

Security of offshore oil and gas facilities: exclusion zones and ships' routeing

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Abstract

The article discusses the legality at international law of establishing security exclusion zones beyond 500 metres around offshore oil and gas facilities on the continental shelf and implementing ship routeing measures, and requiring ships, particularly foreign flagged ships, to comply with such zones and routeing measures. It also discusses state practice in with regard to safety or security zones and ship routeing measures as well as problems relating to enforcement of interferences with security or safety zones around offshore facilities or non-compliance with prescribed routeing measures and other related security arrangements.

While there have been no terrorist attacks or serious security incidents involving offshore oil and gas facilities on the Australian continental shelf, security concerns about Australian offshore facilities remain. Any unauthorised activities in close proximity to offshore oil and gas facilities present security risks.¹ Apart from terrorism and 'insider threats',² threats to offshore facilities in north-western Australian waters are also posed by fishing vessels and recreational craft operating in the vicinity of offshore facilities,³ as well as commercial shipping. Infringements of safety zones around offshore facilities by ships, particularly fishing vessels, are not unusual.⁴ There have been a number of incidents involving vessels that ignore the safety zones around offshore facilities including incidents where vessels tried 'to moor alongside or board the facility'.⁵

In 2010, the Australian government commissioned an Inquiry into security arrangements of the Australian offshore oil and gas industry. The Inquiry was established under the *Inspector of Transport Security Act 2006*, to provide a report to the Minister for Infrastructure and Transport on the security of offshore oil and gas resources in the Australian territorial sea and on the Australian continental shelf.⁶ The 'terms of reference' for the Inquiry were expressed widely and included, *inter alia*, the requirement to review current security arrangements, identify any gaps in these arrangements, identify the potential consequences of

failure to prevent a violent takeover of the facility, and to provide recommendations to improve the security arrangements.⁷

Inquiry Report recommendations

After examining and analysing the threat scenarios and risk factors concerning the protection of offshore oil and gas facilities, the Inquiry Report provided ten recommendations together with possible options for implementing them.

The recommendations are premised on the finding that, currently, the threat to Australian offshore facilities is 'low risk',⁸ but warns that security implications could worsen in the future. Most of the recommendations cover practical matters and are not generally controversial; concerning the performance of security audits and inspections, the establishment of a system of exercises to test the security arrangements, improvements to incident response, the establishment of consistent standards concerning access to and egress from the facilities, improvements to the recruitment and vetting of employees involved with the facilities, and the implementation of training and awareness programs.

In addition to these practical recommendations, the Inquiry Report recommends better government and industry interaction generally, as well as specifically in relation to cyber security. Finally, the Inquiry Report makes recommendations concerning security exclusion zones and ship's routeing measures.

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Recommendation 4 of the Inquiry Report states:

The Inquiry recommends that immediate consideration is given to extending and hardening current security exclusion zone boundaries and arrangements to increase the safety and security of offshore facilities from unlawful or unauthorised intrusion and threat.⁹

This is a straight-forward recommendation. It is the proposed options to achieve the recommendation that could potentially cause problems. The Inquiry Report offers three possible options:

- (1) the introduction of a three-tiered concentric zoning approach consisting of:
 - (a) a cautionary zone of 15nm radius around the facility to be combined with appropriate vessel separation schemes traffic lanes and recommended routes under which all ships within those zones must maintain communication with the facility
 - (b) an area to be avoided of 5nm radius around the facility which prohibits entry to all vessels not connected with the facility operations
 - (c) an exclusion zone of 1 to 2.5nm radius around the facility which excludes all vessels not connected with the facility operations and requires any other vessels entering the zone to gain the express approval of the facility operator.
- (2) the establishment of ship routeing schemes, vessel separation schemes, traffic lanes, recommended routes and areas to be avoided around the facility to maximise the stand-off distances of vessels in the vicinity of the facility
- (3) the imposition of liability on owners or operators of vessels which improperly enter the exclusion zone around the facility for the financial consequences of the operator of the facility reasonably ordering an evacuation of the facility.¹⁰

Options 4.1 and 4.2 appear to be alternatives. Option 4.3 could conceivably apply on its own or in combination with either Option 4.1 or 4.2.

It is this recommendation, and the options identified to implement it, that do raise some controversial points mainly concerning consistency with international law and problems of practical application. Safety zones around offshore facilities,

vessel routeing systems and areas to be avoided are not new concepts in international law, and have a sound legal basis in international law.¹¹ However, as will be shown, the legal basis for and the essential objectives of these mechanisms are the safety of navigation and the protection of the environment. Therefore it must be asked whether use of these mechanisms is permissible under international law solely in the context of security of offshore facilities. In seeking an answer to this question, the legal basis of each mechanism and the ways in which each mechanism is used will be examined under international law and state practice and the processes adopted by the International Maritime Organization (IMO).

Safety zones

The establishment of safety zones around offshore oil and gas facilities is addressed in the *United Nations Convention on the Law of the Sea 1982* (LOSC).

