

**Report of the International Navigational
Safety Expert appointed by the Permanent
Court of Arbitration, The Hague, The
Netherlands**

Captain Gurpreet S. Singhota

(15 April 2016)

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Background and Terms of Reference

1 In February 2016, the Permanent Court of Arbitration, The Hague, The Netherlands approached me in the strictest confidence, to ascertain my interest and availability to serve as an expert in respect of an arbitration commenced by the Republic of the Philippines and the People's Republic of China. Subsequently, on 15 March 2016, I was appointed as an international navigational safety expert to assist the Arbitral Tribunal in its consideration of Submission No.13. The relevant detailed Terms of Reference are attached at ANNEX 1 to the report. A brief Curriculum Vitae is appended as ANNEX 2, describing my work for over 26 years with the International Maritime Organization and over 14 years seagoing experience. At the time of my retirement, in October 2013, I held the positions of Deputy Director/Head, Operational Safety Section, Maritime Safety Division and Secretary of the Sub-Committee on Safety of Navigation.

Relevant background and documents

2 For maritime activities throughout the world, UNCLOS¹ is not the only source of conventional law that applies. Another set of obligations arises from the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREGS). As one of the most widely acceded to international conventions (156 Contracting Governments/Parties with 98.52% of world tonnage – status as of 08 March 2016), the COLREGS oblige member states to ensure their government and flagged vessels alike operate safely at sea through adherence to a detailed set of specific safety rules.

3 The International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREGS), entered into force for China on 07 January 1980 and for the Philippines on 10 June 2013. A list of the relevant background documents provided by the Permanent Court of Arbitration for review is given in ANNEX 3 of the report.

A Incidents of 28 April 2012

Relevant background of the encounters between the Philippine vessels BRP Pampanga (SARV 003) and BRP Edsa II (SARV 002) and the Chinese vessel FLEC 310 @ 0900 hours and 0915 hours, respectively, on 28 April 2012

4 According to the report from Commanding Officer, BRP Pampanga, (SARV 003), Philippine Coast Guard to Commander, Coast Guard District Northwestern Luzon, Philippine Coast Guard dated 28 April 2012 (ANNEX 3 -Annex 78) at or

¹ Please also refer to relevant Articles 21, 39 and 94 of UNCLOS

about 0900 hours on 28 April 2012, Chinese vessel FLEC 310 approached SARV 003 (BRP Pampanga), while lying to, from port to almost dead ahead at a distance of about 600 yards (0.296 nautical miles) with a speed of 20.3 knots. The report from Relly B. Garcia, *et al*, FRPLEU/QRT officers, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines to Director, Bureau of Fisheries and Aquatic resources, Republic of the Philippines (ANNEX 2- Annex 80) dated 02 May 2012 states that FLEC 310, at a speed of 20 knots approached BRP Pampanga, starting from a distance of approximately 1 nautical mile, went straight towards the vessel from ahead and then crossed and went by the starboard bow as if showing its might. Further, the Republic of the Philippines in its Memorial to the Tribunal (Pages 202-213: paragraphs 6.125 to 6.126, ANNEX 2), in Section IV relating to the dangerous and unlawful conduct of China's vessels at Scarborough Shoal mentions in paragraph 6.126 that, while BRP Pampanga was stationary, FLEC 310 approached her at 20 knots from her port bow, veering away only when it was within 600 metres (0.320 nautical miles). Fifteen minutes later at 0915 hours, the FLEC 310 nearly collided with another Philippines vessel, the BRP Edsa II (SARV 002). The Philippine Coast Guard report describes how the FLEC 310 passed from the "starboard quarter to the port side" of the BRP Edsa II at a distance of just 200 yards (0.0987 nautical miles) while travelling at over 20 knots. The FLEC 310's high speed generated a two-metre wave in her wake, which "battered" two Philippine rubber boats that were in the water at the time.

Analysis of the incidents involving the Philippine vessels BRP Pampanga (SARV 003), BRP Edsa II (SARV 002) and the Chinese vessel FLEC 310

5 The expression "lay to" in nautical terms means:

- .1 To bring to a stop in open water;
- .2 To remain stationary while heading into the wind; or
- .3 To lie to at anchor.

If a vessel is stationary, it is still deemed to be underway because according to the COLREGs, **Rule 3(i) - General definitions**: The word *underway* means that the vessel is not at anchor, or made fast to the shore, or aground. The exact meaning of "lying to" in my understanding would be that the vessel in question is stationary but in the strictest sense of the COLREGs still *underway* **unless it is explicitly stated that it is lying to at anchor.**

6 The two incidents on 28 April 2012 happened when the concerned three vessels were in sight of one another. Hence, according to the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREGS), in the context of the incidents, described above, it is my opinion, that the following Rules were violated, namely:

- .1 **PART A – GENERAL**
Rule 2 on Responsibility;
- .2 **Part B – Steering and Sailing Rules**
Section I - Conduct of vessels in any condition of visibility

Rule 6 on Safe speed

Rule 8 on Action to avoid collision

Section II - Conduct of vessels in sight of one another

Rule 16 on Action by give-way vessel

7 From all the available information provided and my own individual professional experience including research, I wish to highlight the following violations of the COLREGS by vessels of the People's Republic of China.

Rule 2 (a) - Responsibility

8 It is apparent that the high-speed manoeuvring by the Chinese vessel FLEC 310 and its veering away at an unsafe distance of just 0.32 nautical miles is an example of unprofessional ship handling and is totally inconsistent with the practice of good seamanship. It is quite likely that if there had been any momentary decision-making lapse on part of the bridge team, engine or steering gear failure, a catastrophic collision would have been the inevitable result.

9 Secondly, it appears that in executing such close quarters manoeuvres, the dangers of interaction seem to have been totally forgotten or ignored by the Chinese vessel. When vessels are passing there are two situations, namely, overtaking and the head-on encounter. The head-on encounter interaction is less likely to have a dangerous effect as generally the bows of the two vessels will tend to repel each other as they approach; however, this can lead indirectly to a critical situation. It may increase an existing swing and also be complicated by secondary interaction. In all cases, it is essential to maximize the distance between two vessels. Kindly refer to the attached ANNEX 4 – Marine Guidance Note MGN 199(M) on Dangers of interaction (section 3 –Passing vessels is of direct relevance).

Rule 6 - Safe speed

10 Rule 6 states that:

“Every vessel shall at all time proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.”

.....

11 Quite apart from the rules, the requirement to observe a safe speed has been described as essentially a matter of good seamanship. In the case of an excessive speed, it can both reduce the time available in which clear-headed decisions leading to the avoidance of collisions can be made and increase the damage caused by any collision, which does occur. It is pertinent to note that safe speed refers to speed through the water and not to engine speed.

12 The high-speed passes of 20.3 knots and 20.6 knots by FLEC 310 in

extremely close proximity of 0.296 nautical miles and 0.098 nautical miles of SARV 003 (BRP Pampanga) and BRP Edsa II (SARV 002), respectively are certainly not good examples of observing safe speed in the prevailing situations.

Rule 8 – Action to avoid collision

13 As per this Rule, a number of obligations are imposed on the vessels when risk of collision exists. It is the duty of the give-way vessel to take timely action to keep clear and to take such action, which is large enough so as to leave the stand-on vessel in no possible doubt as to what the give-way vessel is doing. Most important is the requirement that any action taken to avoid collision shall be such as to result in passing at a **safe distance**. There is no definition of safe distance in the COLREGs. Experienced mariners recognize that this will vary according to the various different risk of collision situations and will also depend upon the size of the vessels. As mentioned earlier (see paragraph 8) the safe passing distance must also cater for human error on the bridge and engine or steering gear failure at a critical phase of the manoeuvre plus interaction between passing vessels.

14 The incidents on 28 April 2012 at 0900 and 0915 hours respectively, when the Chinese vessel FLEC 310 intentionally closed in at high-speed to within 600 yards (0.296 nautical miles) of SARV 003 (BRP Pampanga) and the subsequent pass of the Chinese vessel FLEC 310 from the starboard quarter to the port side of BRP Edsa II (SARV 002) at a distance of barley 200 yards (0.098 nautical miles) were certainly not examples of a **safe distance**.

