June 2017

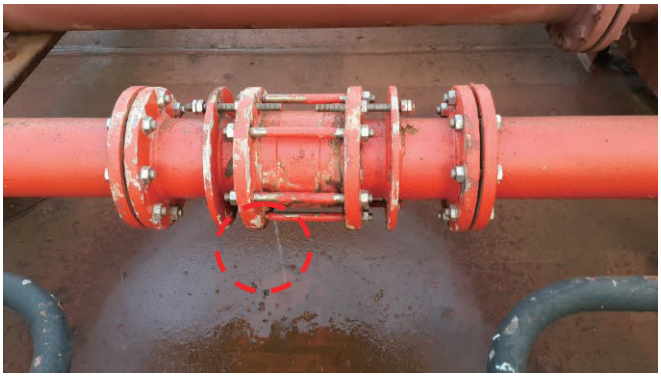
ClassNK

Port State Control Annual Report

[English]

Photographs of Deficiencies identified during Port State Control

Fire Safety



Leakage from fire line

Dis-connected pilot line for fixed CO2 fire extinguishing system

Detached insulation on underside of deck

Improper cable penetration (through fire door frame)

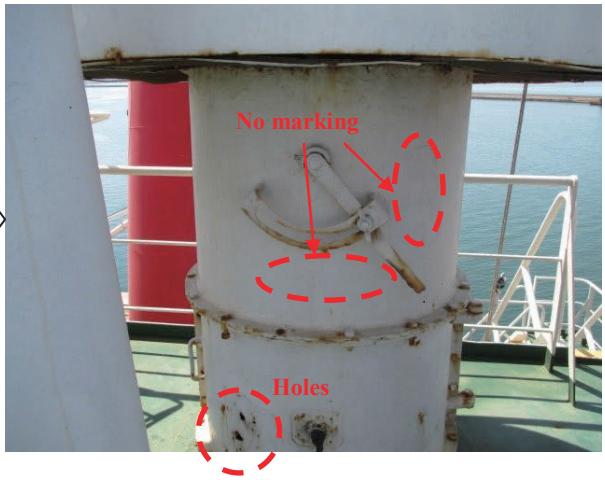
Fire Safety

Hold-back hook fitted on self-closing door

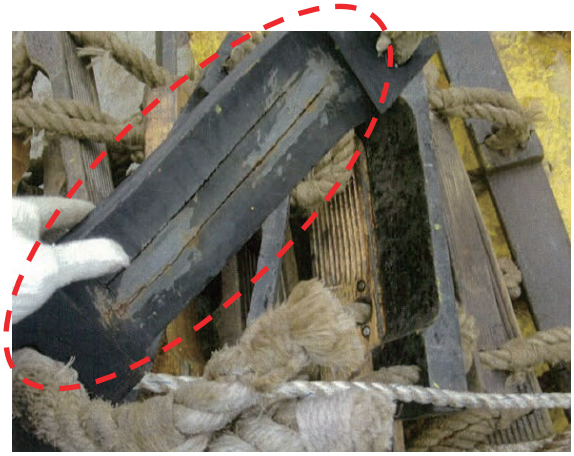
Emergency shut-off valve not ready for use (secured by wire)