The LOSC is silent about safety zones around offshore facilities located in the territorial sea. Arguably, the coastal state, by virtue of its sovereignty and Article 21(1)(b), may adopt measures for the protection of offshore facilities in the territorial sea such as the establishment of 'safety zones', 'security zones' or 'exclusion zones' around offshore facilities, and take in those zones whatever measures are necessary for the protection of facilities.¹²

The breadth of such zones does not have to be limited to 500m, which is the limit for the safety zones in the exclusive economic zone and on the continental shelf,¹³ so a coastal state can establish security zones of any breadth it deems necessary,¹⁴ as long as such zones do not hamper the innocent passage of foreign ships through the territorial sea and safety of navigation is preserved.¹⁵ The LOSC does not expressly mention the need to seek the IMO endorsement for safety zones larger than 500m around offshore facilities in the territorial sea, which could be understood that such an endorsement is not required.¹⁶ The size of a security zone and nature of the protection measures in such a zone may depend on the type and nature of the offshore facility in question. For example, strategically important offshore oil and gas facilities, such as major offshore export terminals, may be subjected to security arrangements of a high order and may warrant larger safety, security, or exclusion zones around them.¹⁷

To protect offshore facilities in the territorial sea, coastal states can use the right to designate and prescribe sea lanes and traffic separation schemes for the regulation of passage (for example, in areas of high concentration of offshore facilities) and require foreign ships exercising the right of innocent passage through its territorial sea to use such sea lanes and traffic separation schemes.¹⁸

The coastal state also has a right to suspend temporarily the innocent passage of foreign ships in specified areas of its territorial sea if such suspension is essential for the protection of its security,¹⁹ (and the protection of offshore oil and gas facilities can arguably be essential to the security of the coastal state) or it can take the 'necessary steps' in its territorial sea to prevent passage of foreign ships through the territorial sea which is found to be not innocent passage,²⁰ for example, where such passage is connected to or involves any act aimed at interfering with offshore facilities.²¹ Depending on the nature and severity of threat posed by the delinquent ship, the coastal state can resort to the use of reasonable force (including deadly force) as a last resort.²² Security arrangements of Iraq's Al Basra Oil Terminal and Khawr Al'Amaya Oil Terminal is an example of state practice of using rights available to coastal states under the LOSC to protect offshore facilities in the territorial sea.²³

The coastal state can also rely on LOSC Article 27 to exercise criminal jurisdiction on board the foreign ship involved in deliberate interference with an offshore facility, which causes a security incident or attack on an offshore facility in the territorial sea, and arrest persons responsible because the consequences of such unlawful acts extend to the coastal state and/or disturb the peace of the country or the good order of the territorial sea.²⁴

The coastal state's authority to protect offshore oil and gas facilities located in its exclusive economic zone and on its continental shelf, including the continental shelf beyond 200nm, is more limited than in the territorial sea. Under LOSC Article 60(4), the coastal state may, where necessary, establish reasonable safety zones around offshore oil and gas facilities, in which it may take 'appropriate measures' to ensure the safety of both navigation and offshore facilities, and to prevent any offence being committed within safety zones around them.²⁵

The coastal state is allowed to determine the breadth of the safety zones up to a maximum of 500m and ensure that such zones 'are reasonably related to the

nature and function' of an offshore facility,²⁶ which suggests that the protective measures in a safety zone could be determined by the type and function of an offshore facility.²⁷ Offshore facilities and safety zones around them may not be established where interference may be caused to the use of recognised sea lanes essential to international navigation, and they must not result in any infringement or unjustifiable interference with navigation or other rights and freedoms of the high seas.²⁸

The only exception to the 500m limit of safety zone breadth is when a longer distance is authorised by the generally accepted international standards or as recommended by the competent international organisation.²⁹ The expression 'authorised by generally accepted international standards' in LOSC Article 60(5) seems to be a reference to customary international law and, in the absence of an international regulatory body directly concerned with offshore oil and gas installations, the expression 'competent international organisation' in Article 60(5) is understood to mean the IMO.³⁰

The LOSC requires all ships to respect safety zones around offshore installations,³¹ but the main problem is that the 500m safety zones are not sufficient to protect offshore oil and gas facilities from deliberate attacks or unlawful interferences.³² Another difficulty relates to undertaking enforcement against foreign ships for violations of coastal state laws and regulations on the continental shelf relating to the protection and security of offshore installations because the LOSC does not contain any express provisions dealing with boarding and arrest of foreign ships involved in such violations. With respect to the coastal state's enforcement jurisdiction in waters above the continental shelf beyond 200nm, the situation is even more difficult because these waters are part of the high seas.³³ On the high seas, a flag state has exclusive jurisdiction over ships entitled to fly its flag.³⁴ Coastal states do not have any specific regulation and enforcement powers.

In summary, foreign ships are not required to respect any cautionary zones or security exclusion zones beyond 500m around offshore facilities on the continental shelf, and are not required to maintain communication with offshore facilities. There is nothing a coastal state can do legally to enforce non-compliance with such 'requirements'. Accordingly, the proposal in Recommendation 4.1 of the Inquiry Report to introduce exclusion zones of between 1 to 2.5nm would not be consistent with international

law and therefore does not have to be respected by foreign ships. As long as the ship does not infringe a 500m safety zone around an offshore facility on the continental shelf,³⁵ the owner, operator and/or master of the ship cannot be held liable (financially or otherwise), as suggested by Recommendation 4.3 of the Inquiry Report, for the ship's non-compliance with any security exclusion zones that are larger than 500m safety zones.