Rule 16 – Action by give-way vessel

15 According to rule 16, every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to **keep well clear**. Chinese vessel FLEC 310 approached SARV 003 (BRP Pampanga), while lying to, from port to almost dead ahead at a distance of about 600 yards (0.296 nautical miles) with a speed of 20.3 knots and passed it on its starboard side. It is apparent that crossing a vessel at such a close distance ahead does not amount to “keeping well clear”. Maybe the intent was to inspect the Philippine vessel at a close distance; but it seems more likely that it was an attempt to showcase the power of the larger Chinese vessel, as seems evident from the photograph on page 26 of (ANNEX 3- Annex 80).

B Incident of 26 May 2012

Relevant background of the encounter between the Philippine vessel MCS 3008 and Chinese vessels CMS 71, FLEC 303, FLEC 306 and CMS 84 for the period 1550 to 1805 hours on 26 May 2012

16 According to the report from Angelito A. Arunco, et al., FRPLEU-QRT Officers, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines,

to Director, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines (ANNEX 3 –Annex 82) dated 28 May 2012 and the information provided in the Republic of the Philippines in its Memorial to the Tribunal (Pages 202-213: paragraphs 6.115 to 6.124, ANNEX 3), it is mentioned that the Chinese vessels belonging to two government agencies, namely, the Fisheries and Law Enforcement Command (“FLEC”) and China Marine Surveillance (“CMS”) were operated in manner threatening to Philippine vessel MSC 3008 in the vicinity of Scarborough Shoal, with the apparent purpose of dissuading the Philippine vessel from approaching the Scarborough Shoal area.

Analysis of the incident involving the Philippine vessel MCS 3008 and Chinese vessels CMS 71, FLEC 303, FLEC 306 and CMS 84 on 26 May 2012

17 In this particular incident of 26 May 2012, all the manoeuvres by the Chinese vessels, in my opinion, demonstrate pre-determined attempts to intentionally “block” or hamper another vessel’s passage by high-speed blocking or harassment through combined chasing as if in pursuit. As mentioned earlier in paragraphs 7 and 8, it demonstrates a total disregard of good seamanship and neglect of any precaution, which may be required by the ordinary practice of seamen.

18 From all the available information provided and my own individual professional experience including research, I wish to highlight the following violations of the COLREGS by vessels of the People’s Republic of China.

Rule 2 (a) – Responsibility

19 The conduct of the Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 demonstrated major and seemingly intentional breaches of the Rule 2(a) including ship handling actions, which are totally inconsistent with the practice of good seamanship (see paragraphs 9 and 10 also).

Rule 6 - Safe speed

20 The conduct of the Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 in their attempts to cut across the bow of the Philippine vessel MSC-3008 at a distance less than 100 yards (0.049 nautical miles) at speeds in excess of 20 knots is a clear indication of no understanding of the concept of safe speed (see paragraphs 10 and 11 also).

Rule 6 states that:

“Every vessel shall at all time proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.”

.....

Rule 8 – Action to avoid collision

21 The Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 failed to take timely positive action with due regard to the observance of good seamanship to pass the Philippine vessel MCS-3008 at a safe distance (see paragraphs 13 and 14 also).

Rule 15 – Crossing situation

22 The action of the Chinese vessel CMS 71 to cut across the bow of the Philippine vessel MCS-3008 from the port side at a distance of approximately merely 100 yards (0.049 nautical miles) is a violation of Rule 15. To cross another vessel's bow unnecessarily, where collision is probable, or even only possible, is an unseamanlike manoeuvre, and apart from the regulations would be held to be negligent in fact and in law.

Rule 15 states that:

“When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.”

In this particular case, namely, a crossing situation, the “give-way” vessel was CMS 71. Accordingly, the rule required CMS 71 to avoid, if the circumstances of the case admit, crossing ahead of MCS-3008.

Rule 16 – Action by give-way vessel

23 According to rule 16, every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to **keep well clear**. But the actions of the Chinese vessels in their attempts to block and impede the safe passage of the Philippine vessel MCS-3008 created situations that required them to assume the role of the give-way vessel in the approach situations.

Additional remarks

24 On 17 May 2010, IMO's Maritime Safety Committee adopted resolution MSC.303(87) on Assuring safety during demonstrations, protests or confrontations on the high seas. This resolution in operative paragraph 2 condemns any actions that intentionally imperil human life, the marine environment, or property during demonstrations, protests or confrontations on the high seas and in its operative paragraph 3, calls upon Governments to urge:

1. persons and entities under their jurisdiction to refrain from actions that intentionally imperil human life, the marine environment, or property during demonstrations, protests or confrontations on the high seas;

- .2 all vessels entitled to fly their flag to comply with the applicable instruments adopted by this Organization directed at safety of navigation, security and safety of life at sea;
- .3 all vessels, during demonstrations, protests or confrontations on the high seas, to comply with COLREG and SOLAS by taking all steps to avoid collisions and safeguard navigation, security and safety of life at sea; and
- .4 all vessels, during demonstrations, protests or confrontations on the high seas, to conduct their radio communications in accordance with the International Telecommunication Union Radio Regulations;

25 It is my understanding that this MSC resolution certainly has some bearing on the incidents that occurred on 28 April 2012 and 26 May 2012, respectively. The full text of the MSC resolution is given at ANNEX 5.

26 In addition, IMO Assembly resolution A.1070(28) on IMO Instruments Implementation Code (III) Code adopted on 04 December 2013, attached as ANNEX 6, seeks to address those aspects necessary for a Contracting Government or Party to give full and complete effect to the provisions of the applicable international instruments to which it is a Contracting Government or Party, pertaining to:

- .1 safety of life at sea;
- .2 prevention of pollution from ships;
- .3 standards of training, certification and watchkeeping for seafarers;
- .4 load lines;
- .5 tonnage measurement of ships; and
- .6 **regulations for preventing collisions at sea.**

Hence, it is clear that as a Flag State, a Government has to comply fully with the COLREGs. Rule 1(a) on Application states that:

Quote

“These Rules shall apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels.”

Unquote

Hence, all Flag States are required to take measures that are necessary to ensure that masters, officers and crew of vessels flying their flag are fully conversant with and also required to observe and comply with the COLREGS.

Conclusions and recommendations

27 After a careful review of the three incidents, the Tribunal is invited to note the following:

Incidents of 28 April 2012

- .1 high-speed manoeuvring by the Chinese vessel FLEC 310 and its veering away at an unsafe distance of just 0.32 nautical miles is an example of unprofessional ship handling and totally inconsistent with the practice of good seamanship (paragraph 8);
- .2 the dangers of interaction seem to have been totally forgotten or ignored by the Chinese vessel (paragraph 9);
- .3 the high-speed passes of 20.3 knots and 20.6 knots by FLEC 310 in extremely close proximity of 0.296 nautical miles and 0.098 nautical miles of SARV 003 (BRP Pampanga) and BRP Edsa II (SARV 002), respectively are certainly not good examples of observing safe speed in the prevailing situations (paragraph 12);
- .4 the subsequent pass of the Chinese vessel FLEC 310 from the starboard quarter to the port side of BRP Edsa II (SARV 002) at a distance of barely 200 yards (0.098 nautical miles) were certainly not examples of a **safe distance** (paragraph 14);
- .5 Chinese vessel FLEC 310 approached SARV 003 (BRP Pampanga), while lying to, from port to almost dead ahead at a distance of about 600 yards (0.296 nautical miles) with a speed of 20.3 knots and passed it on its starboard side. It is apparent that crossing a vessel at such a close distance ahead does not amount to “keeping well clear” (paragraph 15);

Incident of 26 May 2012

- .6 all the manoeuvres by the Chinese vessels demonstrate pre-determined attempts to intentionally “block” or hamper another vessel’s passage by high-speed blocking or harassment through combined chasing as if in pursuit and demonstrates a total disregard of good seamanship and neglect of any precaution, which may be required by the ordinary practice of seamen (paragraph 17);
- .7 the conduct of the Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 demonstrated major and seemingly intentional breaches of the Rule 2(a) and ship handling actions totally inconsistent with the practice of good seamanship (paragraph 19);

