

5. ENHANCING SHIP ROUTEING, TRAFFIC MANAGEMENT AND EMERGENCY RESPONSE

Ship Routeing

- 5.1 Improved routeing methods for reducing the risk profile include exploring deeper water routes, less demanding routes, better traffic separation and exclusion zones in high risk areas.
- 5.2 Under international law, a coastal State may adopt laws for safety of navigation, pollution prevention, loading or unloading of commodities and control of fishing. IMO approved routeing measures include two way shipping routes, restricted shipping lanes, recommended tracks, areas to be avoided and precautionary areas, and prohibited anchorage and entry zones.⁴⁸
- 5.3 However, the bathymetry of the GBR area north of Cairns provides few alternatives to existing ship routeing methods. Due to the existing limited traffic for this area, exclusion zones are not considered necessary at this time, but may need to be reviewed as traffic increases.⁴⁹
- 5.4 There are several potential routes through the GBR which have been surveyed but are not adequately marked due to the costs of establishing the necessary navigation aids. With the development and extensive use of GPS and DGPS signals, however, some ships are now navigating through areas that are unmarked, in order to reduce passage times. Establishment of marked routes for general shipping would be prudent.⁵⁰
- 5.5 AMSA has issued a cautionary notice to pilots and mariners advising them of the problems associated with navigating in areas that are not adequately marked or surveyed.
- 5.6 Extensive surveys of the inner route from Cairns to Cape York and through the Torres Strait have been conducted by the RAN Hydrographic Service. As a result, a new significantly safer route through the Great North East Channel is now being marked by navigation aids. The only other new route potentially offering distance savings and risk reduction is Fairway Channel.

Fairway Channel

- 5.7 There is support for considering development of the Fairway Channel between Cape Direction and Cape Melville, which could improve opportunities for traffic separation and provide rest for pilots (Figure 5.1).⁵¹

⁴⁸ Department of Transport, 1995, *Great Barrier Reef and Torres Strait Shipping Study, Vol II*

⁴⁹ Submission No 49 Queensland Government

⁵⁰ Submission No 8 Australian Defence Force, Chief of Navy

⁵¹ Submission No 10 Australian Maritime College, No 34 Jardine Shipping Pty Ltd, No 37 Meridian Marine Services Pty Ltd, No 43 Perrot Salvage and Construction Pty Ltd

- 5.8 Fairway Channel lies to the east of the existing Inner Route from Cape Melville to Cape Direction. It reduces the voyage between Cairns and Cape York by approximately 20 nautical miles. Initial studies indicate that, when marked with a comprehensive network of navigation aids, Fairway Channel will offer a reasonable reduction in the navigational risk for medium and light draught vessels and to a lesser degree for the deepest draught vessels. Fairway Channel is still, by any standards, navigationally onerous.
- 5.9 A secondary consideration is that, in using Fairway Channel, pilots may achieve a short rest period which they would not otherwise have. This is seen as a supplementary benefit.
- 5.10 The survey of this channel needs to be completed and the preferred route marked with navigation aids. AMSA and the Australian Maritime College are initiating a simulation model of Fairway Channel including preliminary navaid and tidal data. The purpose of the modelling is to allow AMSA, in consultation with pilots and shipping interests, to simulate a number of alternate routes through Fairway Channel, particularly possible exit/entry points in the northern section and to assess the viability and safety of each option.
- 5.11 Should Fairway Channel prove feasible and navigable, the opportunity would exist for implementing a traffic separation scheme incorporating the existing inner route near Princess Charlotte Bay, thus reducing traffic density.

Recommendation 23

The review recommends that work in assessing and developing the Fairway Channel should be accelerated, using the Australian Maritime College simulator, to confirm the advantages of adopting the Fairway Channel, and to determine the best route through the channel and the navigation aid configuration required to adequately mark that route.