In the 1970s and 1980s, the IMO adopted several resolutions relating to the safety of offshore oil and gas installations and safety of navigation,³⁶ which attempted to address the risks and dangerous consequences of collisions of ships with offshore facilities.³⁷ The principal IMO resolution dealing with safety zones around offshore oil and gas facilities is Resolution A.671(16) adopted on 19 October 1989, which contains recommendations on various measures to prevent the infringement of safety zones around offshore facilities.³⁸ However, the difficulty with this and other IMO resolutions is that they are not legally binding on states and serve only as recommendations,³⁹ so Resolution A.671(16) does not give any powers to coastal states to take enforcement action against foreign ships for infringements of safety zones around offshore facilities.⁴⁰

Between 2008 and 2010, the IMO Sub-Committee on Safety of Navigation was considering the issue of extending safety zones to more than 500m around offshore installations in the exclusive economic zone,⁴¹ but it was ultimately concluded that there was no demonstrated need to establish safety zones larger than 500m.⁴² To date, no other distance has been agreed by the international community and the IMO has not made any official recommendations on the extension of safety zones beyond 500m,⁴³ and it is unlikely that the IMO will authorise the extension of safety zones beyond 500m for the purposes of protection of offshore oil and gas facilities in the near future.⁴⁴ Therefore, at present and in the near future, it will not be possible for Australia to obtain endorsement of the IMO for any security exclusion zones larger than 500m around offshore oil and gas facilities, as envisaged in the Inquiry Report.⁴⁵

State practice with respect to establishing safety zones around offshore facilities on the continental shelf varies to a degree, but the 500m limit of safety zones seems to be a generally accepted standard. In their domestic legislation a number of states including Australia,⁴⁶ New Zealand⁴⁷ and Russia⁴⁸ have specified the 500m limit of safety zones in the exclusive economic zone and on the continental

shelf, while in other countries, such as Nigeria⁴⁹ and Ireland,⁵⁰ the legislation does not specify the exact limit of safety zones.⁵¹ Some states have established exclusion zones larger than 500m around offshore facilities on their continental shelf, particularly around those facilities from which petroleum is being exported directly such as floating production storage and offloading units (FPSOs) and floating storage and offloading units (FSOs) (some of which have been designated as offshore terminals). However, such practice is not consistent with the LOSC.

For example, in Nigeria, Pennington Offshore Terminal, which consists of two single point mooring (SPM) facilities and the FSO *Oloibiri*, is situated about 15nm offshore, but has a 3-mile 'restricted area'⁵² around it which all vessels are prohibited from entering without prior permission.⁵³ Similarly, Zafiro Offshore Oil Terminal in offshore Equatorial Guinea, which consists of the FPSO *Zafiro Producer*, a production platform *Jade*, a storage tanker *Magnolia*, and an SPM, is located about 30nm offshore, but it has a 4.3-mile 'restricted area' around it, which all ships must receive permission to enter.⁵⁴ As argued above, foreign ships are not required to respect more than 500m safety zone unless a larger distance is authorised by generally accepted international standards or recommended by the competent international organisation.⁵⁵

Ship routing

In addition to the creation of exclusion zones around offshore facilities, Options 4.1 and 4.2 of the Inquiry Report recommend the establishment of various ships' routing schemes.⁵⁶ The LOSC contains no specific provisions regarding ship routing schemes in the exclusive economic zone and on the continental shelf. The primary purpose of ships' routing is the improvement of navigation and protection of the environment and must be approved by the IMO prior to implementation.⁵⁷

The processes adopted by the IMO in assessing applications for ships' routing are set out in *General Provisions on Ships' Routing*.⁵⁸ The objectives of ships' routing are set out in paragraph 1.1:

The purpose of ships' routing is to improve the safety of navigation in converging areas and in areas where the density of traffic is great or where freedom of movement of shipping is inhibited.... Ships' routing may also be used for the purpose of preventing or reducing the risk of

pollution or other damage to the marine environment caused by ships colliding or grounding in or near environmentally sensitive areas.

Would a proposal as envisaged in Options 4.1 and 4.2 of the Inquiry Report be such that the IMO would approve it? To answer this question the methods suggested will be tested against IMO practice by way of two categories of measures - routing systems other than areas to be avoided and areas to be avoided.

There are a number of routing systems that can be put in place to address specific navigation or environmental risks. These include traffic separation schemes, recommended routes and precautionary areas. Paragraph 1.2 of *General Provisions on Ships' Routing* sets out the objectives that may need to be addressed in particular situations. To address this risk, any application would need to identify and justify the use of particular routing systems appropriate to the situation.⁵⁹

In selecting a particular routing system, paragraph 5.1 gives guidance

The routing system selected for a particular area should aim at providing safe passage for ships through the area without unduly restricting legitimate rights and practices, and taking account of anticipated or existing navigational hazards.

Therefore the routing systems suggested in Options 4.1 and 4.2 of the Inquiry Report would need to be addressed in light of the provisions of *General Provisions on Ships' Routing* to assess the likelihood of approval by the IMO.

The first method suggested in Option 4.1 of the Inquiry Report is a cautionary zone of 15nm from any offshore facility. A 'cautionary zone' would correspond to a 'precautionary area', one of the identified routing systems in *General Provisions on Ships' Routing*, defined in paragraph 2.1.12 as 'a routing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended'.

