

TORRESPLAN

Marine Oil Spill Contingency Plan for Torres Strait

A supplement to the Queensland Coastal Contingency Action Plan

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Contact for enquiries and proposed changes

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1. Introduction

Torres Strait has been described as 'the most ecologically complex area of one of the world's most extensive continental shelves containing volcanic, continental, coral and alluvial islands and fringing, platform and barrier reefs. The Strait offers a multitude of habitats and niches for the Indo-Pacific marine fauna, which itself has the greatest diversity of the ocean world' (Neitschmann, 1985). Some of the most extensive and diverse sea-grass areas in the world are to be found in the area.

Torres Strait encompasses a total area of approximately 40 000 square kilometres (Mulrennan 1992), an area of sea and islands which extends 150 km from Cape York in the south to the south west coast of Papua New Guinea in the north and from the Arafura Sea in the west to the Coral Sea in the east. The area is influenced by the diurnal tidal regime of the Indian Ocean to the west and the semidiurnal tidal influences of the Pacific Ocean to the east. As a result of these influences tidal streams are strong (reaching eight knots through some channels during spring tides), with tidal ranges of three to four metres. Unpredictable variation in sea levels may be encountered.

Because of the complex geophysical influences the biological marine resources of the Strait are abundant. The area supports internationally important breeding populations of dugong, Green turtle, Hawksbill turtle and Flatback turtle (endemic to northern Australia). Sassie Island in central Torres Strait is the largest Hawksbill rookery in the world while Crab Island in the south west supports the largest rookery for Flatback turtles.

The area also supports a number of locally important commercial and traditional fisheries based on pearl oyster, trochus shell, beche-de-mer, crayfish, prawns, barramundi and pelagic species such as Spanish mackerel. A wide variety of other shell fish and invertebrates are gleaned from reefs for subsistence consumption and are locally very important to the people of Torres Strait.

The region of Torres Strait is culturally unique within Australia, being home to approximately 6 500 of Australia's indigenous Melanesian people – the Torres Strait Islanders.

The islanders have a strong seafaring and trading tradition and hence a close relationship with the seas, coast and reefs of the area. The importance of the sea as the basis for their livelihood and food source can be appreciated by the fact that average rates of seafood consumption are amongst the highest in the world. Much of the fishing is done from small craft operating either singly or in small groups. The success of fishing is based more on local knowledge accumulated over years rather than on use of scientific know how and research.

2. Authority to Plan

This plan has been prepared by the Department of Transport and Main Roads to meet obligations described in the *Transport Operations Marine Pollution Act 1995*, the *Maritime Safety Queensland Act 2002* and the Intergovernmental Agreement on Australia's *National Plan for Maritime Environmental Emergencies*.

3. Scope

The arrangements outlined in TORRESPLAN apply to spills of oil from ships that impact or are likely to impact:

- all waters and foreshores of Torres Strait encompassed by the Protected Zone

- all waters and foreshores between the Torres Strait Protected Zone and the Great Barrier Reef Marine Park limit
- all waters and foreshores enclosed by a line extending from the south-west corner of the Protected Zone to Crab Island off western Cape York.

See Appendix A for a map of the geographical area of TORRESPLAN.

Note:

The Protected Zone is described in the treaty between Australia and the Independent State of Papua New Guinea concerning Sovereignty and Maritime Boundaries in the area between the two countries, including the area known as Torres Strait, and Related Matters of 18 December 1978 which entered into force on 15 February 1985. The Protected Zone in effect describes a large segment of the geographical area covered by this document. Article 13 of the treaty outlines the obligations of both governments in respect to protection and preservation of the marine environment in the Protected Zone.

4. Activation

This plan may be activated as a part of Queensland Coastal Contingency Action Plan (QCCAP) by the Marine Pollution Controller or any officer who is authorised under the *Transport Operations (Marine Pollution) Act 1995* and is acting in the role of Incident Controller.

5. Roles and Responsibilities

Maritime Safety Queensland is the control (lead) agency for response to ship sourced oil spills that occur or threaten the waters of the Torres Strait Protected Zone.

Details of the roles and responsibilities relating to oil spill response in Australia may be found in Schedule 1 to the Inter-Governmental Agreement on the National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances.

6. Integration with other Plans

This plan is a supplement to and must be read in conjunction with QCCAP. Other related documents include:

- First-strike oil spill response plan for the port of Thursday Island (Port Kennedy) – see Appendix 28 of QCCAP
- AMOSPLAN – the Australian oil and associated industries oil spill contingency plan.