Chart Changes

Whitsunday Passage

- 5.12 The shipping route through Whitsunday Passage is used by a large number of local charter and recreational vessels, creating higher risks of collisions with large ships due to the high levels of cross-traffic.
- 5.13 Apart from cruise shipping, there is no real need or demand to utilise Whitsunday Passage as an alternative route to the recommended outer route, although Whitsunday Passage is some 2.4 nautical miles shorter.
- 5.14 Given the availability of the alternative route charted around the Whitsunday Islands and the relatively short additional steaming time this would entail, the review considers that trading ships should not be encouraged to transit the waters between the mainland and the Islands. The review has previously

recommended that the route through the Whitsunday Islands be removed from charts to discourage ships from transiting the area.

Two Way Routes

- 5.15 Shipping in the main tends to use recommended tracks shown on charts. Pilots working in the area suggest risk could be better managed by marking on charts recommended shipping routes with two-way routes, where possible.
- 5.16 Similarly, “choke points” exist where shipping tends to converge around North Reef, Vernon Rocks, Edward Island, Deloraine Island, Pakoi Bank, Pelorus Island, South Brook Island, Fitzroy Island and Low Isles. Separation zones at these points could assist in reducing collision risk.⁵²
- 5.17 Consideration could also be given to identifying the main shipping channels as deep and shallow draught, with shallow channels made available to the side of the main shipping channel to prevent smaller vessel from impeding deep draught vessels that would have limited manoeuvrability. Smaller vessels need not be prevented from crossing the main channels, but if they were more aware of restricted areas they may be more inclined to caution while crossing.⁵³
- 5.18 Development now of suitable traffic separation lanes would enable them to be incorporated into the Electronic Navigation Charts currently under development and paper charts as new editions are compiled.

Recommendation 24

The review recommends changing recommended tracks on charts to a two way route where traffic separation is suitable.

Marine Environment High Risk Areas

- 5.19 The GBR was designated a Particularly Sensitive Sea Area (PSSA) by the IMO in 1991. The declaration of the PSSA was based on environmental sensitivity and not risk to navigation.
- 5.20 The report of Lord Donaldson’s inquiry⁵⁴, established the concept of Marine Environment High Risk Areas (MEHRAs). MEHRAs provide a distinct educational and awareness tool designed to alert mariners to areas hazardous to navigation and at risk of exceptional environmental damage. To this end, areas classified only as highly sensitive to oiling and at high risk of an incident occurring were considered as MEHRAs.
- 5.21 MEHRAs as proposed by Lord Donaldson are to be small in number to give them maximum effect and to impress upon mariners the particular care that

⁵² Submission No 12 Australian Marine Pilots Association

⁵³ Submission No 15 Captain Cook Cruises

⁵⁴ Lord Donaldson, 1994, *Safer Ships, Cleaner Seas – Report of Inquiry into the Prevention of Pollution from Merchant Shipping*, HMSO Publications, London

must be taken when transiting these areas. An excessive number of MEHRAs would lessen the overall effect, as human nature allows a lower level of vigilance when increased readiness is required over prolonged periods.

- 5.22 Mariners would be expected to exercise particular caution when transiting a MEHRA. Increased precautionary measures may include increased bridge resource management, an additional lookout, reduced speed, enhanced radio watch and communication with other vessels. The MEHRA would demand higher standards of care from the mariner, not only in the interest of the marine environment, but also in their own interests as damage caused may entail higher compensation to be paid should there be an incident.
- 5.23 MEHRAs may also have a role for courts determining the liability of ships involved in marine incidents or undertaking unsafe practices when transiting such areas.
- 5.24 The Oil Spill Risk Assessment Study⁵⁵ recommended the following regions be declared Marine Environment High Risk Areas (Figure 5.2):
- Prince of Wales Channel,
 - Great North East Channel,
 - Inner Shipping Route, between Cape Flattery and Torres Strait,
 - Whitsunday Islands and associated passages,
 - Hydrographers Passage, and
 - Moreton Bay.
- 5.25 The MEHRAs should be communicated to shipping through Notices to Mariners, Reef Guide, Sailing Directions, Navigation Charts and other media as appropriate. Areas identified as MEHRAs also should be given high priority for the development of international standard Electronic Navigation Charts.

Recommendation 25

The review recommends declaration and widespread promulgation of MEHRAs for inclusion in ECDIS and through Reef Guide and for passage planning procedures.