The use of precautionary areas is quite widespread particularly in relation to navigational risks where, for example, various traffic lanes come together or in narrow straits with heavy traffic, such as the Dover Strait.⁶⁰ Precautionary areas have also been used where there is not only a navigation risk but also an environmental risk, such as the area established off the Taranaki coast in New Zealand

where there is a high concentration of offshore oil and gas production and where vessels are requested to navigate with particular care to avoid a maritime casualty and resultant pollution.⁶¹ If a precautionary area was sought solely on the grounds of security as recommended in the Inquiry Report, the result would be questionable since *General Provisions on Ships' Routing* requirements clearly indicate that precautionary areas should deal with matters of safety of navigation and environmental risk.

Other suggested vessel traffic management schemes are again primarily designed for navigational safety in areas of heavy traffic and narrow straits to avoid collisions and other maritime casualties.⁶² In considering the approval of such schemes the IMO would have to be convinced of the need for such a scheme on navigational grounds and that it does not impose unnecessary constraints on shipping.⁶³ As with precautionary areas, a proposal for vessel traffic management schemes around offshore facilities simply for the purpose of increasing the safety and security of the facility from intrusion and threats would be unlikely to be approved in the absence of navigational or environmental risks.

Finally, the establishment of recommended routes is a widely used measure for reducing navigation and environmental risks. In relation to the offshore facilities on the Australian continental shelf, the use of Shipping Fairways is common. A Shipping Fairway was instituted in 2007 for the Port of Dampier and in 2012 a further series was established for other areas of the north-west coast of Australia.⁶⁴ However, the justification for these Fairways is to reduce the risk of collision between vessels and offshore facilities by directing ships away from current or planned offshore facilities.⁶⁵

The above analysis clearly shows that the various vessel management schemes proposed in the Options 4.1 and 4.2 of the Inquiry Report would be unlikely to gain the approval of the IMO in the absence of a concurrent navigational or environmental factor.

An area to be avoided (ATBA) is defined by the IMO in paragraph 2.1.13 of *General Provisions on Ships' Routing* as:

A routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ship.

In determining whether or not to agree to such a request, *General Provisions on Ships' Routeing* gives clear guidance, and states in paragraph 5.5:

When establishing areas to be avoided by all ships or by certain classes of ship, the necessity for creating such areas should be well demonstrated and the reasons stated. In general, these areas should be established only in places where inadequate survey or insufficient provision of aids to navigation may lead to danger of stranding, or where local knowledge is considered essential for safe passage, or where there is the possibility that unacceptable damage to the environment could result from a casualty, or where there might be hazard to a vital aid to navigation. These areas shall not be regarded as prohibited areas unless specifically so stated; the classes of ship which should avoid the areas should be considered in each particular case.

Deliberations by the IMO Sub-Committee on Safety of Navigation clearly show the reluctance to recommend approval of an ATBA except where the applicant has clearly shown that it is needed to assist navigation or to protect the environment.⁶⁶ This is particularly true in proposals for mandatory ATBA. Only one mandatory ATBA has been approved by the IMO, being that covering the Poor Knights Islands off New Zealand.⁶⁷ This request caused some controversy in the IMO Sub-Committee on Safety of Navigation deliberations which concluded that the area must be small, be limited to what is necessary to ensure safe navigation and protection of the environment, not impose unnecessary constraints on shipping and be consistent with the international law of the sea.⁶⁸ It warned that any future requests for mandatory ATBA should be treated 'with caution'.⁶⁹

In the majority of approved ATBA the reason given for their establishment is to avoid damage to the environment, particularly by oil pollution.⁷⁰ Other reasons include navigational safety in narrow straits, as an associated protection measure included in declarations of Particularly Sensitive Sea Areas⁷¹ and to avoid ship strikes on endangered species.⁷² In relation to offshore facilities, ATBA have been used for both navigational and environmental reasons in Bass Strait,⁷³ the approaches to four deepwater ports off the United States⁷⁴ and around installations in the Campos Basin off Brazil.⁷⁵ In Australia, the ATBA in the Bass Strait is closed to certain Australian flagged-ships and vessels engaged in petroleum-related activities, while foreign ships that are not engaged in petroleum-related activities are

exempt. The reason is that, 'at international law, freedom of navigation would not permit Australia to close off an area of its EEZ to shipping, but it can resist its own, or vessels seeking to exploit its EEZ'.⁷⁶

Therefore, would the option put forward in Recommendation 4.1 of the Inquiry Report be acceptable to the IMO? The option contains three problems. First, it would have to be established that there is a need for an ATBA on the grounds of safety of navigation or protection of the environment. Second, the proposed ATBA is 5nm around any offshore facility. Third, access to the proposed ATBA would be prohibited to shipping unrelated to the facility, thereby making it a mandatory ATBA.