Wasted fire damper flap

Holes on ventilation trunk and No marking of "Open-Shut" positions

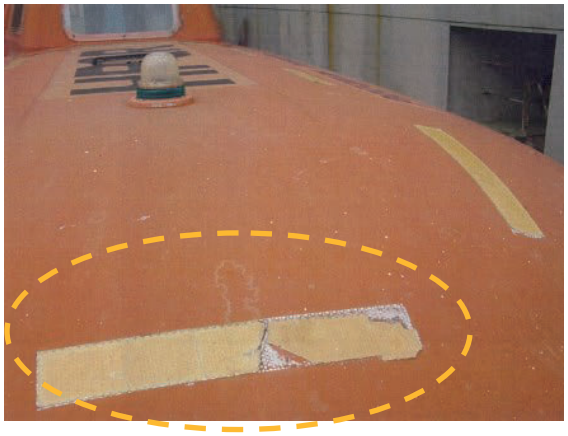


Life Saving Appliances



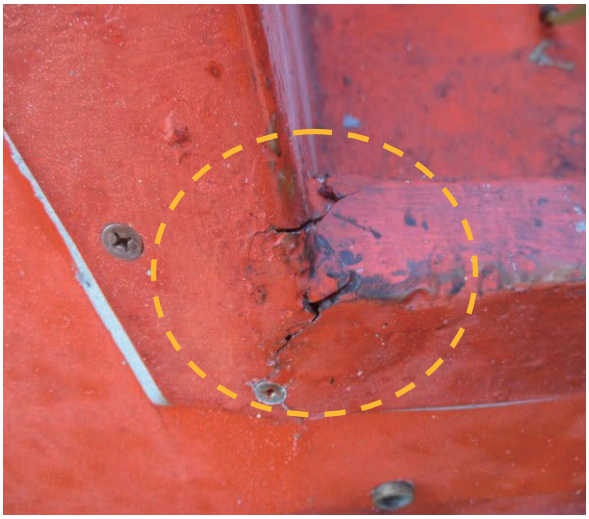
Poor condition of embarkation ladder

Improper reset of on load release gear interlock lever

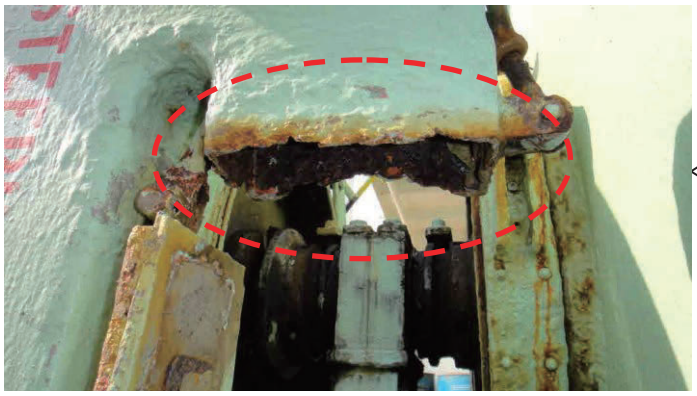


Deteriorated reflective tape

Fractures on lifeboat hull

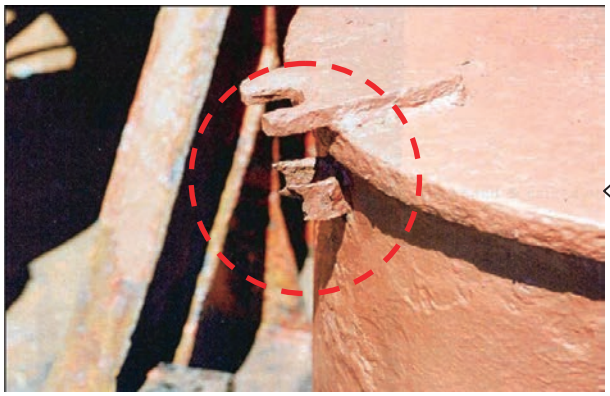


Load Line



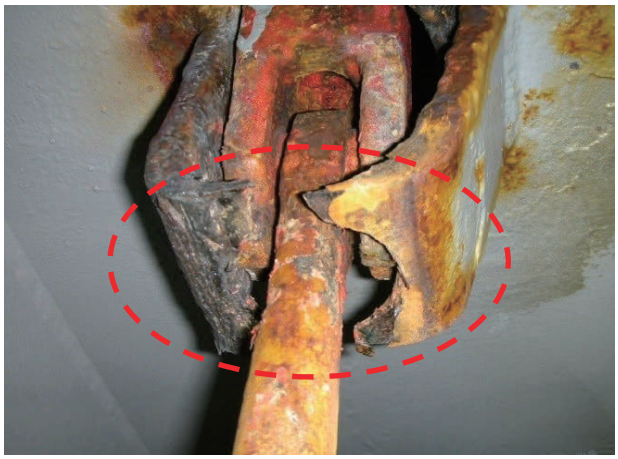
Wasted gooseneck ventilator

Hole on air pipe head

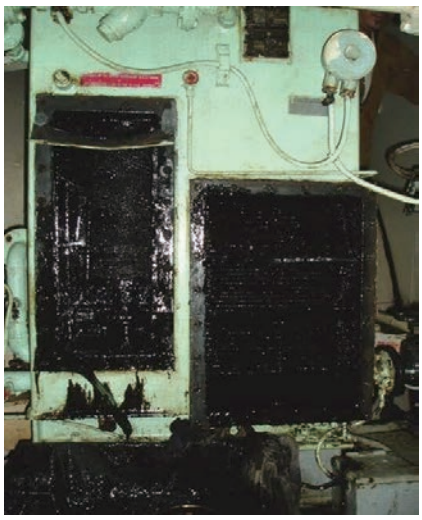


Missing of hatchway securing device

Wasted and corroded hatch cover securing device



MARPOL

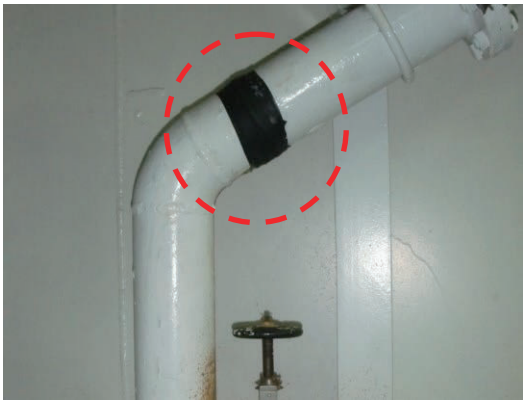


Clogged oil water separator

Machinery Space

Oily and dirty engine room

Oil leakage
and accumulation

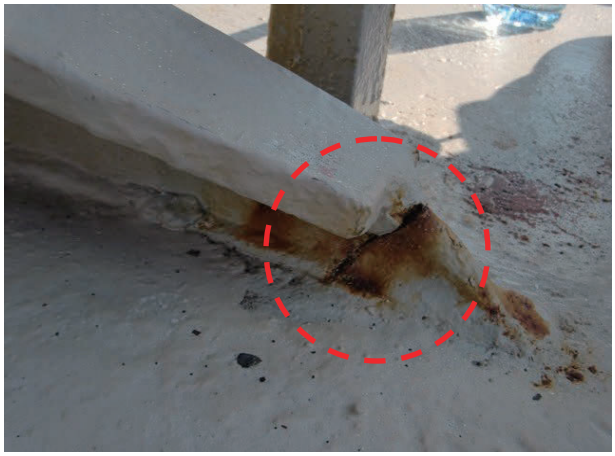


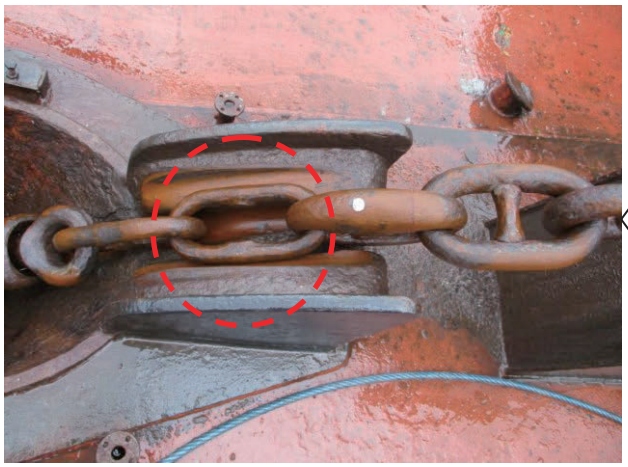
Pipe temporarily repaired with
rubber patch

Others

Corrosion holes on strength deck

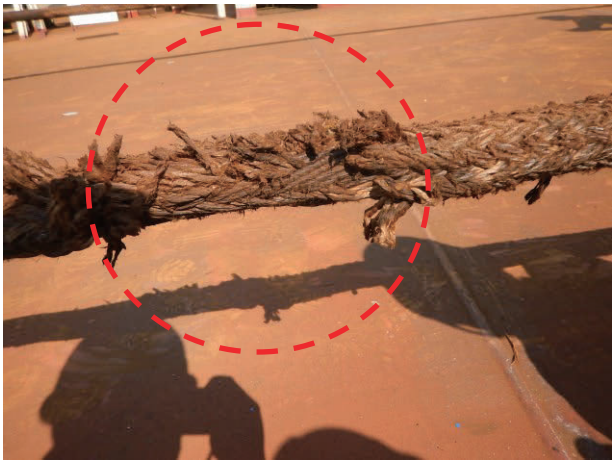
Crack at toe of hatch side coaming end bracket





Worn link and missing of stud

Deteriorated mooring line



Foreword

This Annual Report on Port State Control (PSC) summarizes deficiencies identified during PSC inspections carried out in various countries around the world. This report is prepared with the objective of building awareness with the present state of PSC and thereby improving future onboard maintenance and inspections, and as well as Safety Management System.
The report consists of the following Chapters.