- .8 the conduct of the Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 in their attempts to cut across the bow of the Philippine vessel MSC-3008 at a distance less than 100 yards (0.049 nautical miles) at speeds in excess of 20 knots is a clear indication of no understanding of the concept of safe speed (paragraph 20);
- .9 the Chinese vessels CMS 71, FLEC 303 and FLEC 306 on 26 May 2012 failed to take timely positive action with due regard to the observance of good seamanship to pass the Philippine vessel MCS-3008 at a safe distance (paragraph 21);
- .10 the action of the Chinese vessel CMS 71 to cut across the bow of the Philippine vessel MCS-3008 from the port side at a distance of approximately merely 100 yards (0.049 nautical miles) is a violation of Rule 15. To cross another vessel's bow unnecessarily, where collision is probable, or even only possible, is an unseamanlike manoeuvre, and apart from the regulations would be held to be negligent in fact and in law (paragraph 22);
- .11 the actions of the Chinese vessels in their attempts to block and impede the safe passage of the Philippine vessel MCS-3008 created situations that required them to assume the role of the give-way vessel in the approach situations (paragraph 23); and
- .12 take note of the additional remarks in relation to IMO's resolution MSC.303 (87) on Assuring safety during demonstrations, protests or confrontations on the high seas and Assembly resolution A.1070(28) on IMO Instruments Implementation Code (III) Code (paragraphs 24 to 26 and ANNEXES 5 and 6).

28 In summing up, it would be fair to conclude that the Chinese vessels in their ship handing manoeuvres on 28 April 2012 and 26 May 2012 demonstrated a complete disregard for the observance and practice of good seamanship including the ordinary practice of seamen but most importantly, a total disregard for the observance of the collision regulations.



Captain Gurpreet S. Singhota
15 April 2016

ANNEX 2
BRIEF CURRICULUM VITAE

Name	GURPREET SINGH SINGHOTA
Date of Birth	17 October 1951
Position and experience	<p>Worked with IMO (United Nations), London, United Kingdom since 1987 over a period of more than 26 years; retired on 31 October 2013.</p> <p>Retired as Deputy Director/Head, Operational Safety Section, Maritime Safety Division and Secretary of the Sub-Committee on Safety of Navigation (NAV) with responsibility for both the NAV and the Sub-Committee on Radiocommunications Search and Rescue (COMSAR) including the development of an e-navigation Strategy Implementation Plan (SIP) plus the review of the Global Maritime Distress Safety System (GMDSS).</p> <p>The work involved dealing at an international level on matters related to safety of navigation, radiocommunications, search and rescue including the establishment of the Long-range identification and Tracking (LRIT) of ships system.</p> <p>In addition, many technical advisory missions to various Member Governments have been undertaken on maritime safety issues. In 2011, was specifically deputed by the Secretary-General of IMO to advise the Indian Government on improving navigational safety for Mumbai and Nhava Sheva ports.</p> <p>Additional experience in the Technical Co-operation and the Marine Environment Divisions, which involved technical assistance to developing countries including oil spill preparedness and response advice.</p> <p>Other important achievements have included assisting in the revision of SOLAS chapter V (Safety of Navigation); amendments to the COLREGs; guiding the development of IMO's e-navigation strategy; development of the Polar Code; development of the ISPS Code and active participation in IMO's activities related to maritime security and the prevention of piracy and armed robbery against ships.</p> <p>Various papers published on maritime safety and marine pollution issues.</p>
Key Professional Qualifications	<p>Ex-Dufferin (1968-1970). Master Mariner with 14 years of seagoing experience, including six years of command experience on a variety of vessels including super tanker, bulk carrier, chemical tanker, cadet training ships etc., complemented by a M.Sc degree course at Cranfield University (1984-1986), United Kingdom; Fellow of the Nautical Institute, London, United Kingdom and in April 2014 invited to become a Member of the Greenwich Forum, United Kingdom.</p>

ANNEX 3

MATERIALS FROM THE RECORD RELEVANT TO SUBMISSION NO. 13 PROVIDED BY THE PCA TO CAPTAIN G.S. SINGHOTA

A. Factual Exhibits

Philippine Government Documents

1. Report from Commanding Officer, SARV-003, Philippine Coast Guard, to Commander, Coast Guard District Northwestern Luzon, Philippine Coast Guard (28 Apr. 2012) * Annex 78
2. Report from Relly B. Garcia, et al., FRPLEU/QRT Officers, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines, to Director, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines (2 May 2012) Annex 80
3. Report from Angelito A. Arunco, et. al., FRPLEU-QRT Officers, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines, to Director, Bureau of Fisheries and Aquatic Resources, Republic of the Philippines (28 May 2012) * Annex 82

Chinese Government Documents

4. People's Republic of China, Ministry of Agriculture, "More Powerful Equipment Added to Enforce Rights and Protect Fisheries" (9 Mar. 2010) Annex 111
5. Embassy of the People's Republic of China in the Republic of the Philippines, Ten Questions Regarding Huangyan Island (15 June 2012) Annex 120

Diplomatic Exchanges

6. *Note Verbale* from the Department of Foreign Affairs of the Philippines to the Embassy of the People's Republic of China in Manila, No. 12-1222 (30 Apr. 2012)* Annex 209
7. *Note Verbale* from the Embassy of the People's Republic of China in Manila to the Department of Foreign Affairs of the Republic of the Philippines, No. (12) PG-239 (25 May 2012) * Annex 211

Newspaper Reports

8. S. Yang and Z. He, "Inauguration of South China Sea Corps of China Fisheries and Law Enforcement Command and the Delivery Ceremony of 'FLEC Vessel 303' Held in Guangzhou", China Fisheries, No. 1 (2001) Annex 313
9. "China Marine Surveillance 84' Vessel Joins the South China Sea Branch of the China Marine Surveillance", Xinhua (8 May 2011) Annex 315
10. Liang Ganghua, "China's First Large Fishery Law Enforcement Vessel Permanently Stationed at the Xisha Islands Is Officially Placed Into Service", Xinhua (2 Sept. 2011) Annex 317

Miscellaneous

11. “Zhong Guo Hai Jian 71,” Marine Traffic Annex 343

B. Submissions by the Philippines

12. Memorial of the Philippines, pp. 202-213
13. Oral Argument by the Philippines, Hearing Transcript (Day 3), pp. 54-74

C. Expert Report Submitted by the Philippines

14. Opinion of Craig H. Allen, Judson Falknor Professor of Law, University of Washington (19 Mar. 2014) Annex 239

D. Legal Authorities cited by the Philippines

15. Ocean S.S. Co. of Savannah v United States, 38 F.2d 782 (2d Cir. 1930), [784]. Supplemental Documents, Vol. VI, (approved in Esso Standard Oil Co. v Oil Screw Tug Maluco I, 332 F.2d 211 (4th Cir. 1964), 214. Supplemental Documents, Vol. VI Annex LA-288
Annex LA-290
16. Convention on the International Regulations for Preventing Collisions at Sea (hereinafter “COLREGS”), 1050 U.N.T.S. 18 (20 Oct. 1972), entered into force 15 July 1977. MP, Vol. XI Annex LA-78
17. William Tetley, International Maritime and Admiralty Law (2002), p. 237. Supplemental Documents, Vol. VI Annex LA-282
18. Marsden on Collisions at Sea (S. Gault, et al. eds. 13th ed., 2003), p. 173. Supplemental Documents, Vol. VI Annex LA-283
19. Crowley Marine Services Inc. v Maritrans Inc., 447 F.3d 719 (9th Cir. 2006), 725. Supplemental Documents, Vol. VI Annex LA-291
20. Crowley Marine Services Inc. v Maritrans Inc., 530 F.3d 1169 (9th Cir. 2008), 1177. Supplemental Documents, Vol. VI Annex LA-292
21. A.N. Cockcroft and J.N.F. Lameijer, A Guide to the Collision Avoidance Rules: International Regulations for Preventing Collisions at Sea (7th ed., 2011), p. 17. MP, Vol. XI Annex LA-161
22. Nautical Charts

NMA Chart 91004	Scarborough Reef
BA Chart 3489	Manila to Hong Kong
Philippines Chart 4803	Scarborough Shoal
Chinese Chart 17310	Huangyan Dao
Japanese Chart W1500	Taiwan Strait to Mindoro Strait



Maritime and Coastguard Agency

MARINE GUIDANCE NOTE

MGN 199 (M)

Dangers of interaction

Note to Owners, Masters, Pilots and Tug-Masters

This Note supersedes Marine Guidance Notice 18

Summary

This note draws attention to the effects of hydrodynamic interaction on vessel manoeuvrability and describes some incidents which illustrate the dangers.