Any proposal for an ATBA would need to show why it was necessary on navigation and environmental grounds.⁷⁷ Paragraph 5.5 of *General Provisions on Ships' Routeing* makes no reference to the creation of an ATBA simply as a security measure against 'unlawful or unauthorised intrusion and threat'. Even in proposals covering offshore facilities, the main concern is the possibility of a collision by a ship and not for ensuring the security of the facility against intrusion or threat.⁷⁸ It has been argued that an ATBA designed to protect the facility from intrusion or threat could be justified as being necessary to protect the environment from pollution which could flow from such intrusion or threat.⁷⁹ However, in light of the history of approvals and the clear reluctance of the IMO to approve ATBA that might unduly affect freedom of navigation, the chances of success of such an application without any other navigational or environmental basis would probably be slim.

On the second point, it would have to be clearly established that such a distance is necessary to achieve the purpose of each ATBA. Each proposal for an ATBA would require a specific consideration of its size⁸⁰ and a blanket 5nm proposal would not necessarily be appropriate.⁸¹ This would be particularly true of a proposal for a mandatory ATBA, since its effect would be to affect the freedom of navigation by prohibiting the entry of ships into the area.

On the third point, the proposal for 5nm ATBA 'that acts to prohibit entry into the zone by shipping unrelated to the offshore facilities' is a proposal for a mandatory ATBA. The practical effect of such an application would be to create a 5nm exclusion zone which would be an interference with freedom of navigation and could only be justified in the

interests of safety of navigation and protection of the marine environment. Since the view taken by the IMO Sub-Committee on Safety of Navigation in the Poor Knights Islands application was that any mandatory ATBA must be treated with caution, the chances of success of any application for a mandatory ATBA simply on the grounds of preventing 'unlawful or unauthorised intrusion or threat' must be highly questionable.

Unless the IMO can be convinced of the validity of the argument that an ATBA purely for security of the offshore facility could be necessary to prevent pollution of the marine environment, the option as presently worded would be unlikely to gain approval and any attempt to create an enforce such an ATBA without this approval would be an interference with freedom of navigation and thereby contrary to international law of the sea.

Conclusions

The options proposed in Recommendation 4 of the Inquiry Report include the establishment of exclusion zones and other ships' routing measures. This article has examined the legal basis of exclusion zones and ships' routing under international law and state practice and the processes adopted by the IMO.

In relation to exclusion zones, it is widely accepted that, in contemporary times, a 500m safety zone is too narrow to protect offshore oil and gas facilities from deliberate attacks, particularly from intentional ramming by ships. However desirable and warranted it would be, the extension of security zones and establishment of the three-tiered security areas around offshore facilities would not be consistent with international law. Foreign ships are not required to respect security zones beyond 500m mark on the continental shelf, due to freedom of navigation principle in waters outside of the territorial sea. When the international community determines that it is necessary to allow the extension of the breadth of safety zones around *all* offshore installations in general, it would need to be done as an amendment to the LOSC or through state practice as part of the development of customary international law.

As for the ship's routing measures proposed in Recommendation 4.2 of the Inquiry Report, the conclusion to this examination is that the legal basis for and the essential objectives of these mechanisms are the safety of navigation and the protection of the environment and any proposal to introduce such measures solely for the security of offshore facilities

from 'unlawful or unauthorised intrusion and threat' would be unlikely to receive the approval of the IMO.

ENDNOTES

¹ Council for Security Cooperation in the Asia Pacific (CSCAP), *Safety and Security of Offshore Oil and Gas Installations*, Memorandum 16, January 2011, pp. 1-2.

² The 'insider threats' refers to threats from within the offshore oil and gas industry such as company employees, contractors and service providers to the offshore oil and gas industry, and other trusted persons affiliated with the industry such as including offshore security personnel.

³ Anthony Bergin and Sam Bateman, 'Things Could Turn Ugly in Troubled Waters to Our North: Doubts Surface about the Safeguarding of Australia's Offshore Gas and Oil Installations', *The Australian*, 28 July 2012, p. 9. See also, Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, Department of Infrastructure and Transport, Canberra, June 2012, pp. 65-67.

⁴ See CSCAP, 'Safety and Security of Offshore Oil and Gas Installations', pp. 1-2; Department of Transport and Regional Services (DOTARS), *Offshore Oil & Gas Risk Context Statement*, Canberra, April 2005, pp. 14-15.

⁵ Bergin & Bateman, 'Things Could Turn Ugly in Troubled Waters to Our North', p. 9.

⁶ *Inspector of Transport Security Act 2006*, s 11. Section 11(1) provides that the Minister may direct the Inspector of Transport Security to inquire into an offshore security matter.

⁷ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, pp. 115-116.

⁸ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, p. 2.

⁹ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, p. 89.

¹⁰ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, p. 89.

¹¹ For discussion on the evolution of safety zones see Stuart Kaye, 'International Measures to Protect Oil Platforms, Pipelines, and Submarine Cables from Attack', *Tulane Maritime Law Journal*, vol. 31, no. 2, 2007, pp. 382-386; Hossein Esmaili, *The Legal Regime of Offshore Oil Rigs in International Law*, Ashgate Dartmouth, Aldershot, 2001, pp. 126-128. See also Assaf Harel, 'Preventing Terrorist Attacks on Offshore Platforms: Do States Have Sufficient Legal Tools?', *Harvard National Security Journal*, vol. 4, no. 1, 2013, pp. 143-149.

¹² LOSC Article 21(1)(b) provides that the coastal state may adopt laws and regulations relating to innocent passage through the territorial sea, in respect of the protection of navigational aids and other facilities or installations.