International campaign

- 5.26 Pilots have expressed concern at the number of ships that do not use pilots in the recommended zone of the Great North East Channel and Prince of Wales Channel in Torres Strait. They note that masters are often discouraged from using pilots by shipowners who are attempting to reduce costs. They recommended that every effort should be made to persuade shipowners to comply with the IMO recommended use of pilots.⁵⁶

⁵⁵ Queensland Transport and GBRMPA, 2000, *Oil Spill Risk Assessment for the Coastal Waters of Queensland and the Great Barrier Reef Marine Park*

⁵⁶ Submissions No 31 Capt R Hart, No 52 Capt D Richardson, No 57 Capt P Stockings,

- 5.27 Submissions have also pointed to the problems associated with interactions between trading ships and small craft operating in the GBR, due in part to lack of awareness of the limited manoeuvrability of large ships in narrow channels and inadequate watch keeping.

Recommendation 26

The review recommends that AMSA, GBRMPA and Queensland Transport should conduct an international campaign to promote ship safety and environmental awareness in the Great Barrier Reef and Torres Strait. This should include:

- **providing a copy of the Reef Guide booklet to every ship transiting the region;**
- **requesting the International Chamber of Shipping Guide environment page to include a section on the Great Barrier Reef and Torres Strait; and**
- **other publicity in relevant international publications.**

Fishing areas marked on charts

- 5.28 Collisions between commercial ships and fishing boats are the second largest contributor to incidents in the GBR region. Of the fourteen collisions that occurred in the GBR between 1985 and 2001, thirteen involved a fishing vessel. AMSA and Queensland Transport are regularly advised of close quarter encounters between fishing vessels and trading ships.
- 5.29 To alert mariners to take greater precautions when transiting areas of significant fishing activity, these areas should be marked on electronic charts. There are concerns that marking such areas on paper charts would add too much clutter, particularly given the seasonal nature of fishing activity. Electronic charts display and information systems, however, are able to layer such information so that it can be displayed as required.
- 5.30 Mariners would then be able to take additional precautionary measures such as contacting REEFCENTRE for advice on active fishing operations, which are seasonal, making contact with fishing vessels in the vicinity to advise of each other's intentions, slowing down and posting additional lookouts.

Recommendation 27

The review recommends that electronic charts should identify and mark areas of high fishing activity and that the REEFCENTRE give warnings to ships entering such areas.

Traffic Management

Include Fishing Vessel Data

- 5.31 Integration of other traffic information, such as fishing vessels, into the Ship Reporting System will provide an improved traffic picture. An integrated service will benefit all vessels participating in the system and make all vessels aware of their respective positions and movements.
- 5.32 Fishing vessels are currently required to be fitted with Inmarsat C transponders to provide position reports to Queensland Fisheries Service (QFS). Similarly, the Australian Fisheries Management Authority (AFMA) has introduced VMS for the Northern Prawn Fishery fleet and many of these vessels transit the Torres Strait and GBR region. Other local vessels fitted with Inmarsat C transponders report in regularly to REEFCENTRE. Advice from pilots and fishers is that the availability of near real time information on concentrations of fishing vessels (and conversely of ship movements) would reduce the risk of collision. Information received by AFMA and QFS is not at present available to REEFCENTRE, and vice versa.
- 5.33 AFMA and QFS have agreed in principle to provide on line real time information to REEFCENTRE on the locations of fishing vessels in the GBR. Issues on how the information is to be relayed and protection of commercially sensitive information currently are being resolved.
- 5.34 The review supports current action to integrate fishing vessel data into the Ship Reporting System shipping data and continued consultation with AFMA and QFS on issues related to protecting commercial sensitivity of the data. The review notes, however, that the fisheries agencies may not have provision under their legislation to provide fishing vessel data to the Ship Reporting System. Where necessary, fisheries agencies should review and amend their respective legislation, to ensure the Ship Reporting System has access to fishing vessel data for purposes consistent with those under which the SRS operates. This action should be incorporated into the review of legislation associated with the preparation of a Shipping Management Plan.