"**Chapter 1**": Status of Implementation and Recent Developments in PSC Worldwide
"**Chapter 2**": Statistical Analysis of Detained Ships Registered to ClassNK
"**Chapter 3**": Statistical Analysis of NK SMC Ships Detained by PSC (ISM Code)
"**Chapter 4**": Statistical Analysis of NK MLC Ships Detained by PSC (MLC, 2006)
"**Chapter 5**": Statistical Data from Tokyo MOU, Paris MoU and USCG

Port State Control has been recognized to be a very direct and effective means to reduce the number of substandard ships as well as to improve safety of ships at sea and to prevent marine pollution. The activity of PSC worldwide has significantly been strengthened along with the increasing number of amendments to the relevant international Conventions.

Further to the above, in order to carry out the effective implementation of port state responsibilities, many countries have signed a Memorandum of Understanding (MOU) for regional cooperation between local PSCs, and have agreed to establish a centralized digitized database system and/or a harmonized approach.

The scope of PSC inspection has been extended from the hardware aspect of the ship to the software aspect such as onboard maintenance or operational procedures ever since the ISM Code was adopted and applied to all ships and is still expanding as more new concept of regulations has been introduced by the adoption of ISPS Code, SOLAS amendments for bulk carrier safety, MARPOL amendments for prevention of air pollution or MLC, 2006, etc.

In line with the above progress of PSC, ClassNK has been working hard and will work harder to increase the transparency of information related to PSC and to eliminate substandard vessel.

June 2017

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Chapter 1

Status of Implementation and Recent Developments in PSC Worldwide

1.1 Amendments to the relevant conventions

Major amendments to international conventions and to the relevant regulations that came into effect from 2015 through 2017 are summarized as below.

1.1.1 Enclosed space entry and rescue drills (SOLAS III/19 etc.)

Entry into force: 1 January 2015

[Refer to ClassNK Technical Information TEC-0965]

To require that crew members with enclosed space entry and rescue responsibilities shall participate in an enclosed space entry and rescue drill to be held on board the ship at least once every two months on and after 1 January 2015.

1.1.2 Installation of stability instrument for oil tankers, chemical tankers, gas carriers (Regulation 28 & 29 of MARPOL Annex I, 2.2.6 & 2.2.7 of IBC Code, 2.2.6 & 2.2.7 of IGC Code)

Entry into force: 1 January 2016

[Refer to ClassNK Technical Information TEC-1053]

All oil tankers, chemical tankers, and gas carriers are to be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements approved by the Administration by the date designated in applicable convention or codes.

Type of Ship	Applicable Ship	Designated Date
Oil Tankers and Chemical Tankers	Ships constructed on or after 1 January 2016	The date of delivery
	Ships other than above	At first scheduled renewal survey of IOPP Certificate and/or Chemical Certificate on or after 1 January 2016 but not later than 1 January 2021
Gas Carriers	Ships constructed on or after 1 July 2016	The date of delivery
	Ships to which GC Code and EGC Code apply (Ships constructed before 1 July 1986)	At first scheduled renewal survey of Gas Certificate on or after 1 January 2016 but not later than 1 January 2021
	Ships other than above	At first scheduled renewal survey of Gas Certificate on or after 1 July 2016 but not later than 1 July 2021

1.1.3 Appropriate portable atmosphere testing instrument or instruments to entry into enclosed spaces (SOLAS XI-1/7)

Entry into force: 1 July 2016

[Refer to ClassNK Technical Information TEC-1074]

SOLAS XI-1/7 was newly added and due to this requirement, every ship shall carry an appropriate portable atmosphere testing instrument or instruments. As a minimum, these shall be capable of measuring concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide prior to entry into enclosed spaces. Suitable means shall be provided for the calibration of all such instruments.

1.1.4 Amended requirements for sludge discharging piping and bilge-water piping (Regulation 12 of MARPOL Annex I)

Entry into force: 1 January 2017

[Refer to ClassNK Technical Information TEC-1080]

Regulation 12 of MARPOL Annex I was amended and due to this amendment, it is required that the connections between the sludge discharge piping / the bilge-water piping and common piping leading to the standard discharge connection are not to allow for the transfer of sludge to bilge system prior to the following implementation deadline.

Application:

1) Ships constructed (keel-laid) on or after 1 January 2017: The date of delivery
2) Ships constructed before 1 January 2017: The first IOPP renewal survey on or after 1 January 2017

1.1.5 An entry-into-force of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention)

Entry into force: 8 September 2017

[Refer to ClassNK Technical Information TEC-1085 & 1086]

On or after the following implementation deadline for Ballast Water Management Systems (BWMS) according to IMO Res. A. 1088(28) and MEPC 69, ships are required to conduct ballast water exchange through BWMS. On or after 8 September 2017 and prior to the following implementation deadline for BWMS, ships are required to conduct ballast water exchange offshore according to a ballast water management plan or ballast water exchange through BWMS.

Application:

1) Ships constructed (keel-laid) on or after 8 September 2017: The date of delivery
2) Ships constructed before 8 September 2017: The first IOPP renewal survey on or after 8 September 2017

1.1.6 The number of spare cylinders to replace those used during the drill (SOLAS II-2/15.2.2.6)

Entry into force: 1 January 2017

[Refer to ClassNK Technical Information TEC-1095]

On or after 1 January 2017, in case where an onboard means of recharging breathing apparatus cylinders is not provided, at least one set of spare cylinders for fire drills is to be provided for each mandatory breathing apparatus required by SOLAS II-2/Reg.10 and Reg.18.

1.1.7 Revised IHO standards of Electronic Navigation Charts (ENC) using in Electronic Chart Display and Information System (ECDIS)

Entry into force: 1 September 2017

[Refer to ClassNK Technical Information TEC-1101 & 1106]

As ECDIS or ECDIS software is to be maintained so as to be compatible with the latest International Hydrographic Organization (IHO) standards, ECDIS on board a vessel is required to update the software or replace ECDIS itself in order to display the charts in compliance with the revised IHO standards before 31 August 2017.