Key Points:-

- Understand that sudden sheering may occur when passing another vessel at close range
- Appreciate the need to reduce speed in narrow channels
- Be aware of the dangerous effects on tugs when manoeuvring close to larger vessels
- Be aware that unexpected turning moments may result when stopping in shallow, confined basins
- Appreciate the need to make appropriate allowances for squat
- Note the results of laboratory work

1. Hydrodynamic interaction continues to be a major contributory factor in marine casualties and hazardous incidents. Typical situations involve larger vessels overtaking smaller ones in narrow channels where interaction has caused the vessels to collide and, in one case the capsize of the smaller vessel with loss of life.
 - (a) Vessels which are attempting to pass one another at very close range. This is usually due to their being confined to a narrow channel.
 - (b) Vessels which are manoeuvring in very close company for operational reasons, particularly when the larger vessel has a small under-keel clearance.
 - (c) Vessels with a small under-keel clearance which stop rapidly, when approaching an enclosed basin, resulting in unexpected sheering. Included in this category is the reduced effect of accompanying tugs which may sometimes be experienced in these circumstances.
2. Situations in which hydrodynamic interaction is involved fall into the following categories:-
 - (a) Vessels which are attempting to pass one another at very close range. This is usually due to their being confined to a narrow channel.
 - (b) Vessels which are manoeuvring in very close company for operational reasons, particularly when the larger vessel has a small under-keel clearance.
3. PASSING VESSELS

When vessels are passing there are two situations: (i) overtaking and (ii) the head-on encounter.

 - (i) Overtaking: Interaction is most likely to prove dangerous when two vessels are involved in an overtaking manoeuvre. One possible outcome is that the vessel being overtaken may take a sheer into the path of the other. Another possibility is

that when the vessels are abeam of one another the bow of each vessel may turn away from the bow of the other causing the respective sterns to swing towards each other. This may also be accompanied by an overall strong attractive force between the two vessels due to the reduced pressure between the underwater portion of the hulls. There are other possibilities, but the effect of interaction on each vessel during the overtaking manoeuvre will depend on a number of factors including the size of one vessel relative to the other, the smaller of the two vessels feeling the greater effect.

- (ii) The head-on encounter: In this situation interaction is less likely to have a dangerous effect as generally the bows of the two vessels will tend to repel each other as they approach. However, this can lead indirectly to a critical situation. It may increase any existing swing and also be complicated by secondary interaction such as bank-rejection from the edge of a channel.

In all cases it is essential to maximise the distance between the two vessels. The watchkeeper on the larger vessel should bear in mind the effect on adjacent smaller vessels and take necessary care when manoeuvring.

4. INTERACTION IN NARROW CHANNELS

When vessels intend to pass in a narrow channel, whether on the same or opposing courses, it is important that the passing be carried out at a low speed. The speed should be sufficient to maintain control adequately but below maximum for the depth of water so that in an emergency extra power is available to aid the rudder if necessary. If a reduction in speed is required it should be made in good time before the effects of interaction are felt. A low speed will lessen the increase in draught due to squat as well as the sinkage and change of trim caused by interaction itself. Depending upon the dimensions of both the vessel and the channel, speed may have to be restricted. When vessels are approaching each other at this limiting speed interaction effects will be magnified, therefore a further reduction in speed may be necessary. Those in charge of the handling of small vessels should appreciate that more action may be required on their part when passing large vessels which may be severely limited in the action

they can take in a narrow channel. Regardless of the relative size of the vessels involved, an overtaking vessel should only commence an overtaking manoeuvre after the vessel to be overtaken has agreed to the manoeuvre.

5. MANOEUVRING AT CLOSE QUARTERS

When vessels are manoeuvring at close quarters for operational reasons, the greatest potential danger exists when there is a large difference in size between the two vessels and is most commonly experienced when a vessel is being attended by a tug. A dangerous situation is most likely when the tug, having been manoeuvring alongside the vessel, moves ahead to the bow to pass or take a tow-line. Due to changes in drag effect, especially in shallow water, the tug has first to exert appreciably more ahead power than she would use in open water to maintain the same speed and this effect is strongest when she is off the shoulder. At that point hydrodynamic forces also tend to deflect the tug's bow away from the vessel and attract her stern; but as she draws ahead the reverse occurs, the stern being strongly repulsed, and the increased drag largely disappears. There is thus a strong tendency to develop a sheer towards the vessel, and unless the helm (which will have been put towards the vessel to counter the previous effect) is immediately reversed and engine revolutions rapidly reduced, the tug may well drive herself under the vessel's bow. A further effect of interaction arises from the flow around the larger vessel acting on the underbody of the smaller vessel causing a consequent decrease in effective stability, and thus increasing the likelihood of capsizing if the vessels come into contact with each other. Since it has been found that the strength of hydrodynamic interaction varies approximately as the square of the speed, this type of manoeuvre should always be carried out at very slow speed. If vessels of dissimilar size are to work in close company at any higher speeds then it is essential that the smaller one keeps clear of the hazardous area off the other's bow.

6. STOPPING IN SHALLOW BASINS

A vessel in very shallow water drags a volume of water astern which can be as much as 40% of the displacement. When the vessel stops this entrained water continues moving and when it reaches the vessel's stern it can produce a strong and unexpected turning moment, causing the vessel to begin to sheer

unexpectedly. In such circumstances accompanying tugs towing on a short line may sometimes prove to be ineffective. The reason for this is that the tug's thrust is reduced or even cancelled by the proximity of the vessel's hull and small underkeel clearance. This causes the tug's wash to be laterally deflected reducing or even nullifying the thrust. The resultant force on the hull caused by the hydrodynamic action of the deflected flow may also act opposite to the desired direction.

7. EFFECT ON THE RUDDER

It should be noted that in dealing with an interaction situation the control of the vessel depends on the rudder which in turn depends on the flow of water round it. The effectiveness of the rudder is therefore reduced if the engine is stopped, and putting the engine astern when a vessel is moving ahead can render the rudder ineffective at a critical time. In many cases a momentary increase of propeller revolutions when going ahead can materially improve control.

8. GENERAL

Situations involving hydrodynamic interaction between vessels vary. In dealing with a particular situation it should be appreciated that when a vessel is moving through the water there is a positive pressure field created at the bow, a smaller positive pressure field at the stern and a negative pressure field amidships. The effects of these pressure fields can be significantly increased where the flow of water round the vessel is influenced by the boundaries of a narrow or shallow channel and by sudden local constrictions (e.g. shoals), by the presence of another vessel or by an increase in vessel speed. An awareness of the nature of the pressure fields round a vessel moving through the water and an appreciation of the effect of speed and the importance of rudder action should enable a vessel handler to foresee the possibility of an interaction situation arising and to be in a better position to deal with it when it does arise. During passage planning depth contours and channel dimensions should be examined to identify areas where interaction may be experienced.

9. SQUAT

Squat is a serious problem for vessels which have to operate with small under-keel

clearances, particularly when in a shallow channel confined by sandbanks or by the sides of a canal or river. The "Mariners' Handbook" (NP 100) contains further information on squat. The Admiralty Sailing Directions also give specific advice for squat allowances for deep draught vessels in critical areas of the Dover Strait.