Industry Forum

- 5.35 Shipping interests complain that some fishing vessels have no consideration of constraints imposed on a large vessel's ability to manoeuvre, particularly in narrow channels.
- 5.36 Specific concerns are that some fishing fleets appear to be unaware of their navigational responsibilities and many fishing vessels work under bright lights at night, reducing their ability to see large vessels approaching them. Incident reports and anecdotal evidence reveal a large number of cases of fishing vessels taking inappropriate action near large vessels. Some fishing vessels are known to travel without proper lookouts and on autopilot. There were suggestions that in some instances it may be appropriate to

prohibit the entry of fishing and pleasure craft in some areas where large vessels navigate with limited sea room.⁵⁷

- 5.37 Improved communication between merchant ships and small craft is viewed as essential to reduce the risk of collision or collision avoidance induced grounding. Fishing vessel crews need to be cognisant of merchant ship's restricted manoeuvrability and sea room due to draught constraints.
- 5.38 Mariners will attest that many small craft do not 'paint' well on radar and are impossible to see over the bow of a large ship, except at range. There has been a steady increase in the number of yachts utilising the Queensland coast. Yachts can be a hazard to shipping at night. Prior to GPS, most yachts would have found an anchorage overnight but now many will remain underway.
- 5.39 Improved communications between trading ships and smaller craft concerning each other's operating requirements and capabilities would help reduce risks of incidents.
- 5.40 The review supports the extension of the Ship Reporting System Client Group to become an industry forum involving all vessel sectors to improve communication between commercial shipping, fishing vessels and smaller craft using the GBR.

Emergency Response

Salvage Tugs

- 5.41 Currently there are significant deficiencies in the emergency towage capacity available to incidents within the GBR, Torres Strait and the Coral Sea. This is due in part to the remoteness of the area, and the lack of available equipment.⁵⁸
- 5.42 The review notes that a key criticism of UK authorities raised in the enquiry into the *Sea Empress* disaster was the lack of contingent salvage resources and the ability to free up those resources when they are normally engaged in other duties.
- 5.43 Following the survey of the Outer Route in 1997, additional traffic is transiting the Coral Sea and this trend is expected to continue. The area is subject to extreme weather conditions, including cyclones, and a disabled vessel would be subject to prevailing south easterly trade winds which would set a disabled vessel on to the outer reef. Some parties consider that there is a real need for suitable salvage tugs to be strategically placed along the coast to mitigate the consequences of a disabled vessel foundering.⁵⁹

⁵⁷ Submission No 1 Australian Ship Management, No 6 Australian Chamber of Shipping, No 14 Australian Shipowners Association, No 15 Captain Cook Cruises, No 31 Capt R C Hart, No 33 Jardine Shipping Pty Ltd, No 36 Meridian Marine Services Pty Ltd

⁵⁸ Submission No 8 Australian Defence Force, Chief of Navy

⁵⁹ Submission No 49 Queensland Government

- 5.44 However, it is not commercially viable for salvage firms to provide deep-sea salvage capacity to cover the whole of the GBR all of the time to meet only very occasional requirements. One suggestion is that there must be agreements in place with ports in the region to release harbour tugs in time of need. The international shipping industry suggests the Australian and Queensland Governments should be partially responsible for funding emergency response initiatives.⁶⁰
- 5.45 While supporting the concept that harbour tugs should be equipped and made available for ocean salvage work, United Salvage, the largest professional salvage operator in Australia, strongly supported the user pays principle for funding salvage operations. Under international convention provisions and commercial salvage agreements, the costs of salvage are met by the ship owner and insurers.⁶¹
- 5.46 United Salvage has made commercial arrangements in some ports to call upon harbour tugs in the event of an emergency, as a first line of defence. United Salvage provides specialist training and also will arrange a substitute harbour tug if the relevant vessel is heavily engaged in harbour work at the time of the emergency. However, United Salvage sees such arrangements being threatened by recent developments in selection of port towage operations.
- 5.47 With increasing corporatisation of ports the provision of salvage towage capacity in areas outside ports is not seen as a core business of port authorities. There are substantial costs involved in acquiring and maintaining appropriate “salvage packs” and vessels capable of salvage operations at sea, and in training crews. Port authorities are increasingly reluctant to invest in these facilities, and to release harbour tugs from harbour work, and it is inappropriate that these costs should be cross-subsidised by other port users.
- 5.48 The review notes the changing structure of harbour towage at ports within the GBR and the likelihood that this will not include a significant offshore salvage capacity.
- 5.49 Industry recognises that enhancing emergency response arrangements by way of stationing a salvage tug at an appropriate location has merit. However, finding a suitable balance between costs and incident prevention is problematic.⁶²
- 5.50 It was suggested that Governments should have the power to order port authorities to release harbour tugs to assist in an emergency. Under the *Protection of the Sea (Powers of Intervention) Act 1981*, AMSA already has the power to “take such measures as it considers necessary” where there is a direct threat of or actual pollution. In exercising its powers,