New amendments to conventions are also introduced on the ClassNK Website in the section, 'IMO International Convention Calendar'.
(http://www.classnk.or.jp/hp/en/imo_conv_schedule/)

1.2 Recent global developments

1.2.1 MOUs around the world

In order to carry out PSC effectively, a recommendation concerning regional co-operation in the control of ships and discharges was adopted as a resolution by the IMO. In July 1982, fourteen European countries signed the Paris Memorandum of Understanding on Port State Control (Paris MoU), and today many countries have signed and accepted similar MOUs around the world. Currently, nine MOUs exist around the world and their respective activities in terms of implementing PSC are described below.

European and North Atlantic region	: Paris MoU	(http://www.parismou.org/)
Asia-Pacific region	: Tokyo MOU	(http://www.tokyo-mou.org/)
Latin American region	: Latin American Agreement	(http://www.acuerdolatino.int.ar/)
Caribbean region	: Caribbean MOU	(http://www.caribbeanmou.org/)
Mediterranean region	: Mediterranean MoU	(http://www.medmou.org/)
Indian Ocean region	: Indian Ocean MOU	(http://www.iomou.org/)
Black Sea region	: Black Sea MOU	(http://www.bsmou.org/)
West and Central Africa region	: Abuja MoU	(http://www.abujamou.org/)
Arab States of the Gulf	: Riyadh MoU	(http://www.riyadhmou.org/)

(1) European and North Atlantic region (Paris MoU)

Established: 1 July 1982

Members: Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Slovenia, Spain, Sweden, and the United Kingdom

-1. The Paris MoU consists of 27 participating maritime Administrations and covers the waters of the European coastal States and the North Atlantic basin from North America to Europe. The Paris MoU states that their aim is to eliminate the operation of sub-standard ships through a harmonized system of PSC.

-2. Press releases have announced the recent activities of the Paris MoU as follows.

Press release dated 30 May 2016

- The Paris MoU announced that the Paris MoU held its 49th Committee meeting in Norway through 23 to 27 May 2016. Committee decided on carrying out a CIC in 2018 on MARPOL Annex VI.

Press release dated 29 May 2017

- The Paris MoU announced that the Paris MoU held its 50th Committee meeting in Poland through 22 to 26 May 2017. Committee approved the questionnaire for the CIC on Safety of Navigation to be carried out from September to November 2017. The questionnaire will be published in August.

Press release dated 6 June 2017

- The Paris MOU announced the preliminary results of the Concentrated Inspection Campaign (CIC) on MLC, 2006, which was conducted from 1 September to 30 November 2016.
- During the course of the campaign Authorities carried out a total of 3,674 inspections of ships. Of this quantity, 42 ships were detained as a result of deficiencies found during the CIC.

Press release dated 20 June 2017

- The Paris MoU announced new performance lists for flag and Recognized Organizations. These lists will take effect from 1 July 2017.

(2) Asia-Pacific region (Tokyo MOU)

Established: 1 December 1993

Members: Australia, Canada, Chile, China, Fiji, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, the Marshall Islands, New Zealand, Papua New Guinea, Peru, the Philippines, the Russian Federation, Singapore, Thailand, Vanuatu, and Viet Nam

-1. The main objectives of the Memorandum have been announced
   1. to establish an effective Port State Control regime in the Asia-Pacific region through the co-operation of its members and the harmonization of their activities,
   2. to eliminate substandard shipping so as to promote maritime safety,
   3. to protect the marine environment, and
   4. to safeguard working and living conditions onboard ships.

-2. Press releases announced the activities of the Tokyo MOU as follows:

Press release dated 24 October 2016

- The Tokyo MOU announced that the 27th meeting of the PSC Committee of the Tokyo MOU was held in Hobart, Australia through 17 to 20 October 2016.
- The Committee adopted the amendments to the Memorandum for inclusion of the BWM as a relevant instrument, and unanimously agreed to accept Samoa as an observer of the Tokyo MOU.
- The Committee decided to conduct the CIC on Safety of Navigation in 2017. By the agreement with the Paris MOU, the Committee confirmed to carry out a joint CIC on MARPOL Annex VI in 2018.
- The 28th meeting of the PSC Committee will be held in Russia in September 2017.

Press release dated 2 March 2017

- The Tokyo MOU announced the preliminary results of the Concentrated Inspection Campaign (CIC) on Cargo Securing Arrangements, which was conducted from 1 September to 30 November 2016.
- During the course of the campaign Authorities carried out a total of 4,263 inspections of target ships. Of this quantity, 19 ships were detained as a result of deficiencies found during the CIC.

-3. Annual Report 2016 was released on 28 April 2017.

(3) Latin-American region (Latin American Agreement)

Established: 5 November 1992

Members: Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Republic of Dominica, Uruguay, and Venezuela

(4) Caribbean region (Caribbean MOU)

Established: 9 February 1996

Members: Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Cayman Islands, Cuba, Curacao, France, Grenada, Guyana, Jamaica, the Netherlands, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago

(5) Mediterranean region (Mediterranean MoU)

Established: 11 July 1997

Members: Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Tunisia, and Turkey

(6) Indian Ocean region (Indian Ocean MOU)

Established: 5 June 1998

Members: Australia, Bangladesh, Comoros, Eritrea, France (La Reunion), India, Iran, Kenya, Maldives, Mauritius, Mozambique, South Africa, Sri Lanka, Sudan, Sultanate of Oman, Tanzania, and Yemen

-1. According to Annual Report 2016 of the Indian Ocean MOU, a total of 6,010 inspections were carried out and 370 vessels were detained in 2016.

-2. The Indian Ocean MOU announced the preliminary results of the Concentrated Inspection Campaign (CIC) on Cargo Securing Arrangements, which was conducted from 1 September to 30 November 2016. During the course of the campaign Authorities carried out a total of 862 inspections of target ships. Of this quantity, 3 ships were detained as a result of deficiencies found during the CIC.

-3. CIC on Safety of Navigation is scheduled to be carried out on 2017.

(7) Black Sea region (Black Sea MOU)

Established: 7 April 2000

Members: Bulgaria, Georgia, Romania, the Russian Federation, Turkey, and Ukraine

-1. According to Annual Report 2016 of the Black Sea MOU, a total of 5,066 inspections were carried out and 229 vessels were detained in 2016.

-2. On 1 June 2017, the Black Sea MOU announced the results of the Concentrated Inspection Campaign (CIC) on Cargo Securing Arrangements, which was conducted from 1 September to 30 November 2016. During the course of the campaign Authorities carried out a total of 931 inspections of target ships. Of this quantity, no ship was detained as a result of deficiencies found during the CIC.

-3. CIC on Safety of Navigation is scheduled to be carried out on 2017.