EXAMPLES OF ACCIDENTS CAUSED BY HYDRODYNAMIC EFFECTS

1. OVERTAKING IN A NARROW CHANNEL

This casualty concerns a fully loaded coaster of 500 GT which was being overtaken by a larger cargo vessel of about 13,500 GT. The channel in the area where the casualty occurred was about 150 metres wide and the lateral distance between the two vessels as the overtaking manoeuvre commenced was about 30 metres. The speeds of the two vessels were initially about 8 and 11 knots respectively. When the stem of the larger vessel was level with the stern of the smaller vessel the speed of the latter vessel was reduced. When the bow of the smaller vessel was level with the midlength point of the larger vessel the bow started to swing towards the larger vessel. The helm of the smaller vessel was put hard to starboard and speed further reduced. The rate of swing to port decreased and the engine was then put to full ahead but a few seconds later the port side of the smaller vessel, in way of the break of the foc'sle head, made contact with the starboard side of the larger vessel. The angle of impact was about 25° and the smaller vessel remained at about this angle to the larger vessel as she first heeled to an angle of about 20° to starboard and shortly afterwards rolled over and capsized, possibly also affected by the large stern wave carried by the larger vessel into which the smaller one entered, beam on, as she dropped back.

2. MANOEUVRING WITH TUGS

The second category is illustrated by a casualty involving a 1,600 GT cargo vessel in ballast and a harbour tug which was to assist her to berth. The mean draughts of the vessel and the tug were 3 and 2 metres respectively. The tug was instructed to make fast on the starboard bow as the vessel was proceeding inwards, and to do this she first paralleled her course and then gradually drew ahead so that her towing deck was about 6 metres off, abeam of the vessel's forecastle. The speed of the two vessels was about 4 knots through the

water, the vessel manoeuvring at slow speed and the tug, in order to counteract drag, at $3/4$ speed. As the tow line was being passed the tug took a sheer to port and before this could be countered the two vessels touched, the vessel's stern striking the tug's port quarter. The impact was no more than a bump but even so the tug took an immediate starboard list, and within seconds capsized. One man was drowned.

3. STOPPING IN A SHALLOW BASIN

In the third category a VLCC was nearing an oil berth in an enclosed basin which was approached by a narrow channel. The VLCC stopped dead in the water off the berth while tugs made fast fore and aft. An appreciable time after stopping the VLCC began to turn to starboard without making any headway. The efforts of the tugs to prevent the swing proved fruitless and the starboard bow of the tanker struck the oil berth, totally demolishing it.

RESULTS OF LABORATORY WORK

1. Extensive laboratory work has been carried out on the combined effects of hydrodynamic interaction and shallow water (i.e. depth of water less than about twice the draught) and the following conclusions, which have been borne out by practical experience, are among those reached:

(a) The effects of interaction (and also of bank suction and rejection) are amplified in shallow water.

(b) The effectiveness of the rudder is reduced in shallow water, and depends very much on adequate propeller speed when going ahead. The minimum revolutions needed to maintain steerage way may therefore be higher than are required in deep water.

(c) However, relatively high speeds in very shallow water must be avoided due to the danger of grounding because of squat. An increase in draught of well over 10% has been observed at speeds of about 10 knots, but when speed is reduced squat rapidly diminishes. It has also been found that additional squat due to interaction can occur when two vessels are passing each other.

(d) The transverse thrust of the propeller changes in strength and may even act in the reverse sense to the normal in shallow water.

(e) Vessels may therefore experience quite marked changes in their manoeuvring characteristics as the depth of water under the keel changes. In particular, when the under-keel clearance is very small a marked loss of turning ability is likely.

(f) A large vessel with small under-keel clearance which stops in an enclosed basin can experience strong turning forces caused by the mass of entrained water following it up the approach channel.

(g) The towing power of a tug can be reduced or even cancelled when assisting a larger vessel with small under-keel clearance on a short towline.

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*An executive agency of the Department for
Transport, Local Government and the Regions*

ANNEX 5

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ANNEX 22

RESOLUTION MSC.303(87) (adopted on 17 May 2010)

ASSURING SAFETY DURING DEMONSTRATIONS, PROTESTS OR CONFRONTATIONS ON THE HIGH SEAS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

CONSIDERING THAT the safety of vessels¹, crew and other persons on board such vessels on the high seas is of paramount importance to the Organization and its Member States and has long been the common interest of nations worldwide,

AFFIRMING the rights and obligations relating to legitimate and peaceful forms of demonstration, protest or confrontation and noting that there are international instruments that may be relevant to these rights and obligations,

BEARING IN MIND that the Organization does not condone any actions that intentionally imperil human life, the marine environment or property,

SERIOUSLY CONCERNED that demonstrations, protests or confrontations involving vessels on the high seas may affect or compromise the safety and security of such vessels and may lead to incidents that cause a risk to human life, the marine environment or property,

RECOGNIZING the need to cooperate, as appropriate, in accordance with relevant rules of international law and respective domestic laws and regulations, to ensure that actions that intentionally imperil human life, the marine environment or property are adequately addressed,

RECALLING FURTHER that the Organization has adopted important instruments directed at the safety and security of vessels, crew and other persons on those vessels including in particular the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), as amended, which sets uniform rules and principles for avoiding collisions at sea; the International Convention for the Safety of Life at Sea, 1974 (SOLAS) as amended, in particular chapter V pertaining to safety of navigation and chapter XI/2 pertaining to special measures to enhance maritime safety and security; the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, 1988 and its Protocol for the Suppression of Unlawful Acts against Fixed Platforms Located on The Continental Shelf (the SUA Convention and its 1988 Protocol), relating to international cooperation for the prevention of unlawful acts against the safety of maritime navigation and platforms, and actions against alleged offenders; and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, which has provisions pertaining to watchkeeping arrangements,

¹ The term "vessel" used in this resolution is meant to be interpreted in the broadest manner possible and includes definitions in applicable IMO instruments of "ship" and "vessel".

RECALLING ALSO the relevant provisions of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and of customary international law of the sea related to activities of vessels on the high seas,

HAVING CONSIDERED, at its eighty-seventh session, the recommendations of the Sub-Committee on Safety of Navigation and the Sub-Committee on Flag State Implementation,

1. RECALLS AND REAFFIRMS the importance of safety of vessels, crew and other persons on board such vessels;
2. CONDEMNS any actions that intentionally imperil human life, the marine environment, or property during demonstrations, protests or confrontations on the high seas;
3. CALLS UPON Governments to urge:
 - .1 persons and entities under their jurisdiction to refrain from actions that intentionally imperil human life, the marine environment, or property during demonstrations, protests or confrontations on the high seas;
 - .2 all vessels entitled to fly their flag to comply with the applicable instruments adopted by this Organization directed at safety of navigation, security and safety of life at sea;
 - .3 all vessels, during demonstrations, protests or confrontations on the high seas, to comply with COLREG and SOLAS by taking all steps to avoid collisions and safeguard navigation, security and safety of life at sea; and
 - .4 all vessels, during demonstrations, protests or confrontations on the high seas, to conduct their radio communications in accordance with the International Telecommunication Union Radio Regulations;
4. ALSO CALLS UPON Governments to take such measures as may be necessary to establish jurisdiction over any offences set forth in the SUA Convention and its 1988 Protocol;
5. FURTHER CALLS UPON Governments, consistent with international law and their domestic laws and regulations, to conduct inquiries into every marine casualty or incident of navigation on the high seas that imperils safety of vessels, crew or other persons on board such vessels that involve a vessel entitled to fly their flag;
6. ENCOURAGES Governments, consistent with international law and their domestic laws and regulations, to cooperate, as appropriate, to ensure that actions that intentionally imperil human life, the marine environment or property on the high seas are adequately addressed;
7. REQUESTS Governments to bring this resolution to the attention of all entities concerned, in particular those that might be involved during demonstrations, protests or confrontations on the high seas.

