence north-westerly along the geodesic to the point of latitude 10°28' South, longitude 141°20' East;
- (c) thence north along the meridian of longitude 141°20' East to its intersection by the parallel point of latitude 9°33' South;
- (d) thence north-easterly along the geodesic to the point of latitude 9°13' South, longitude 141°57' East;
- (e) thence north along the meridian of longitude 141°57' East to its intersection by the southern coastline of the island of New Guinea at low water;
- (f) thence generally easterly along the southern coastline of the island of New Guinea, that is along the low water line on that coast and across any river mouth and in the case of the mouth of the Mai Kussa River along the parallel of latitude 9°09' South, thence along the southern coastline of the island of New Guinea, that is along the low water line on that coast and across any river mouth to its intersection by the meridian of longitude 142°36' East;
- (g) thence south along that meridian to its intersection by the parallel of latitude 9°21' South;
- (h) thence north-easterly along the geodesic between that point of intersection and the point of latitude 9°09' South, longitude 143°47'20" East;
- (i) thence along the outer limit of the three-mile territorial sea of Black Rocks, so as to pass to the north-west of Black Rocks, to the point of intersection of that limit by the outer limit of the three-mile territorial sea of Bramble Cay;
- (j) thence along that outer limit, so as to pass successively to the north and east of Bramble Cay, to the point of latitude 9° 08'30" South, longitude 143° 55'57" East;
- (k) *thence north-easterly to the point of latitude 9°00' South, longitude 144°30' East;*
- (l) *thence generally southerly along a line joining the following geographic positions;*

<i>a.</i>	<i>10°41'S</i>	<i>145°00'E</i>
<i>b.</i>	<i>13°00'S</i>	<i>145°00'E</i>
<i>c.</i>	<i>15°00'S</i>	<i>146°00'E</i>
<i>d.</i>	<i>17°30'S</i>	<i>147°00'E</i>
<i>e.</i>	<i>21°00'S</i>	<i>152°55'E</i>
<i>f.</i>	<i>24°30'S</i>	<i>154°00'E</i>
- (m) *thence westerly along the parallel of latitude 24°30'South to its intersection by the coastline of Queensland at low water; and*
- (n) *thence generally northerly along that coastline at low water to the point of commencement.*

ANNEX 2

CHARTLET OF THE EXTENSION TO THE PARTICULARLY SENSITIVE SEA AREA



PROPOSED PSSA for TORRES STRAIT

Base mapping data sourced from the Australian Hydrographic Office's Seafloor geospatial series - sheets nos03378 and nos03377

Co-ordinate system - GEOGRAPHICAL
Please note distance measurements in this co-ordinate system will not be accurate