¹³ See LOSC Article 60(5).

¹⁴ For example, in New Zealand, section 8 of the *Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977* (NZ) provides that the Governor-General may make regulations in respect of the establishment of safety zones around offshore installations in the territorial sea, but the maximum distance of such safety zones is not specified in this Act, which indicates that safety zones larger than 500m may be established around offshore installations in New Zealand's territorial sea.

¹⁵ LOSC Article 24(1); Salah Honein, *The International Law Relating to Offshore Installations and Artificial Islands: An Industry Report*, Lloyd's of London Press, London, 1991, p. 5.

¹⁶ Compare with LOSC Article 60(5).

¹⁷ In the Persian Gulf, Iraq's Khawr Al Amaya Oil Terminal (KAAOT) and the Al Basrah Oil Terminal (ABOT) each have 3000m warning zones and 2000m exclusion zones around them: International Association of Independent Tanker Owners (INTERTANKO), 'Iraq/Khor Al Amaya - Warning & Exclusion Zones Around Terminals', <https://www.intertanko.com/templates/Page.aspx?id=44143> (29 January 2011). See also US Navy, 'Coalition Maritime Forces Revise Iraqi Oil Terminal Protection Procedures', http://www.navy.mil/search/display.asp?story_id=13177 (4 February 2013).

¹⁸ LOSC Article 22(1). However, laws and regulations that a coastal state adopts cannot not have the practical effect of denying or impairing the right of innocent passage and must be in conformity with the LOSC and other rules of international law, see LOSC articles 21(1), 24(1)(a).

¹⁹ LOSC Article 25(3). There are conditions in Article 25(3) imposed on this right namely that: a) the suspension must be temporary, b) the suspension must be essential for the protection of its security, c) it can be implemented only in specified areas of the territorial sea, and d) it must be without discrimination among foreign ships.

²⁰ LOSC Article 25(1). The LOSC does not clarify what 'necessary steps' can be taken by a coastal state. However, for discussion on response options available to the coastal state, see Donald Rothwell and Tim Stephens, *The International Law of the Sea*, Hart Publishing, Oxford, 2010, p. 218.

²¹ Under the LOSC, any act aimed at interfering with offshore oil and gas installations would be considered to be prejudicial to the peace, good order and security of the coastal state and by definition is *not* innocent, see LOSC Article 19(2)(k).

²² See David Harris, *Cases and Materials on International Law*, (6th ed), Sweet & Maxwell, London, 2004, p. 424; and Rothwell & Stephens, *The International Law of the Sea*, p. 218. See also International Tribunal for the Law of the Sea, *M/V Saiga (St Vincent v Guinea) (Judgement)*, Case No 2, 1 July 1999.

²³ The US Maritime Liaison Office (MARLO) in Bahrain has issued a notice advising ships operating in the Persian Gulf of the warning and exclusion zones around ABOT and KAAOT, located off the coast of Iraq, see Marshall Islands Government, Office of the Maritime Administrator, 'Warning and Exclusion Zones around the Khawr Al' Amaya Oil Terminal (KAAOT) and the Al Basra Oil Terminal (ABOT)', *Marine Safety Advisory No 15-08*, 20 May 2008. The notice states:

If queried, mariners should clearly identify themselves and state their intentions and, if given directions from coalition warships, they should immediately execute such directions so as to make their intentions known ... coalition warships are prepared to take defensive measures, including, if necessary, the use of deadly force against any contact whose identity or intentions are unknown and which subjectively poses a threat. ... The right of innocent passage is temporarily suspended in accordance with international law in the KAAOT and ABOT exclusion zones. ... Vessels attempting to enter the [exclusion] zones without authorization may be subjected to defensive measures, including when necessary, the use of deadly force. All reasonable efforts including established pre-planned

responses will be taken to warn vessels away before employing deadly force....

²⁴ LOSC Articles 27(1)(a), (b). However, there is an obligation on the coastal state to notify a diplomatic agent of the flag state before taking any steps in relation to the exercise of criminal jurisdiction. See LOSC Article 27(3).

²⁵ LOSC Article 60(4); Honein, *The International Law Relating to Offshore Installations and Artificial Islands*, pp. 47-48.

²⁶ LOSC Article 60(5).

²⁷ In any case, 500m is the maximum allowed breadth of safety zones around offshore facilities in the exclusive economic zone and on the continental shelf, see LOSC Article 60(5).

²⁸ LOSC Articles 60(7), 78(2).

²⁹ LOSC Article 60(5).

³⁰ See IMO, *Report to the Maritime Safety Committee*, IMO NAV, 56th session, Agenda Item 20, IMO Doc NAV 56/20, 31 August 2010, p. 15.

³¹ LOSC Article 60(6).

³² The concept of safety zones was designed for the main purpose of preventing accidental collisions between ships and offshore installations rather than protecting installations from deliberate attacks. See generally Kaye, 'International Measures to Protect Oil Platforms, Pipelines, and Submarine Cables from Attack', pp. 405-406; Esmaeili, *The Legal Regime of Offshore Oil Rigs in International Law*, pp. 126-129.

³³ LOSC Article 78(1).

³⁴ LOSC Article 92(1).