ASSEMBLY
28th session
Agenda item 10

A 28/Res.1070
10 December 2013
Original: ENGLISH

Resolution A.1070(28)

**Adopted on 4 December 2013
(Agenda item 10)**

IMO INSTRUMENTS IMPLEMENTATION CODE (III CODE)

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that, through resolution A.1018(26), it approved the time frame and schedule of activities for the consideration and introduction of an institutionalized IMO Member State Audit Scheme,

RECALLING ALSO that, by resolution A.1054(27), it adopted the *Code for the Implementation of Mandatory IMO Instruments, 2011*, which provides guidance for the implementation and enforcement of IMO instruments and forms the basis of the Voluntary IMO Member State Audit Scheme, in particular concerning the identification of the auditable areas,

BEING AWARE of the request of the seventh session of the United Nations Commission on Sustainable Development (CSD 7) that measures be developed to ensure that flag States give full and complete effect to the IMO and other relevant conventions to which they are party, so that the ships of all flag States meet international rules and standards,

RECOGNIZING that parties to the relevant international conventions have, as part of the ratification process, accepted to fully meet their responsibilities and to discharge their obligations under the conventions and other instruments to which they are party,

REAFFIRMING that States have the primary responsibility to have in place an adequate and effective system to exercise control over ships entitled to fly their flag, and to ensure that they comply with relevant international rules and regulations in respect of maritime safety, security and protection of the marine environment,

REAFFIRMING ALSO that States, in their capacity as port and coastal States, have other obligations and responsibilities under applicable international law in respect of maritime safety, security and protection of the marine environment,

NOTING that, while States may realize certain benefits by becoming party to instruments aiming at promoting maritime safety, security and the prevention of pollution from ships, these benefits can only be fully realized when all parties carry out their obligations as required by the instruments concerned,



NOTING ALSO that the ultimate effectiveness of any instrument depends, inter alia, upon all States:

- (a) becoming party to all instruments related to maritime safety, security and pollution prevention and control;
- (b) implementing and enforcing such instruments fully and effectively; and
- (c) reporting to the Organization, as required,

BEING DESIROUS to further assist Member Governments to improve their capabilities and overall performance in order to be able to comply with the IMO instruments to which they are party,

CONSCIOUS of the difficulties some Member States may face in complying fully with all the provisions of the various IMO instruments to which they are party,

MINDFUL of the need for any such difficulties to be eliminated to the extent possible; and recalling that the Organization has established an Integrated Technical Cooperation Programme for that reason and purpose,

NOTING FURTHER that the Maritime Safety Committee and the Marine Environment Protection Committee have developed requirements for adoption by Contracting Governments to the International Convention for the Safety of Life at Sea, 1974, the Protocol of 1988 relating to the International Convention on Load Lines, 1966, the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and the International Convention on Standards of Training, Certification and Watchkeeping, 1978, respectively, which will make the use of the Code referred to in operative paragraph 1 mandatory,

RECALLING FURTHER its consideration of requirements for adoption by Contracting Governments to the International Convention on Load Lines, 1966, the International Convention on Tonnage Measurement of Ships, 1969 and the Convention on the International Regulations for Preventing Collisions at Sea, 1972, which will also make the use of the Code referred to in operative paragraph 1 mandatory,

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee, at its sixty-fourth session, and the Maritime Safety Committee, at its ninety-first session,

1 ADOPTS the IMO Instruments Implementation Code (III Code), set out in the annex to the present resolution;

2 REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the Code under review and, in coordination with the Council, to propose amendments thereto to the Assembly; and

3 REVOKES resolution A.1054(27) on the *Code for the Implementation of Mandatory IMO Instruments, 2011*.

Annex

IMO INSTRUMENTS IMPLEMENTATION CODE (III CODE)

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PART 1 – COMMON AREAS

Objective

1 The objective of this Code is to enhance global maritime safety and protection of the marine environment and assist States in the implementation of instruments of the Organization.

2 Different States will view this Code according to their own circumstances and should be bound only for the implementation of those instruments to which they are Contracting Governments or Parties. By virtue of geography and circumstance, some States may have a greater role as a flag State than as a port State or as a coastal State, whilst others may have a greater role as a coastal State or a port State than as a flag State.

Strategy

3 In order to meet the objective of this Code, a State is recommended to:

- .1 develop an overall strategy to ensure that its international obligations and responsibilities as a flag, port and coastal State are met;
- .2 establish a methodology to monitor and assess that the strategy ensures effective implementation and enforcement of relevant international mandatory instruments; and
- .3 continuously review the strategy to achieve, maintain and improve the overall organizational performance and capability as a flag, port and coastal State.

General

4 Under the general provisions of treaty law and of IMO conventions, States should be responsible for promulgating laws and regulations and for taking all other steps which may be necessary to give those instruments full and complete effect so as to ensure safety of life at sea and protection of the marine environment.

5 In taking measures to prevent, reduce and control pollution of the marine environment, States should act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.

Scope

6 The Code seeks to address those aspects necessary for a Contracting Government or Party to give full and complete effect to the provisions of the applicable international instruments to which it is a Contracting Government or Party, pertaining to:

- .1 safety of life at sea;
- .2 prevention of pollution from ships;
- .3 standards of training, certification and watchkeeping for seafarers;
- .4 load lines;
- .5 tonnage measurement of ships; and
- .6 regulations for preventing collisions at sea.

7 The following areas should be considered and addressed in the development of policies, legislation, associated rules and regulations and administrative procedures for the implementation and enforcement of those obligations and responsibilities by the State:

- .1 jurisdiction;
- .2 organization and authority;
- .3 legislation, rules and regulations;
- .4 promulgation of the applicable international mandatory instruments, rules and regulations;
- .5 enforcement arrangements;
- .6 control, survey, inspection, audit, verification, approval and certification functions;
- .7 selection, recognition, authorization, empowerment and monitoring of recognized organizations, as appropriate, and of nominated surveyors;
- .8 investigations required to be reported to the Organization; and
- .9 reporting to the Organization and other Administrations.

Initial actions

8 When a new or amended instrument of the Organization enters into force for a State, the Government of that State should be in a position to implement and enforce its provisions through appropriate national legislation and to provide the necessary implementation and enforcement infrastructure. This means that the Government of the State should have:

- .1 the ability to promulgate laws, which permit effective jurisdiction and control in administrative, technical and social matters over ships flying its flag and, in particular, provide the legal basis for general requirements for registries, the inspection of ships, safety and pollution prevention laws applying to such ships and the making of associated regulations;
- .2 a legal basis for the enforcement of its national laws and regulations including the associated investigative and penal processes; and
- .3 the availability of sufficient personnel with maritime expertise to assist in the promulgation of the necessary national laws and to discharge all the responsibilities of the State, including reporting as required by the respective conventions.

Communication of information

9 The State should communicate its strategy, as referred to in paragraph 3, including information on its national legislation to all concerned.

Records

10 Records, as appropriate, should be established and maintained to provide evidence of conformity to requirements and of the effective operation of the State. Records should remain legible, readily identifiable and retrievable. A documented procedure should be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.

Improvement

11 States should continually improve the adequacy of the measures which are taken to give effect to those conventions and protocols which they have accepted. Improvement should be made through rigorous and effective application and enforcement of national legislation, as appropriate, and monitoring of compliance.

12 The State should stimulate a culture which provides opportunities for improvement of performance in maritime safety and environmental protection activities, which may include, inter alia:

- .1 continual training programmes relating to safety and pollution prevention;
- .2 regional and national drills on safety and pollution prevention, which engage a broad spectrum of maritime-related national, regional and international organizations, companies and seafarers; and
- .3 using reward and incentive mechanisms for shipping companies and seafarers regarding improving safety and pollution prevention.

13 Further, the State should take action to identify and eliminate the cause of any non-conformities in order to prevent recurrence, including:

- .1 review and analysis of non-conformities;
- .2 implementation of necessary corrective action; and
- .3 review of the corrective action taken.

14 The State should determine action needed to eliminate the causes of potential non-conformities in order to prevent their occurrence.

PART 2 – FLAG STATES

Implementation

15 In order to effectively discharge their responsibilities and obligations, flag States should:

- .1 implement policies through issuing national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which they are parties; and
- .2 assign responsibilities within their Administrations to update and revise any relevant policies adopted, as necessary.