⁶⁰ Submission No 6 Australian Chamber of Shipping

⁶¹ Submission No 64 United Salvage Pty Ltd

⁶² Submission No 14 Australian Shipowners Association

AMSA and the Minister are required to take measures in proportion to the likely damage that could be caused by pollution.

- 5.51 Emergency Services legislation in Queensland also provides for the commandeering of resources to assist in emergency responses.
- 5.52 If the risk of pollution is low, the *Protection of the Sea (Powers of Intervention) Act 1981* does not permit intervention by AMSA. As well, the ability of authorities to order intervention by harbour tugs would be compromised if tugs are not suitably designed, equipped and crewed for work outside harbours.
- 5.53 The recent Oil Spill Risk Assessment report⁶³ highlighted the importance of ready availability of emergency towage and salvage capacity in the region to reduce risk. It recommended a joint committee of industry and government, comprising Queensland Transport, GBRMPA and AMSA, should determine whether the current towage capacity is adequate.

Recommendation 28

The review recommends that AMSA, GBRMPA and Queensland Transport should reassess emergency response measures in the Great Barrier Reef and Torres Strait. This should include the assessment of necessary salvage capacity and its operational location.

Safe Havens

- 5.54 The concept of safe havens, places or ports of refuge, is receiving considerable international attention in the wake of several recent casualties, particularly in Europe.
- 5.55 The ICONS report identified a serious concern at the tendency of some port and coastal States to refuse shelter to ships in distress, especially where they present pollution risks. It noted that nations have an obligation to assist ships and seafarers in distress. ICONS also was critical of port States that sign conventions and enforce obligations on shipping, yet fail to meet their own obligations.⁶⁴
- 5.56 There is a natural reluctance by regional administrators to accept damaged or disabled ships into their areas of responsibility, for fear of local environmental pollution or damage to infrastructure. However, it is rarely possible to deal satisfactorily or effectively with a marine casualty in open sea conditions. The longer a damaged ship is forced to remain at the mercy of the elements, the greater the risk of deterioration, and of a greater hazard to the environment and loss of life and property.
- 5.57 Following the sinking of the Erika in 1999, and other incidents off Europe's Atlantic coast, the IMO is examining the question of places of

⁶³ Queensland Transport and GBRMPA, 2000, *Oil Spill Risk Assessment for the Coastal Waters of Queensland and the Great Barrier Reef Marine Park*

⁶⁴ International Commission on Shipping, 2001, *Ships, Slaves and Competition*, p198

refuge as a matter of priority. Consideration of this matter at IMO has resulted in recommendations for Guidelines to be developed covering:

- Coastal State identification and designation of suitable places for refuge;
- Evaluation of risks associated with relevant operations on a case-by-case basis; and
- Guidance to Masters of ships in distress.

5.58 Development of these Guidelines is being undertaken by the Safety of Navigation sub-committee of IMO, with a target completion date of 2003. In the meantime the IMO Legal Committee has been invited to look at aspects of “places of refuge” from the perspective of international law, jurisdiction, rights of coastal States and liability.

5.59 In Australia, the establishment of places of refuge is an issue for consideration under the National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (NatPlan). Some work already has been done in this regard, with NatPlan Guidelines already in place. In light of IMO developments, further examination of this issue is being conducted by the Commonwealth, States and industry, including ports, under the auspices of the National Plan Management Committee.