Scale 1:1250000

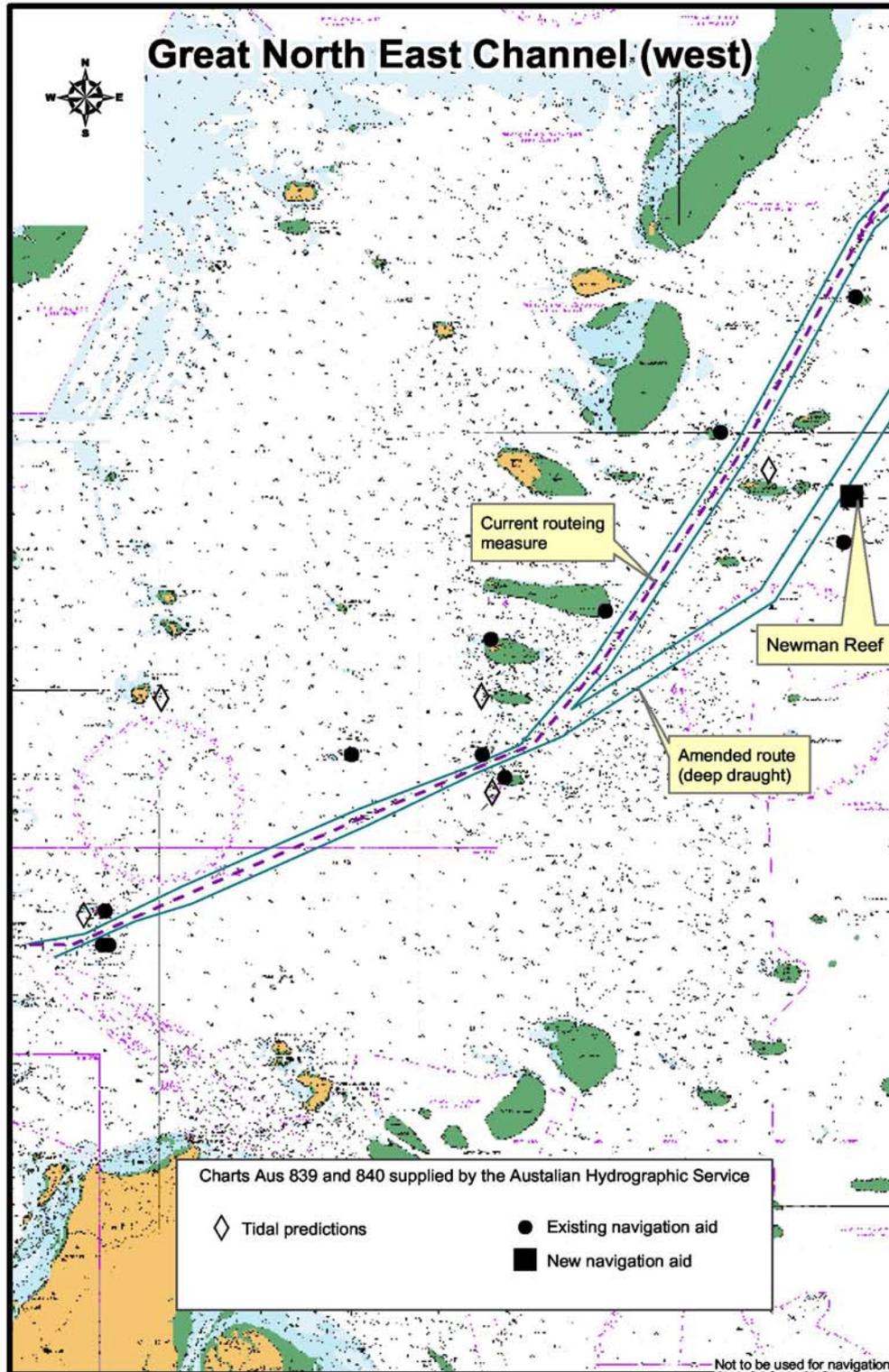
Legend

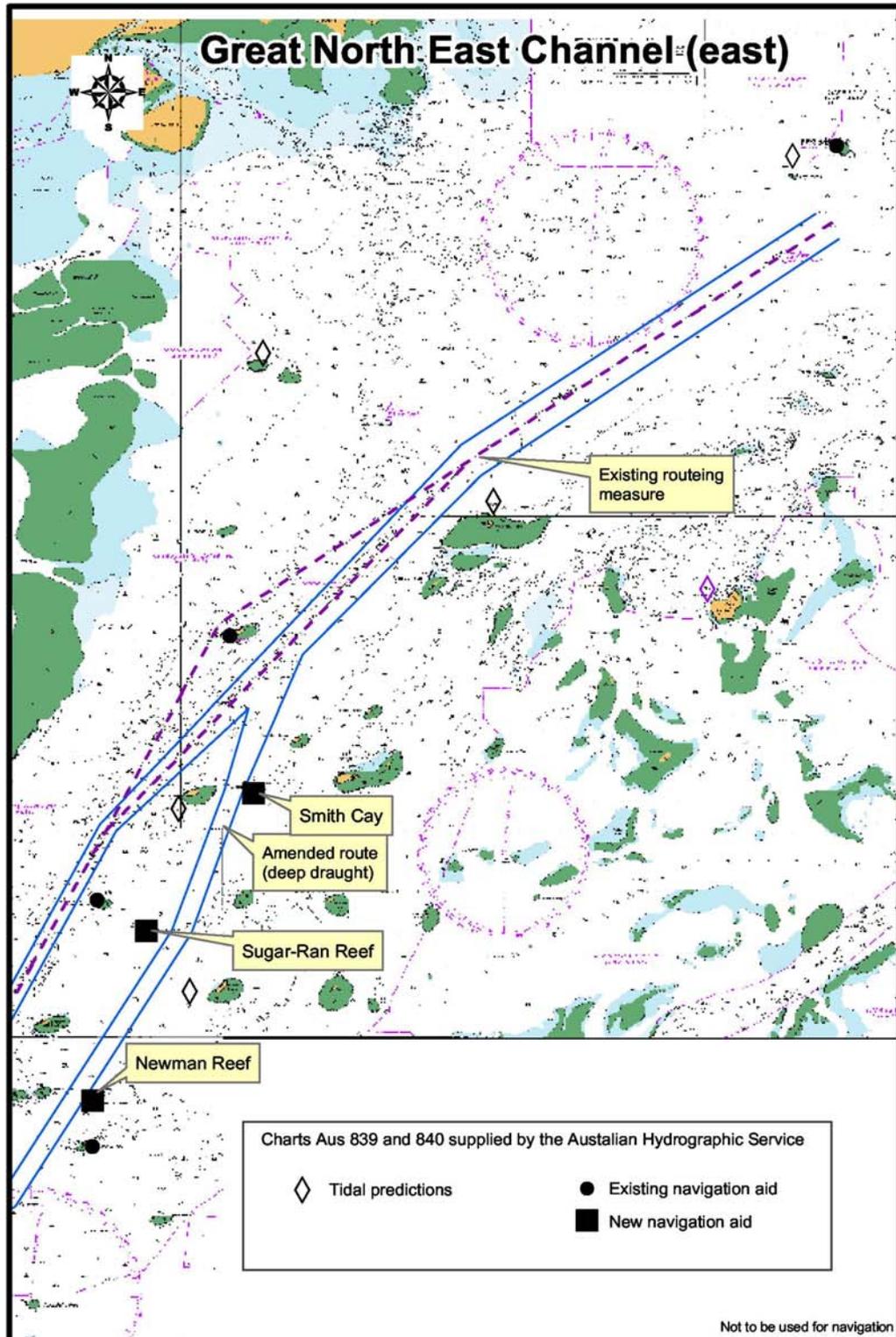
- Mirpöl
- Torres Strait Protected Zone
- Proposed PSSA for Torres Strait
- Gbrmpa