16 A flag State should establish resources and processes capable of administering a safety and environmental protection programme, which, as a minimum, should consist of the following:

- .1 administrative instructions to implement applicable international rules and regulations as well as developing and disseminating any interpretative national regulations that may be needed including certificates issued by a classification society, which is recognized by the flag State in accordance with the provisions of SOLAS regulation XI-1/1, and which certificate is required by the flag State to demonstrate compliance with structural, mechanical, electrical, and/or other requirements of an international convention to which the flag State is a party or compliance with a requirement of the flag State's national regulations;
- .2 compliance with the requirements of the applicable international instruments, using an audit and inspection programme, independent of any administrative bodies issuing the required certificates and relevant documentation and/or of any entity which has been delegated authority by the State to issue the required certificates and relevant documentation;
- .3 compliance with the requirements related to international standards of training, certification and watchkeeping of seafarers. This includes, inter alia:
 - .1 training, assessment of competence and certification of seafarers;
 - .2 certificates and endorsements that accurately reflect the competencies of the seafarers, using the appropriate terminology as well as terms that are identical to those used in any safe manning document issued to the ship;
 - .3 impartial investigation to be held of any reported failure, whether by act or omission that may pose a direct threat to safety of life or property at sea or to the marine environment, by the holders of certificates or endorsements issued by the State;
 - .4 arrangements for the withdrawal, suspension or cancellation of certificates or endorsements issued by the State when warranted and when necessary to prevent fraud; and
 - .5 administrative arrangements, including those involving training, assessment and certification activities conducted under the purview of another State, which are such that the flag State accepts its responsibility for ensuring the competence of masters, officers and other seafarers serving on ships entitled to fly its flag;
- .4 the conduct of investigations into casualties and adequate and timely handling of cases involving ships with identified deficiencies; and
- .5 the development, documentation and provision of guidance concerning those requirements found in the relevant international instruments that are to the satisfaction of the Administration.

17 A flag State should ensure that ships entitled to fly its flag are sufficiently and efficiently manned, taking into account relevant and existing measures such as the Principles of Safe Manning adopted by the Organization.

Delegation of authority

18 With regard only to ships entitled to fly its flag a flag State authorizing a recognized organization to act on its behalf, in conducting the surveys, inspections and audits, issuing of certificates and documents, marking of ships and other statutory work required under the conventions of the Organization or under its national legislation, should regulate such authorization(s) in accordance with the applicable requirements of the international mandatory instruments to:

- .1 determine that the recognized organization has adequate resources in terms of technical, managerial and research capabilities to accomplish the tasks being assigned, in accordance with the required standards for recognized organizations acting on behalf of the Administration set out in the relevant instruments of the Organization¹;
- .2 have as its basis a formal written agreement between the Administration and the recognized organization which, as a minimum, includes the elements set out in the relevant instruments of the Organization², or equivalent legal arrangements, and which may be based on the model agreement for the authorization of recognized organizations acting on behalf of the Administration³;
- .3 issue specific instructions detailing actions to be followed in the event that a ship is found unfit to proceed to sea without danger to the ship or persons on board, or is found to present an unreasonable threat of harm to the marine environment;
- .4 provide the recognized organization with all appropriate instruments of national law and interpretations thereof giving effect to the provisions of the conventions and specify, only for application to ships entitled to fly its flag, whether any additional standards of the Administration go beyond convention requirements in any respect; and
- .5 require that the recognized organization maintain records, which will provide the Administration with data to assist in interpretation of requirements contained in the applicable international instruments.

19 No flag State should mandate its recognized organizations to apply to ships, other than those entitled to fly its flag, any requirement pertaining to their classification rules, requirements, procedures or performance of other statutory certification processes, beyond convention requirements and the mandatory instruments of the Organization.

¹ Appendix 1 of the *Guidelines for the authorization of organizations acting on behalf of the Administration* (resolution A.739(18)).

² Appendix 2 of the *Guidelines for the authorization of organizations acting on behalf of the Administration* (resolution A.739(18)).

³ MSC/Circ.710-MEPC/Circ.307.

20 The flag State should establish or participate in an oversight programme with adequate resources for monitoring of, and communication with, its recognized organization(s) in order to ensure that its international obligations are fully met, by:

- .1 exercising its authority to conduct supplementary surveys to ensure that ships entitled to fly its flag effectively comply with the requirements of the applicable international instruments;
- .2 conducting supplementary surveys as it deems necessary to ensure that ships entitled to fly its flag comply with national requirements, which supplement the international mandatory requirements; and
- .3 providing staff who have a good knowledge of the rules and regulations of the flag State and those of the recognized organizations and who are available to carry out effective oversight of the recognized organizations.

21 A flag State nominating surveyor(s) for the purpose of carrying out surveys, audits and inspections on its behalf should regulate such nominations, as appropriate, in accordance with the guidance provided in paragraph 18, in particular subparagraphs .3 and .4.

Enforcement

22 A flag State should take all necessary measures to secure observance of international rules and standards by ships entitled to fly its flag and by entities and persons under its jurisdiction so as to ensure compliance with its international obligations. Such measures should include, inter alia:

- .1 prohibiting ships entitled to fly its flag from sailing until such ships can proceed to sea in compliance with the requirements of international rules and standards;
- .2 the periodic inspection of ships entitled to fly its flag to verify that the actual condition of the ship and its crew is in conformity with the certificates it carries;
- .3 the surveyor to ensure, during the periodic inspection referred to in subparagraph .2, that seafarers assigned to the ships are familiar with:
 - .1 their specific duties; and
 - .2 ship arrangements, installations, equipment and procedures;
- .4 ensuring that the ship's complement, as a whole, can effectively coordinate activities in an emergency situation and in the performance of functions vital to safety or to the prevention or mitigation of pollution;
- .5 providing, in national laws and regulations, for penalties of adequate severity to discourage violation of international rules and standards by ships entitled to fly its flag;
- .6 instituting proceedings, after an investigation has been conducted, against ships entitled to fly its flag, which have violated international rules and standards, irrespective of where the violation has occurred;

- .7 providing, in national laws and regulations, for penalties of adequate severity to discourage violations of international rules and standards by individuals issued with certificates or endorsements under its authority; and
- .8 instituting proceedings, after an investigation has been conducted, against individuals holding certificates or endorsements who have violated international rules and standards, irrespective of where the violation has occurred.

23 A flag State should develop and implement a control and monitoring programme, as appropriate, in order to:

- .1 provide for prompt and thorough casualty investigations, with reporting to the Organization as appropriate;
- .2 provide for the collection of statistical data, so that trend analyses can be conducted to identify problem areas; and
- .3 provide for a timely response to deficiencies and alleged pollution incidents reported by port or coastal States.

24 Furthermore, the flag State should:

- .1 ensure compliance with the applicable international instruments through national legislation;
- .2 provide an appropriate number of qualified personnel to implement and enforce the national legislation referred to in subparagraph 15.1, including personnel for performing investigations and surveys;
- .3 provide a sufficient number of qualified flag State personnel to investigate incidents where ships entitled to fly its flag have been detained by port States;
- .4 provide a sufficient number of qualified flag State personnel to investigate incidents where the validity of a certificate or endorsement or of the competence of individuals holding certificates or endorsements issued under its authority are questioned by port States; and
- .5 ensure the training and oversight of the activities of flag State surveyors and investigators.

25 When a flag State is informed that a ship entitled to fly its flag has been detained by a port State, the flag State should oversee that appropriate corrective measures are taken to bring the ship in question into immediate compliance with the applicable international instruments.

26 A flag State, or a recognized organization acting on its behalf, should only issue or endorse an international certificate to a ship after it has determined that the ship meets all applicable requirements.

27 A flag State should only issue an international certificate of competency or endorsement to a person after it has determined that the person meets all applicable requirements.

Flag State surveyors

28 The flag State should define and document the responsibilities, authority and interrelation of all personnel who manage, perform and verify work relating to and affecting safety and pollution prevention.

29 Personnel responsible for, or performing surveys, inspections and audits on ships and companies covered by the relevant international mandatory instruments should have as a minimum the following:

- .1 appropriate qualifications from a marine or nautical institution and relevant seagoing experience as a certificated ship's officer holding or having held a valid management level certificate of competency and having maintained their technical knowledge of ships and their operation since gaining their certificate of competency; or
- .2 a degree or equivalent from a tertiary institution within a relevant field of engineering or science recognized by the flag State; or
- .3 accreditation as a surveyor through a formalized training programme that leads to the same standard of surveyor's experience and competency as that required in paragraphs 29.1, 29.2 and 32.

30 Personnel qualified under paragraph 29.1 should have served for a period of not less than three years at sea as an officer in the deck or engine department.

31 Personnel qualified under paragraph 29.2 should have worked in a relevant capacity for at least three years.

32 In addition, such personnel should have appropriate practical and theoretical knowledge of ships, their operation and the provisions of the relevant national and international instruments necessary to perform their duties as flag State surveyors obtained through documented training programmes.