³⁵ In Australia, there are substantial penalties that can be applied to owners and/or masters of ships for infringing 500m safety zones around offshore facilities. See *Offshore Petroleum and Greenhouse Gas Storage Act 2006*, s 616.

³⁶ These include: IMO, *Establishment of Safety Zones and Fairways or Routeing Systems in Offshore Exploration Areas*, Resolution A.379(X), 1977; IMO, *General Provisions on Ships' Routeing*, Resolution A.572(14), 1985; IMO, *Measures to Prevent Infringement of Safety Zones around Offshore Installations or Structures*, Resolution A.621(15), 1987; IMO, *Safety Zones and Safety of Navigation around Offshore Installations and Structures*, Resolution A.671(16), 1989.

³⁷ See Honein, *The International Law Relating to Offshore Installations and Artificial Islands*, p. 48.

³⁸ IMO, *Safety Zones and Safety of Navigation around Offshore Installations and Structures*, Resolution A.671(16), 1989. IMO Resolution A.671(16) provides that coastal states can take enforcement action against foreign ships for infringement of regulations relating to safety zones around offshore facilities under its jurisdiction, but any such action must be in accordance with international law.

³⁹ Esmaeili, *The Legal Regime of Offshore Oil Rigs in International Law*, p. 132.

⁴⁰ These IMO Resolutions appear to emphasise the need for flag states to take action against ships which are reported to have infringed safety zones around offshore facilities.

⁴¹ IMO, 'Sub-Committee on Safety of Navigation (NAV), 55th session: 27-31 July 2009, IMO, London <http://www.imo.org/MediaCentre/MeetingSummaries/NAV/Pages/NAV-55th-session.aspx> (4 February 2013); IMO, 'NAV Progresses E-navigation Strategy', *IMO News*, No. 4, 2009, p. 10; IMO, *Development of Guidelines for Consideration of Requests for Safety Zones Larger than 500 metres Around Artificial Islands, Installations and Structures in the Exclusive*

Economic Zone, IMO MSC, 84th session, Agenda Item 22, IMO Doc MSC 84/22/4, 4 February 2008.

⁴² IMO, *Report to the Maritime Safety Committee*, IMO NAV, 56th session, Agenda Item 20, IMO Doc NAV 56/20, 31 August 2010, pp. 14-17.

⁴³ However, the IMO Sub-Committee on Safety of Navigation did agree on *Guidelines for Safety Zones and Safety of Navigation around Offshore Installations and Structures* and recommended these guidelines for circulation to IMO members. See IMO, *Report to the Maritime Safety Committee*, Annex 6. However, it was acknowledged that the need for extension of safety zones beyond 500m might be necessary in the future (p. 16). It is also worth noting that the issue of extending safety zones beyond 500m was considered in the context of safety, but not in the context of security.

⁴⁴ Harel, 'Preventing Terrorist Attacks on Offshore Platforms', p. 175.

⁴⁵ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, p. 88.

⁴⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006*, s 616. Section 616(2) provides that safety zones around offshore facilities can extend to a distance of 500m. All vessels, or all vessels of a particular type, are prohibited from being present in a safety zone, and 'it is an offence of strict liability for a vessel to enter or remain in a safety zone', see S Kaye, 'The Protection of Platforms, Pipelines and Submarine Cables under Australian and New Zealand Law' in N Klein, J Mossop and D Rothwell (eds), *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand*, Routledge, New York, 2010, p. 194. With regard to establishing offshore security zones around offshore facilities, section 113C of the *Maritime Transport and Offshore Facilities Security Act 2003* provides that in establishing an offshore security zone the Secretary must act consistently with Australia's obligations under international law.

⁴⁷ *Continental Shelf Act 1964* (NZ), s 8.

⁴⁸ *Federal Law on the Continental Shelf of the Russian Federation 1995* (Russia), Article 16.

⁴⁹ *Exclusive Economic Zone Decree No 28 of 1978* (Nigeria), Article 3(2). Article 3(2) provides (without specifying the limit of such 'designated areas' or 'safety zones'), that the 'appropriate authority may, for the purpose of protecting any installation in a designated area by order published in the Gazette, prohibit ships, subject to any exceptions provided in the order, from entering without its consent such part of that area as may be specified in such order'.

⁵⁰ *Continental Shelf Act 1968* (Ireland), s 6(1). Section 6(1) provides (also without specifying the limit of such 'designated areas' or 'safety zones'), that for the purpose of protecting any installation in a designated area the Minister may, 'by order, subject to any exceptions provided by the order, prohibit ships from entering without his consent such part of that area as may be specified in the order'.

⁵¹ Esmaeili, *The Legal Regime of Offshore Oil Rigs in International Law*, pp. 135-136.

⁵² The LOSC does not use the term 'restricted area', but uses the term 'safety zone'.

⁵³ Marine World Database, *Pennington Terminal*, <http://www.anchorageworld.com/content/pennington-terminal> (5 February 2013).

⁵⁴ Marine World Database, *Zafiro Offshore Oil Terminal*, <http://www.anchorageworld.com/content/zafiro-offshore-oil-terminal> (5 February 2013).

⁵⁵ See Daniel O'Connell, *The International Law of the Sea*, vol 2, Clarendon Press, Oxford, 1983-84, p. 847.

⁵⁶ Office of the Inspector of Transport Security, *Offshore Oil and Gas Resources Sector Security Inquiry*, p. 89.