ANNEX 3

CHARTLET OF THE TWO WAY SHIPPING ROUTE





The following coordinates (in WGS 84) define the proposed two-way route:

A) The northern limits are bound by the line joining the following coordinates

1.	10° 29'.70 S	142° 22'.63 E
2.	10° 29'.14 S	142° 25'.76 E
3.	10° 27'.80 S	142° 28'.45 E
4.	10° 26'.40 S	142° 31'.30 E
5.	10° 21'.90 S	142° 41'.50 E
6.	10° 19'.37 S	142° 47'.97 E
7.	10° 18'.14 S	142° 50'.82 E
8.	10° 13'.38 S	142° 54'.96 E
9.	10° 00'.50 S	143° 03'.42 E
10.	09° 47'.73 S	143° 10'.40 E
11.	09° 25'.80 S	143° 31'.07 E
12.	09° 12'.47 S	143° 51'.34 E

B) The southern limits are bound by the line joining the following coordinates

13.	10° 30'.45 S	142° 24'.02 E
14.	10° 28'.38 S	142° 28'.66 E
15.	10° 27'.38 S	142° 31'.85 E
16.	10° 22'.85 S	142° 41'.95 E
17.	10° 19'.80 S	142° 48'.23 E
18.	10° 17'.63 S	142° 53'.29 E
19.	10° 09'.78 S	143° 05'.55 E
20.	09° 53'.97 S	143° 15'.61 E
21.	09° 46'.02 S	143° 18'.48 E
22.	09° 37'.96 S	143° 21'.97 E
23.	09° 27'.60 S	143° 32'.15 E
24.	09° 13'.95 S	143° 52'.62 E

C) The centre polygon is defined by the following coordinates

25.	10° 16.10 S	142° 53.82 E
26.	10° 13.79 S	142° 55.85 E
27.	10° 01.05 S	143° 04.20 E
28.	09° 48.10 S	143° 11.30 E
29.	09° 41.04 S	143° 18.87 E
30.	09° 45.72 S	143° 17.51 E
31.	09° 53.84 S	143° 14.50 E
32.	10° 09.15 S	142° 04.70 E

Relevant chart numbers and datums:

AUS 376: On AGD 66	Jan 1984 edition
AUS 839: On WGS 84	Aug 1997 edition
AUS 840: On WGS 84	Aug 1997 edition