(8) West and Central Africa region (Abuja MoU)

Established: 22 October 1999

Members: Angola, Benin, Cape Verde, Republic of Congo, Cote D'Ivoire, Gabon, The Gambia, Ghana, Republic of Guinea, Guinea Bissau, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, and Togo

-1. According to Annual Report 2016 of the Abuja MoU, a total of 1,922 inspections were carried out and 24 vessels were detained in 2016.

-2. CIC on Safety of Navigation is scheduled to be carried out on 2017.

(9) Arab States of the Gulf (Riyadh MoU)

Established: 30 June 2004

Members: Kingdom of Bahrain, Kingdom of Saudi Arabia, State of Kuwait, State of Qatar, State of United Arab Emirates, and Sultanate of Oman

-1. The Riyadh MoU conducted the Concentrated Inspection Campaign (CIC) on Pilot Transfer Arrangements from 1 September to 30 November 2016.

1.2.2 Port State Control in the United States (USCG)

(1) Activity

Although the United States Coast Guard (USCG) is not a member of any MOU, it is an observer at a number of MOUs, and undertakes effective PSC in cooperation with other MOUs. In the 1970's, the U.S. Coast Guard increased its emphasis on the examination of foreign vessels. Although this emphasis was primarily driven by requirements to ensure compliance with the then new U.S. pollution prevention and navigation safety regulations, boarding officers also exercised Port State authority when instances of non-compliance with SOLAS and MARPOL were noted. In 1994, the U.S. introduced risk-management methodologies into the Port State Control program in order to allocate limited inspection resources to where they could do the most good, by identifying those ships, ship owners, classification societies and Flag Administrations that were most often found lacking in meeting their international Convention responsibilities. On 1 January 2001, the USCG implemented an initiative to identify high-quality ships, called QUALSHIP 21, quality shipping for the 21st century. This program has since proven to be very effective in recognizing well operated and maintained ships of good quality and continues in use today. Further, on 1 July 2017, in addition to QUALSHIP 21, the program of E-ZERO (Zero Environmental Deficiencies or Violations) will commence. E-ZERO designation will be assigned with exemplary vessels that have consistently adhered to environmental compliance.

(2) PSC Safety Targeting Matrix

The USCG uses the Port State Control Safety and Environmental Protection Compliance Targeting Matrix which enables the Coast Guard to rationally and systematically determine the probable risk posed by non-U.S. ships calling at U.S. ports. The matrix is used to decide which ships Port State Control Officers should examine on any given day, in any given port. The numerical score, along with other performance based factors, determines a ship's priority for examination.
(Reference: http://www.uscg.mil/hq/cgcvc/)

(3) Banning of foreign vessels

All foreign flagged vessels operating in U.S. waters are required to be maintained in compliance with U.S. regulations, international conventions and other required standards. However, when a vessel has been repeatedly detained by the USCG (totaling three detentions within a twelve month period) and it is determined that failure to effectively implement the SMS onboard may be a contributing factor for the substandard conditions that led to the detentions, the USCG Headquarters (USCG-HQ) will issue a Letter of Denial prohibiting the ship from further entering any U.S. port until such time as certain actions have been taken to rectify the situation. However, even if a vessel has less than three detentions in twelve months, a Letter of Denial may be issued to any vessel which, in the option of the USCG;

1. may pose a significant risk to the safety of the vessel, crew or the marine environment; or
2. has a history of accidents, pollution incidents, or serious repair problems which creates reason to believe that such a vessel may be unsafe or create a threat to the marine environment; or
3. has discharged oil or other hazardous material in violation of any law of the United States or in a manner or quantities inconsistent with the provisions of any treaty to which the United States is a party.

1.2.3 Equasis

Equasis is a unique database that collects safety-related information on the world's merchant fleet from both public and private sources and makes it easily accessible on the Internet (http://www.equasis.org/). It displays information from public authorities (Port State inspection and detention information from the three participating PSC regions, i.e. the Paris MoU, Tokyo MOU, and USCG) and industry players (such as information on class, insurance, participation in industry inspection schemes, and quality organizations), all free of charge.

1.3 Measures adopted by ClassNK

1.3.1 Handling of the Deficiencies Identified by PSC Inspections

(1) Cooperative assistance with PSC and treatment of deficiencies

When surveyors of the Society are notified of the detention of a ship classed with ClassNK, the Society actively co-operates with the reporting PSC in a number of ways. The more direct of these steps include the following.

- Surveyors liaise with PSC to ensure that they are called in as soon as appropriate when deficiencies related to class and/or statutory matters are identified.
- Surveyors liaise with PSC officers to ensure uniformity of interpretation of class and statutory requirements.
- Surveyors provide PSC officers with background information, extracts from reports pertinent to the inspection, and details of outstanding recommendations of class and statutory items whenever so requested by the PSC.
- Attending surveyors examine not only the condition of the deficiencies identified by the PSC officers but also expand the scope of the survey for the general condition of the hull, machinery and equipment, or carry out the general examination to the extent of an annual survey if necessary, carefully considering the seriousness of any deficiencies when they attend ships that have been subject to an intervention action by the PSC.

(2) Treatment of inspection reports by PSC officers

When a surveyor receives an inspection report from PSC, the report is sent to the ClassNK Head Office. The report is immediately examined by experienced staff to identify the causes of the deficiencies. This examination is carried out for all ships for which such reports are received, and the results are circulated to all sections concerned, including all members of the board of directors, as necessary. The results are also reflected a ClassNK PSC database that has been developed for the purpose of providing surveyors with PSC related information electronically. The results of this examination are also submitted to the Flag State Administration of the ship, as required. Further, visits may also be made to the management company or others, when deemed appropriate, to advise them of the relevant deficiencies noted and to encourage them to more proactively improve the routine maintenance of their ships and take other measures as necessary to ensure the highest levels of safe and environmentally friendly operation. In cases where the deficiencies pointed out by the PSC are determined to be related to previous surveys conducted by surveyors of the Society, those surveys are treated as a non-conforming service, and appropriate corrective and preventive actions are taken in accordance with the ClassNK quality system.

1.3.2 Minimizing the number of detained ships in order to reduce substandard ships

(1) Special training at several in-house meetings

Special training on PSC related issues is conducted at several meetings held regularly for general managers and managers, to ensure that surveyors carry out full and effective surveys with an uncompromising attitude towards ensuring the quality and safety of the ships classed with the Society.

Special re-training is also carried out under the supervision of the Head Office and regional managers, as needed, for those surveyors who have conducted any surveys determined to be a non-conforming service under the quality system of the Society.