7. Threat Assessment

Supplies of diesel fuel and petrol fuels are landed at Thursday Island and nearby Horn Island for distribution in bulk, intermediate bulk containers or 200 litre drums to other islands within the Torres Strait Protected Zone. Most islands within Torres Strait have barge ramps specially constructed for resupply of stores including fuel. While these light oil products do constitute a threat to the local marine environment they generally disperse and evaporate rapidly if spilled.

The principal risk to the marine environment of Torres Strait is from larger trading ships that could sustain damage during grounding or collision event. For example, a grounding event could result in the release of up to 700 tonnes of heavy fuel oil whilst a collision involving an oil tanker could result in a spill in excess of 20 000 tonnes of crude oil.

The stranding of a fishing vessel on an isolated reef, possibly away from recognised shipping routes could also result in a spill of up to 5000 litres of diesel fuel and other oil products.

8. Objective

The purpose of TORRESPLAN is to

- describe the operational arrangements, policies and procedures for effective and efficient response to ship-sourced oil spills that impact, or are likely to impact, the waters of Torres Strait
- provide an adequate level of preparedness for incidents within the scope of the plan by promoting teamwork and cooperation between the Commonwealth and Queensland Governments, the oil industry and other non-government agencies.

TORRESPLAN also identifies the biological, commercial, cultural and amenity resources requiring protection from the impact of spilled oil.

9. Seasonal Weather Patterns

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

Dominating the climate are alternating periods of wet and dry weather. The dry season, from May to October, is characterised by the south-east trade winds which blow persistently with speeds of over 20 knots for approximately two-thirds of the 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.

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.

10. Tidal Information

Tidal patterns throughout the area are complex. From the Coral Sea where tides are primarily semidiurnal, the tidal stream flows west to the Arafura Sea where they are mainly diurnal. However, the interaction of flood and ebb streams result in unusual and in many cases unpredictable tidal phenomena. Flinders (1814) observed that high water occurred at Mer (Murray) Island five hours later than at Masig (Yorke) Island and six hours later than at Prince of Wales Island at the western entrance to Torres Strait.

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 (Wells, 1962). Tidal streams through the Great North-East Channel are known to attain eight knots at times, the set being across the main shipping channel.

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 observed equivalent to low water springs at one location while 20 miles to the east levels have been sighted similar to high water springs. On occasion in this area, tides do not occur as anticipated and have 'refused to come in' for a day or more.

Local wind variations can have a significant effect on the fate of spilled oil in the area. When current and tidal streams are flowing west and the wind is in the south east, seas may be slight to moderate but with a change in tidal direction, that is, ebbing to the east, the sea can change to short and steep with wave heights of up to two metres.

From the foregoing it is clear that, in planning the response to a major spill in the area it would be difficult to predict the movement of the oil slick using either the most sophisticated of computer models or basic rule of thumb estimates. Added to the difficulty of reliable prediction, the persistence of sustained winds for all but two months of the year and the velocity and variable direction of the water flow further reduces the effectiveness of measures for spill control or entrainment in any of the shipping channels. On the plus side, however, the combination of winds and rapid water movement will assist with spreading and natural dispersion of the oil.

11. Environmental Sensitivity Grading

The grading is based on the relative socio-economic and biological importance of a site or an area. The fact that a particular site is not listed or is not assigned a grading does not indicate that it is of no significance. The grading system has been developed to prioritise the most important sites in the proximity of the shipping channel and to act as a guide to the On Scene Co-ordinator in the event of an oil spill in the area. Criteria gradings are as follows:

Extreme	Extremely sensitive to oiling. Take action to prevent floating or dispersed oil entering the area
High	High sensitivity to oiling. Recover or disperse oil before it reaches the area.
Moderate	Moderate sensitivity to oiling. Monitor the oil slick. Depending upon the weather and tidal conditions action may be taken to disperse the slick.