33 Other personnel assisting in the performance of such work should have education, training and supervision commensurate with the tasks they are authorized to perform.

34 Previous relevant experience in the field of expertise is recommended to be considered an advantage; in case of no previous experience, the Administration should provide appropriate field training.

35 The flag State should implement a documented system for qualification of personnel and continuous updating of their knowledge as appropriate to the tasks they are authorized to undertake.

36 Depending on the function(s) to be performed, the qualifications should encompass:

- .1 knowledge of applicable, international and national, rules and regulations for ships, their companies, their crew, their cargo and their operation;
- .2 knowledge of the procedures to be applied in survey, certification, control, investigative and oversight functions;

- .3 understanding of the goals and objectives of the international and national instruments dealing with maritime safety and protection of the marine environment, and of related programmes;
- .4 understanding of the processes both on board and ashore, internal as well as external;
- .5 possession of professional competency necessary to perform the given tasks effectively and efficiently;
- .6 full safety awareness in all circumstances, also for one's own safety; and
- .7 training or experience in the various tasks to be performed and preferably also in the functions to be assessed.

37 The flag State should issue an identification document for the surveyor to carry when performing his/her tasks.

Flag State investigations

38 Marine safety investigations should be conducted by impartial and objective investigators, who are suitably qualified and knowledgeable in matters relating to the casualty. Subject to any agreement on which State or States will be the marine safety investigating State(s), the flag State should provide qualified investigators for this purpose, irrespective of the location of the casualty or incident.

39 The flag State is recommended to ensure that individual investigators have working knowledge and practical experience in those subject areas pertaining to their normal duties. Additionally, in order to assist individual investigators in performing duties outside their normal assignments, the flag State is recommended to ensure ready access to expertise in the following areas, as necessary:

- .1 navigation and the Collision Regulations;
- .2 flag State regulations on certificates of competency;
- .3 causes of marine pollution;
- .4 interviewing techniques;
- .5 evidence gathering; and
- .6 evaluation of the effects of the human element.

40 It is recommended that any accident involving personal injury necessitating absence from duty of three days or more and any deaths resulting from occupational accidents and casualties to ships of the flag State should be investigated, and the results of such investigations made public.

41 Ship casualties should be investigated and reported in accordance with the relevant international instruments, taking into account the Casualty Investigation Code, as may be amended, and guidelines developed by the Organization⁴. The report on the investigation should be forwarded to the Organization together with the flag State's observations, in accordance with the guidelines referred to above.

Evaluation and review

42 A flag State should, on a periodic basis, evaluate its performance with respect to the implementation of administrative processes, procedures and resources necessary to meet its obligations as required by the international instruments to which it is a party.

43 Measures to evaluate the performance of flag States should include, inter alia, port State control detention rates, flag State inspection results, casualty statistics, communication and information processes, annual loss statistics (excluding constructive total losses (CTLs)) and other performance indicators as may be appropriate, in order to determine whether staffing, resources and administrative procedures are adequate to meet its flag State obligations.

44 Areas recommended for regular review may include, inter alia:

- .1 fleet loss and accident ratios to identify trends over selected time periods;
- .2 the number of verified cases of detained ships in relation to the size of the fleet;
- .3 the number of verified cases of incompetence or wrongdoing by individuals holding certificates or endorsements issued under the flag State's authority;
- .4 responses to port State deficiency reports or interventions;
- .5 investigations into very serious and serious casualties and lessons learned from them;
- .6 technical and other resources committed;
- .7 results of inspections, surveys and controls of the ships in the fleet;
- .8 investigation of occupational accidents;
- .9 the number of incidents and violations that occur under the applicable international maritime pollution prevention regulations; and
- .10 the number of suspensions or withdrawals of certificates, endorsements, approvals, or similar.

⁴ Refer to the mandatory *Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code)*, adopted by the Organization by resolution MSC.255(84) and the *Guidelines to assist investigators in the implementation of the Casualty Investigation Code*, adopted by the Organization by resolution A.1075(28).

PART 3 – COASTAL STATES⁵

Implementation

45 Coastal States have certain rights and obligations under various international instruments. When exercising their rights under those instruments coastal States incur additional obligations.

46 In order to effectively meet its obligations, a coastal State should:

- .1 implement policies through issuing national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which it is a party; and
- .2 assign responsibilities to update and revise any relevant policies adopted, as necessary.

47 A coastal State should ensure that its legislation, guidance and procedures are established for the consistent implementation and verification of its rights, obligations and responsibilities contained in the relevant international instruments to which it is a party.

48 Those rights, obligations and responsibilities may include, inter alia:

- .1 radiocommunication services;
- .2 meteorological services and warnings;
- .3 search and rescue services;
- .4 hydrographic services;
- .5 ships' routing;
- .6 ship reporting systems;
- .7 vessel traffic services; and
- .8 aids to navigation.

Enforcement

49 Coastal States should take all necessary measures to ensure their observance of international rules when exercising their rights and fulfilling their obligations.

50 A coastal State should consider, develop and implement a control and monitoring programme, as appropriate, in order to:

- .1 provide for the allocation of statistical data so that trend analyses can be conducted to identify problem areas;

⁵ The requirements contained in this section should apply to the extent that ships, subject to IMO mandatory instruments, can access the ports of the Contracting Government.

- .2 establish mechanisms for timely response to pollution incidents in its waters; and
- .3 cooperate with flag States and/or port States, as appropriate, in investigations of maritime casualties.

Evaluation and review

51 A coastal State should periodically evaluate its performance in respect of exercising its rights and meeting its obligations under the applicable international instruments.

PART 4 – PORT STATES⁶

Implementation

52 Port States have certain rights and obligations under various international instruments. When exercising their rights under those instruments, port States incur additional obligations.

53 Port States can play an integral role in the achievement of maritime safety and environmental protection, including pollution prevention. The role and responsibilities of the port State with respect to maritime safety and environmental protection is derived from a combination of international treaties, conventions and national laws as well as, in some instances, from bilateral and multilateral agreements.

54 In order to effectively meet its obligations, a port State should:

- .1 implement policies through issuing national legislation and guidance, which will assist in the implementation and enforcement of the requirements of all safety and pollution prevention conventions and protocols to which it is a party; and
- .2 assign responsibilities to update and revise any relevant policies adopted, as necessary.

55 A port State should ensure that its legislation, guidance and procedures are established for the consistent implementation and verification of its rights, obligations and responsibilities contained in the relevant international instruments to which it is a party.

56 Those rights, obligations and responsibilities may include, inter alia:

- .1 provision of appropriate reception facilities or capability to accept all waste streams regulated under the instruments of the Organization;
- .2 port State control⁷; and
- .3 keeping a register of fuel oil suppliers.

⁶ The requirements contained in this section should apply to the extent that ships, subject to IMO mandatory instruments, can access the ports of the Contracting Government.

⁷ Refer to the *Procedures for Port State Control, 2011* (resolution A.1052(27)).

Enforcement

57 Port States should take all necessary measures to ensure their observance of international rules when exercising their rights and fulfilling their obligations.

58 Several international maritime instruments on safety and maritime pollution prevention contain specific provisions that permit port State control.

59 Also, a number of those instruments obligate port States to treat non-parties to those conventions no more favourably than those that are parties. This means that port States should impose the conditions of those instruments on parties, as well as on non-parties.

60 When exercising its right to carry out port State control, a port State should establish processes to administer a port State control programme consistent with the relevant resolution adopted by the Organization⁷.

61 Port State control should be carried out only by authorized and qualified port State control officers in accordance with the relevant procedures adopted by the Organization.

62 Port State control officers and persons assisting them should be free from any commercial, financial, and other pressures and have no commercial interest, either in the port of inspection or in the ships inspected, in ship repair facilities or in any support services in the port or elsewhere, nor should the port State control officers be employed by or undertake work on behalf of recognized organizations or classification societies. Further procedures should be implemented to ensure that persons or organizations external to the port State cannot influence the results of port State inspection and control carried out.

Evaluation and review

63 A port State should periodically evaluate its performance in respect of exercising its rights and meeting its obligations under the applicable instruments of the Organization.