(2) Meetings and informal gatherings with management companies

(a) Visiting Management Companies

When a ship classed with ClassNK is detained by PSC, if deemed necessary, a senior surveyor or manager of the Society visits the company managing the ship to discuss what steps can be taken to improve the routine maintenance of the ships in their fleet, so as to prevent both a recurrence of the deficiencies noted and the occurrence of similar problems in the future.

(b) Meetings and seminars

PSC related issues are regularly discussed at informal gatherings and technical committee meetings held with management companies. At such times, explanations are given and documents presented, with emphasis placed on the importance of proactively ensuring the proper maintenance of ships and education of crew in order to prevent the detention of ships.

(c) Publications

The “ClassNK Annual Report on Port State Control” is distributed to all registered management companies or others in the ClassNK fleet. A checklist entitled “Good Maintenance on board Ships” and mobile application “ARRIVAL CHECKLIST for PSC” have also been prepared and posted on NK website as below, which can be used by the ship’s crew for quick and easy inspection of a ship before entering port. (http://www.classnk.or.jp/hp/en/info_service/psc/)

In addition, “Monthly PSC Information”, which indicates the cases of PSC inspection including detainable deficiency or ISM related deficiency, is also posted on the same page.

Ten “ClassNK PSC Bulletin” were sent to Company managed ClassNK fleet as of June 2017 by e-mail. This bulletin provides timely information on particularly notable deficiencies pointed out during PSC inspections of NK classed ships, and will be continuously served to management companies.

1.3.3 Visits to PSC authorities

Personnel from the ClassNK Head Office as well as local survey offices are assigned to visit the headquarters or offices of various PSC authorities with the aim of introducing ClassNK and exchanging views on matters of mutual concern. In 2016, the ClassNK Head Office visited the following PSC authorities for the above-mentioned purpose.

- Australia	Australian Maritime Safety Authority (AMSA)
- China	Maritime Safety Administration (MSA)
- Korea	Ministry of Oceans and Fisheries
- New Zealand	Maritime New Zealand (MNZL)
- Singapore	Maritime and Port Authority of Singapore (MPA Singapore)
- Hong Kong	Marine Department of the Government of the Hong Kong Special Administrative Region

Chapter 2

Statistical Analysis of Detained Ships Registered to ClassNK

2.1 General

The data in this chapter, on ships detained due to deficiencies identified during PSC inspections, is based on the following sources:

(1) Notifications from Port States issued in accordance with IMO Resolution A.1052(27) "Procedure for Port State Control, and

(2) Publications related to detained ships issued by the USCG, the Paris MoU, and the Tokyo MOU.

From January to December 2016, 471 PSC detentions were reported relating to 437 ships classed by NK. This included cases of detention for reasons not related to class or to NK itself. The total number of NK-registered ships (500 GT or over) was 8,419 at the end of December 2016. Therefore, the 437 ships detained represent about 5.2 % of the total number of ships in the NK fleet. Further, detention ratio (Detentions/Registered number in 2016) of the NK fleet in 2016 is about 5.6%.

2.2 Data on Detentions

2.2.1 Detentions per Flag State

Table 2.2.1 Detentions per Flag State

Country	Number of Registered Ships (500GT or over)			Number of Detentions			Detention Ratio (%) (= Detentions / Registered Number in each year)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Panama	3,194	3,188	3,213	228	245	255	7.1	7.7	7.9
Marshall Islands	402	468	514	19	11	39	4.7	2.4	7.6
Liberia	468	533	547	43	47	36	9.2	8.8	6.6
Malta	216	227	214	21	27	18	9.7	11.9	8.4
Hong Kong	432	454	454	14	21	17	3.2	4.6	3.7
Singapore	729	756	750	10	13	13	1.4	1.7	1.7
Cyprus	89	85	86	3	5	10	3.4	5.9	11.6
Thailand	73	78	74	5	5	9	6.8	6.4	12.2
Turkey	66	77	79	4	7	8	6.1	9.1	10.1
Bahamas	149	164	159	6	12	6	4.0	7.3	3.8
Viet Nam	89	95	100	6	4	6	6.7	4.2	6.0
Japan	887	916	926	2	4	3	0.2	0.4	0.3
Malaysia	291	293	286	0	4	3	0.0	1.4	1.0
Indonesia	168	170	177	8	3	3	4.8	1.8	1.7
Philippines	73	70	72	4	4	1	5.5	5.7	1.4
Others	-	-	-	56	64	44	-	-	-
Total	7,986	8,326	8,419	429	476	471	5.4	5.7	5.6

