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ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS

Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage

Submitted by Australia and Papua New Guinea

SUMMARY

Executive summary: MEPC 49 has requested that NAV 50 consider the proposal by Australia and Papua New Guinea to extend the existing Great Barrier Reef compulsory pilotage arrangements to Torres Strait, as part of the PSSA submission for this region. To assist the Sub-Committee in its deliberations, this document summarises the relevant points set out in the detailed submission considered by MEPC 49

Action to be taken: Paragraph 6

Related documents: Assembly resolutions A.710(17) and A.927(22), MEPC 49/8, MEPC 49/22, paragraph 8.25.1

1 BACKGROUND

1.1 The forty-ninth session of MEPC approved, in principle, the extension of the existing Great Barrier Reef PSSA to include the Torres Strait Region and requested NAV 50 to consider the proposed Associated Protective Measure involving the extension of the existing compulsory pilotage measures. The Committee noted that NAV had already approved another Associated Protective Measure, the implementation of a two-way shipping route through Torres Strait.

1.2 To assist the Sub-Committee in its deliberations, this paper summarises the issues relating to the safety of navigation as set out in the MEPC 49 submission by Australia and Papua New Guinea (document MEPC 49/8). Details of the area are reproduced at annex.

2 VESSEL TRAFFIC CHARACTERISTICS

2.1 Operational Factors

2.1.1 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.

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2.1.2 In March 2002, there were 413 recreational vessels greater than 10 m overall length registered within the Torres Strait Council. There are also a large number of licensed fishing vessels and traditional fishing craft existing outside this category that operate in Torres Strait waters.

2.2 Traffic Characteristics

2.2.1 In the 12-month period to November 2002, 1,008 different vessels used the Torres Strait, making a total of 3,136 voyages.

2.2.2 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.

2.2.3 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.

2.2.4 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.

2.2.5 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.

2.2.6 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.

2.2.7 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.

2.2.8 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.

2.2.9 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.

2.3 Harmful Substances Carried

2.3.1 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.

3 NATURAL FACTORS

3.1 Hydrographical

3.1.1 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.

3.1.2 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.

3.1.3 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.

3.1.4 The standard of hydrographic surveys for this shipping route is 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.

3.2 Meteorological

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

3.2.2 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.

3.2.3 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.

3.3 Oceanographic

3.3.1 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.

3.3.2 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.

3.3.3 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.

3.3.4 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 POTENTIAL HARM

4.1 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, equipment and emergency vessels 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. This gives rise to an increased risk of subsequent damage and the possibility of the passage being blocked for an extended time if a grounding or sinking occurs.

4.2 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 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.

4.4 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. 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. This was agreed at NAV 49 (see NAV 49/3/3 and NAV 49/19, paragraph 3.29). The second associated protective measure, which has been referred to NAV 50 for consideration, 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.

5.2 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 been reduced by more than 50%. 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.

5.3 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).

5.4 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)"*.

5.5 The proposed extension of the existing compulsory pilotage area would have the same application as this resolution.

5.6 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.

5.7 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. 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.

5.8 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%.

5.9 The Australia and Papua New Guinea proposal is supported by and consistent with the United Nations Convention on the Law of the Sea (UNCLOS).

5.10 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. 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.

5.11 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.

5.12 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. Article 43(b) provides that agreements may be made between user States and the States bordering a Strait to prevent, reduce, and control pollution from ships.

5.13 In accordance with Article 236 of UNCLOS, the proposed arrangements will not apply to sovereign immune vessels.

6 ACTION REQUESTED OF THE SUB-COMMITTEE

6.1 The Sub-Committee is invited to approve the extension of the existing Great Barrier Reef compulsory pilotage arrangements to Torres Strait and to recommend adoption by the Marine Environment Protection Committee at its fifty-second session.