5.60 Queensland Transport has prepared Guidelines⁶⁵ for safe havens in the GBR region, in consultation with Queensland port authorities, the Queensland Department of Environment and Heritage, GBRMPA and AMSA. They provide assistance to these authorities in response to request from ships at sea for safe havens in Queensland coastal waters and the GBR World Heritage Area. The Guidelines were last updated in 1999.

5.61 The Guidelines recognise that not all casualties may qualify for granting of safe haven, bearing in mind the safety of the ship’s crew and ecological, economic and recreational values of the Queensland coastline, ports and nearshore zone. The Guidelines consider the net safety and environmental perspectives when assessing safe haven.

Recommendation 29

The review recommends the regular updating and extension of the existing Queensland Guidelines for the Provision of Safe Haven for Disabled or Damaged Vessels at Sea, in line with the latest developments in the IMO.

Pollution Response Timeframe

5.62 Response time is critical in any grounding or pollution incident.

⁶⁵ Queensland Transport, 1999, *Policy Relating to the Granting of Safe Haven within Queensland Waters and Waters of the Great Barrier Reef*

- 5.63 Criticisms were made of the time to respond to incidents and the lack of spill response resources in northern parts of the GBR. It was suggested that local resources, such as the Volunteer Coastguard, should be employed rather than centralised teams in Brisbane and Townsville.⁶⁶ Effective oil spill response, however, requires specialist skills.
- 5.64 The Oil Spill Risk Assessment Study found that indigenous communities in far north Queensland and Torres Strait provide a key resource base for reporting and responding to marine pollution incidents, and that the potential of this resource base has not been utilised by the National Plan and integration of indigenous issues in response planning has been neglected until recently. It recommended that a strong partnership needs to be developed with indigenous communities and other local resources in order to strengthen the overall capacity and readiness in far north Queensland.⁶⁷
- 5.65 Following the 2000 review of the National Plan, Tier 1 oil spill response equipment is being allocated to the ports. The remaining equipment (Tier 2 and 3) will be located in one or two strategic stockpiles in Queensland. The location and disposition of equipment is based upon proximity to high risk areas, logistics and transport support available (eg airstrips), readiness and maintenance accessibility and security.
- 5.66 The review supports the current reassessment and regular review of the National Plan currently being undertaken by the Queensland State Committee, Queensland Transport and AMSA of pollution equipment allocation in the GBR and its expeditious implementation.

Assessment of Chemical Spills

- 5.67 DNV carried out a risk assessment of oil and chemical spills in Australian Ports and Waters as part of the National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances 2000 Review.
- 5.68 The report identified that, on an Australia-wide basis, chemicals overall are a minor contributor to risk due to the low level of traffic and the high integrity of chemical tanker hull designs. This conclusion was based on data provided from historical spills of oil and chemicals, but did not include the types of vessels, visiting statistics or types of chemicals carried in Australian waters.
- 5.69 It is estimated that approximately 16 chemical tankers visit ports within the GBR region each year. Chemicals that are also carried as general cargo on other vessels are not included in this estimation.

⁶⁶ Submission No 20 Mr S Corrie

⁶⁷ Queensland Transport and GBRMPA, 2000, *Oil Spill Risk Assessment for the Coastal Waters of Queensland and the Great Barrier Reef Marine Park*, pp59-60

- 5.70 Analysis of ships' cargo manifests would provide information on the type and quantities of chemicals transiting the Reef region, and would enable chemical response teams to prepare for possible incidents.
- 5.71 In line with the National Plan 2000 review recommendations, ChemPlan is being updated and rewritten. Any enhanced risk analysis of the quantities and nature of the cargoes, their likely impacts on the environment in which they move, should there be a spill, should address the special issues relevant to the GBR.

Recommendation 30

The review recommends that the National Plan for Responding to Pollution of the Sea by Oil and Other Hazardous and Noxious Substances (NatPlan) reassessment of ChemPlan currently being pursued should be extended to include assessment of the risk of a chemical spill within the Great Barrier Reef and Torres Strait.