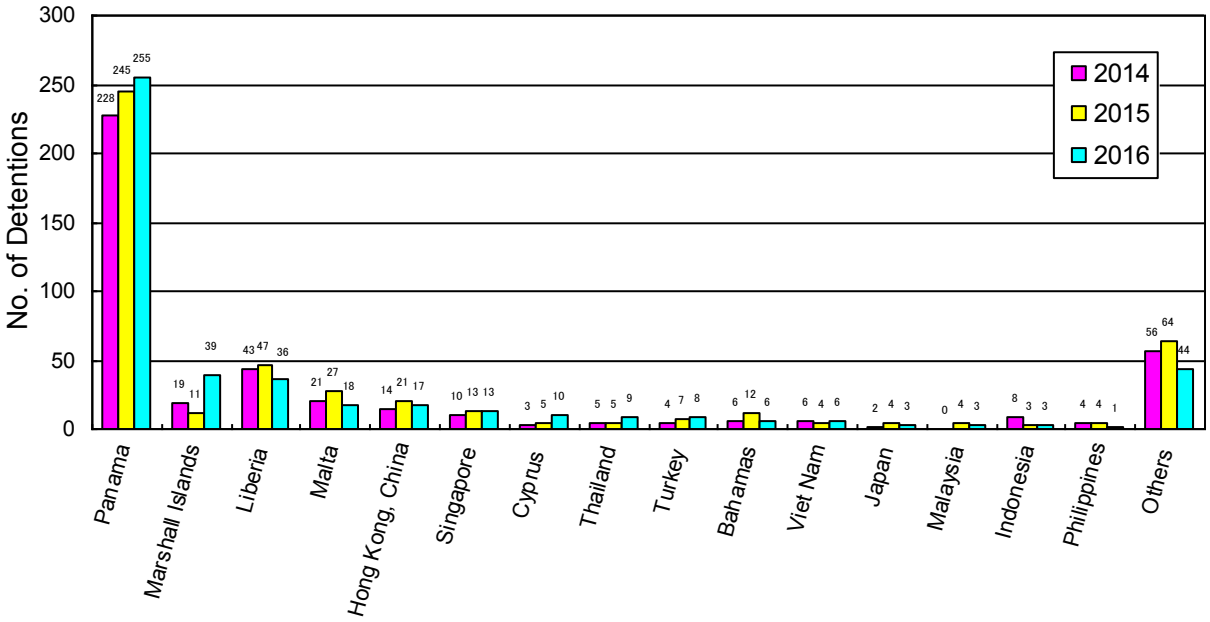

Fig 2.2.1-1 No. of Detentions per Flag

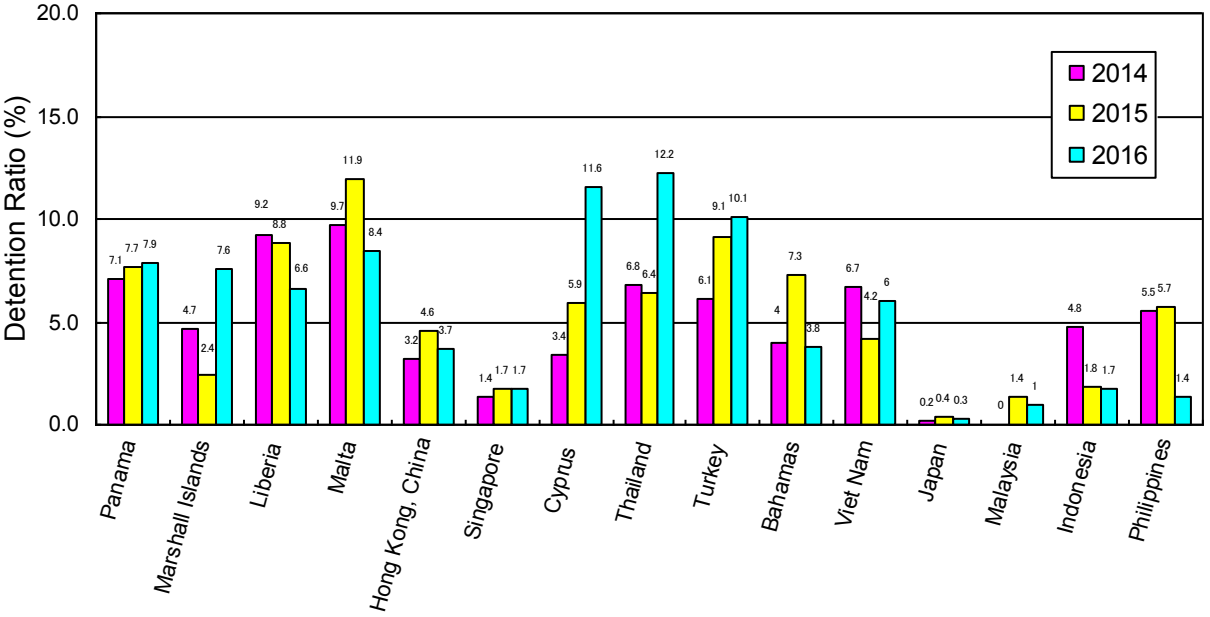

Fig 2.2.1-2 Detention Ratio per Flag (%)

2.2.2 Detentions per Ship Type

Table 2.2.2 Detentions per Ship Type

Ship Type	Number of Registered Ships in 2016 (500GT or over)	Number of Detentions			Detention Ratio (%) (= Detentions / Registered Number in each year)		
		2014	2015	2016	2014	2015	2016
Bulk Carrier	3,682	246	255	291	7.2	7.1	7.9
General Cargo	866	76	103	85	9.3	12.0	9.8
Container Carrier	605	26	36	24	4.2	5.8	4.0
Chip Carrier	116	5	7	5	4.0	5.8	4.3
Cement Carrier	123	2	1	1	1.8	0.8	0.8
Ro-Ro Ship	32	3	7	2	6.8	19.4	6.3
Reefer Carrier	127	14	13	14	10.4	9.6	11.0
Vehicles Carrier	354	14	11	7	4.0	3.1	2.0
Oil Tanker	723	9	14	14	1.2	1.9	1.9
Oil/Chemical Tanker	727	21	19	18	3.2	2.7	2.5
Gas Carrier	400	9	6	10	2.4	1.5	2.5
Others	664	4	4	0	0.9	0.6	0.0
Total	8,419	429	476	471			

Among the dry cargo ships with the large numbers, a detention ratio of General cargo ships was identified as having a higher detention ratio than other ship types noted. (‘Detention ratio’ was determined by dividing the number of detentions by the number of ships of each respective ship type in the NK fleet.)