Area	Values	Seasonal Variation	Sensitivity
Booby Island to Twin Island (Prince of Wales Channel)			
North West Reef	Extensive non-drying reefs	The proximity of the shipping channel to the reefs and islands in this area gives no time for natural dispersion of floating oil away from the point source regardless of season.	High
North Torres Reef (Reef 1)	Locally important to the crayfish industry and Hammond Is. and Thursday Is. for subsistence fishing.		
South Torres Reef (Reef 2)			
Hammond Is. (North Shore)	The fringing reef and mangrove areas are locally important to the Hammond Is. community.	As above.	High
Wednesday Is (North Shore)	Locally important breeding area for Hawksbill turtles. Important mangrove community.	Hawksbill turtles breed throughout the year. This area will be most vulnerable during the NW season.	High
Twin Island to Sue Island (Warraber Island)			
All home reefs	Vital for subsistence fishing to all communities	The SE season is likely to be the time of greatest risk in the area as floating oil will be directed towards the home reefs of numerous islands	Extreme

Area	Values	Seasonal Variation	Sensitivity
Vigilant Channel			
Sue Island home reef	This extensive drying reef is extremely important to the local community on Sue island for fishing and shellfish gathering.	The proximity of these drying reefs to the shipping channel provides no leeway for seasonal variation with regard to wind or tidal currents. East/west transport of floating oil by tidal currents through the channel may be effective if booms can be used to deflect oil from the home reef.	Extreme
Bet Island Reef	This extensive drying reef is locally important to the Sue Island community for commercial cray fishing and subsistence fishing. Bet Is. is locally important as a breeding site for Green turtles	As above	Extreme
Vigilant Channel to Bramble Cay (Great North East Channel)			
Sassie Island and surrounding reef	The island is of international importance as a breeding ground for the Hawksbill turtle. Locally important as a feeding and breeding ground for numerous species of stingray. The very extensive mangrove community is locally very important.	Due to the position of the island and reef, to leeward of the shipping channel, during the SE season every effort should be made to contain released oil at point source disperse it as early as possible.	Extreme
Dungeness and Warrior Reefs	A vital area to the fishing industry of both Australia and PNG. An important feeding ground for turtle and dugong. Seagrass beds to the west of Warrior Reefs provide for juvenile prawn recruitment to the fishery east of Warrior Reefs	As above	High
Bramble cay	Of international significance as a breeding ground for Green turtles	During the south easterly season (Apr-Nov) movement of oil slicks will probably impact mostly on the PNG coastline from Kiwai Island the south entrance of Fly River westward to Saibai Is and Sigubaduru village on the PNG mainland. During the breeding season (Nov- March) will be the most critical time for an oil spill in this area.	Extreme
Endeavour Strait and Adolphus Channel (Crab Island to Mt. Adolphus Island)			
Crab Island	Internationally important as a breeding ground for the Flat Back turtle	Breeding occurs throughout the year	Extreme

Area	Values	Seasonal Variation	Sensitivity
Prince of Wales Island (South Coast)	Port Lihou and Packe Island supports a local pearl culture industry. The mangrove community in this area is locally important	In view of the type of traffic through this area spillage is likely to be largely of light fuel oil or diesel. It is probably that tidal currents are likely to be of more significance than seasonal wind patterns.	Moderate
Cape York mainland (Crab Island to Cape York)	This coastal area is important as a turtle and dugong feeding area and is locally important for subsistence fishing Roko Is. supports local pearl culture.	As above	Moderate

12. Response strategies and options

Response Options for responding to oil spills are contained in Section 7.12 of QCCAP.

Guidelines for the use of dispersants to break up oil slicks are contained in Section 7.12.1 of QCCAP.

13. Incident control centre

Maritime Safety Queensland may establish either an Incident Control Centre in the Australian Fish Management Authority conference room, Pearls Building, Victoria Parade, Thursday Island.

Depending upon the scale of an incident an Incident Control Centre may also be established at Maritime Safety Queensland's Marine Operations Base, Tingira Street, Cairns.

14. Contact list

Contact	Location	Work phone	Mobile phone
Regional Harbour Master	Cairns	4052 7494	0459 812 653
Manager Vessel Traffic Management	Cairns	4052 7474	0427 012 262
Marine Officer	Thursday Island	4069 1351	0428 119 064
Torres Strait Regional Authority (TSRA)	Thursday Island/ Saibai Island	4069 0700 4069 4270	0429 691 330
Torres Strait Island Regional Council	Cairns	4034 5700	
Torres Shire Council	Thursday Island	4069 1336	0429 691 330
Police	Thursday Island	4069 1520	0428 775 162
Queensland Boating and Fisheries Patrol	Thursday Island	4069 1772	0428 723 784
Australian Fish Management Authority	Thursday Island	4069 1990	0427 959 613
Ports North	Thursday Island	4069 1405	0427 593 915
Environment and Science Coordinator		1300 130 372	
Registered Native Title Body Corporates – contact TSRA			

Appendix A – Map of the Torres Strait Protected Zone