⁵⁷ *International Convention for the Safety of Life at Sea*, Regulations V/10.2 and V/10.4

⁵⁸ IMO, *General Provisions on Ships' Routeing*, Annexed to IMO Resolution A.572(14), 20 November 1985.

⁵⁹ IMO, *Guidance Note on the Preparation of Proposals on Ships' Routeing Systems and Ship Reporting Systems for Submission to the Sub-Committee on Safety of Navigation*, MSC/Circ 1060, 6 January 2003, paragraph 3.1.

⁶⁰ *General Provisions on Ships' Routeing*, paragraph 4.3.3.

⁶¹ Maritime New Zealand, 'Pollution Prevention - Shipping Routeing - Areas to be Avoided', Wellington, www.maritimenz.govt.nz/Publications-and-forms/Environmental-protection/Areas-to-be-avoided.pdf (5 February 2013).

⁶² *General Provisions on Ships' Routeing*, paragraphs 1.1, 2.1.1.

⁶³ *General Provisions on Ships' Routeing*, paragraph 3.7.

⁶⁴ Australian Maritime Safety Authority (AMSA), *Maritime Notice 15/2012*, 30 July 2012.

⁶⁵ AMSA, *Maritime Notice 15/2012*; Mahesh Alimchandani, 'New Shipping Fairways Established off the North-West', *Shipping Australia*, Summer 2012, p. 32.

⁶⁶ IMO, Sub-Committee on Safety of Navigation, 49th session, *Routeing of Ships, Ship Reporting and Related Matters - Area Proposed to be Avoided*, NAV 49/3, 16 January 2003.

⁶⁷ IMO, Sub-Committee on Safety of Navigation, 49th session, *Report to the Maritime Safety Committee*, NAV 49/19, 28 July 2003, paragraph 3.26.

⁶⁸ IMO, *Report to the Maritime Safety Committee*, paragraph 3.27.

⁶⁹ IMO, *Report to the Maritime Safety Committee*, paragraph 3.28.

⁷⁰ For example, in Europe, waters around Fair Isle, the Orkney Islands and the Shetland Islands the purpose of the restriction is 'to avoid the risk of oil pollution and severe damage to the environment'.

⁷¹ Julian Roberts, *Marine Environment Protection and Biodiversity Conservation - The Application and Future Development of the IMO's Particularly Sensitive Sea Area Concept*, Springer, Berlin, 2007, pp. 120-122.

⁷² IMO, Sub-Committee on Safety of Navigation, 53rd session, *Routeing of Ships, Ship Reporting and Related Matters - Area to be Avoided 'In Roseway Basin, South of Nova Scotia'*, NAV 53/3/12, 20 April, 2007.

⁷³ IMO, *Ships' Routeing*, (8th ed), London, 2003, Section D, III/10. See also *Offshore Petroleum and Greenhouse Gas Storage Act 2006*, Schedule 2.

⁷⁴ IMO, *Ships' Routeing*, Section D, II/4.1 - II/4.2; IMO, Sub-Committee on Safety of Navigation, 50th session, *Routeing of Ships, Ship Reporting and Related Matters - An Area to be Avoided and a No Anchoring Area in the West Cameron Area of Northwestern Gulf of Mexico*, NAV 50/3/2, 2 April 2004; IMO, Sub-Committee on Safety of Navigation, 55th session, *Routeing of Ships, Ship Reporting and Related Matters - An Area to be Avoided and Two No Anchoring Areas in the Western North Atlantic Ocean*, NAV 55/3/5, 22 April 2009.

⁷⁵ IMO, Sub-Committee on Safety of Navigation, 53rd session, *Routeing of Ships, Ship Reporting and Related Matters - Proposals for the establishment of an Area to be Avoided and Modifications to the breadth of the Safety Zones around Oil Rigs located off the Brazilian Coast - Campos Basin*, NAV 53/3, 26 February 2007.

⁷⁶ Australian flagged-vessels (or capable of being registered as such) in excess of 200 tonnes or a length of at least 24m, see Kaye, 'The Protection of Platforms, Pipelines and Submarine Cables under Australian and New Zealand Law', pp. 195-196.

⁷⁷ SOLAS, Regulation V/10.1; *General Provisions on Ships' Routeing*, paragraph 2.1.13.

⁷⁸ While the proposals by the United States for ATBA for its four deepwater ports and the proposal for ATBA around the Campos Basin in Brazil cite safety and security concerns in addition to navigational ones, these additional concerns appear

to flow from the navigational risk and not the security risk that would be posed by 'unlawful or unauthorised intrusion or threat'.

⁷⁹ Harel, 'Preventing Terrorist Attacks on Offshore Platforms', pp. 180-182.

⁸⁰ IMO, *Guidance Note on the Preparation of Proposals on Ships' Routeing Systems and Ship Reporting Systems for Submission to the Sub-Committee on Safety of Navigation*, paragraph 3.1.

⁸¹ However, paragraph 6.3 of *General Provisions on Ships' Routeing*, states that '[t]he configuration and length of routeing systems which are established to provide for an unobstructed passage through offshore exploration and exploitation areas may differ from the dimensions of normally established systems if the purpose of safeguarding a clear passage warrants such special feature'.



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