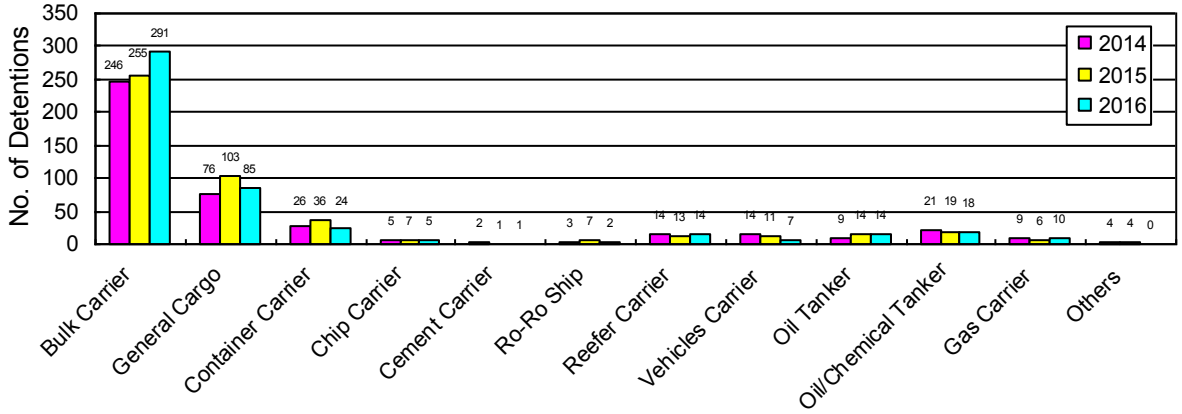

Fig. 2.2.2-1 No. of Detentions per Ship Type

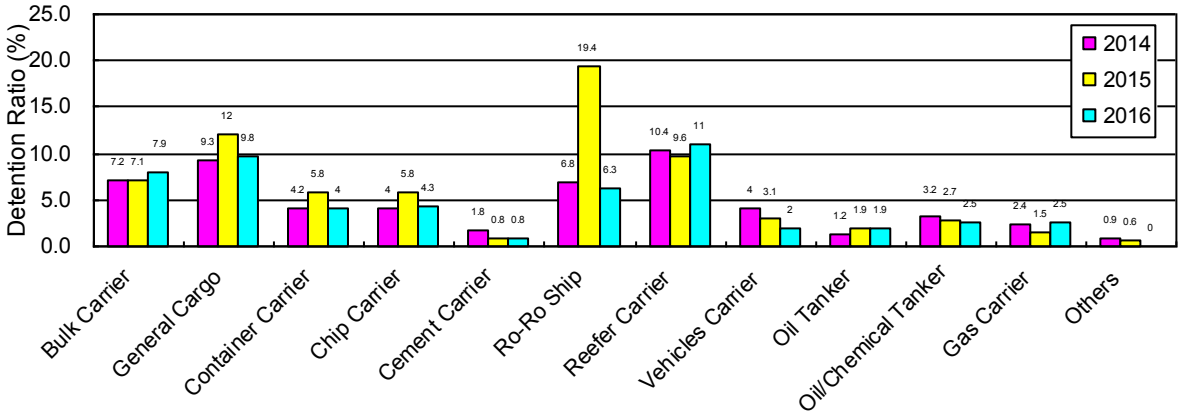

Fig. 2.2.2-2 Detention Ratio per Ship Type (%)

2.2.3 Detentions per Ship's Age

Table 2.2.3 Detentions per Ship's Age

Ship's age	Number of Registered Ships in 2016 (500GT or over)	Number of Detentions			Detention Ratio (%) (= Detentions / Registered Number in each year)		
		2014	2015	2016	2014	2015	2016
Up to 5 years old	2,868	60	56	54	2.0	1.9	1.9
Over 5 and up to 10	2,368	98	109	132	5.0	5.0	5.6
Over 10 and up to 15	1,237	79	85	81	7.3	7.7	6.5
Over 15 and up to 20	1,045	102	101	107	8.8	8.7	10.2
Over 20 and up to 25	584	43	72	60	9.7	13.4	10.3
Over 25	317	47	53	37	13.7	16.3	11.7
Total	8,419	429	476	471			

Aged ships tend to increase the detention ratio.

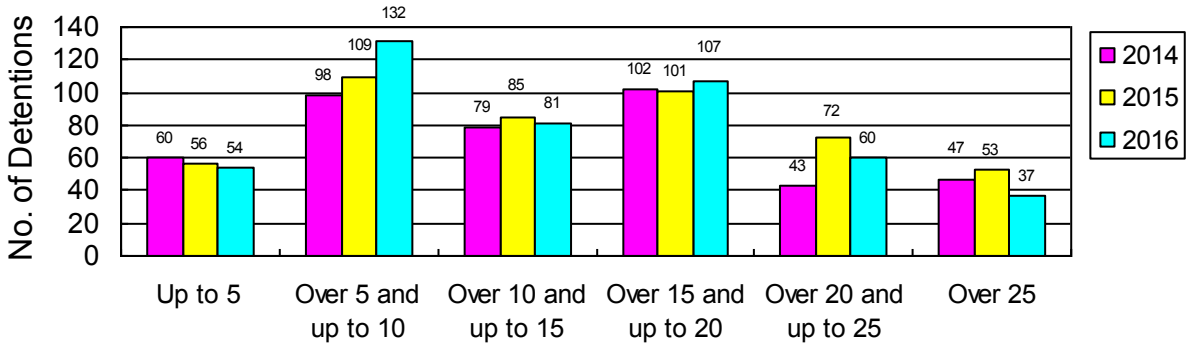

Fig. 2.2.3-1 No. of Detentions per Ship's Age

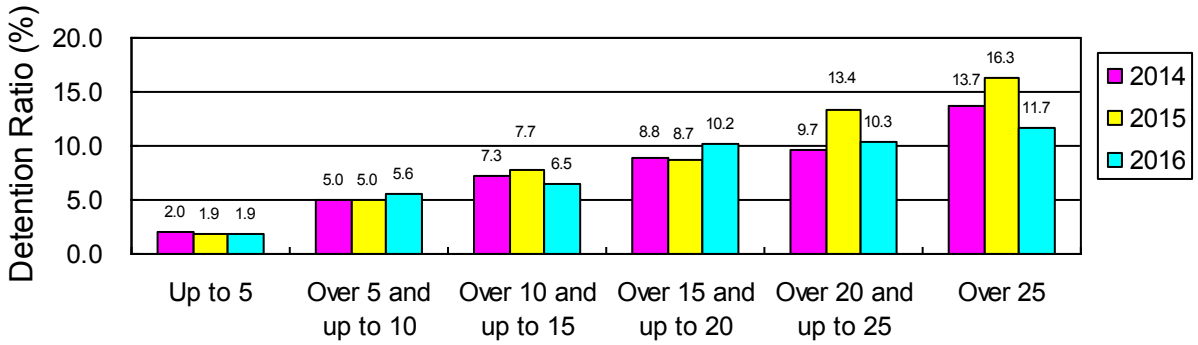

Fig. 2.2.3-2 Detention Ratio per Ship's Age (%)

2.2.4 Detentions per Ship Size (Gross Tonnage)

Table 2.2.4 Detentions per Ship Size (Gross Tonnage)

Gross Ton (x 1,000)	Number of Registered Ships in 2016 (500GT or over)	Number of Detentions			Detention Ratio (%) (= Detentions / Registered Number in each year)		
		2014	2015	2016	2014	2015	2016
Up to 10	2,794	131	150	124	4.9	5.4	4.4
Over 10 and up to 20	1,294	100	109	110	7.5	8.2	8.5
Over 20 and up to 30	1,058	68	70	58	7.1	6.8	5.5
Over 30 and up to 40	1,273	58	73	88	5.2	6.0	6.9
Over 40 and up to 50	758	26	31	34	4.0	4.4	4.5
Over 50 and up to 60	309	10	9	15	3.0	2.8	4.9
Over 60 and up to 80	205	8	10	9	3.7	4.7	4.4
Over 80	728	28	24	33	4.0	3.3	4.5
Total	8,419	429	476	471			

A detention ratio of vessels with GT up to 40,000 tends to be higher than that of vessels with GT over 40,000.

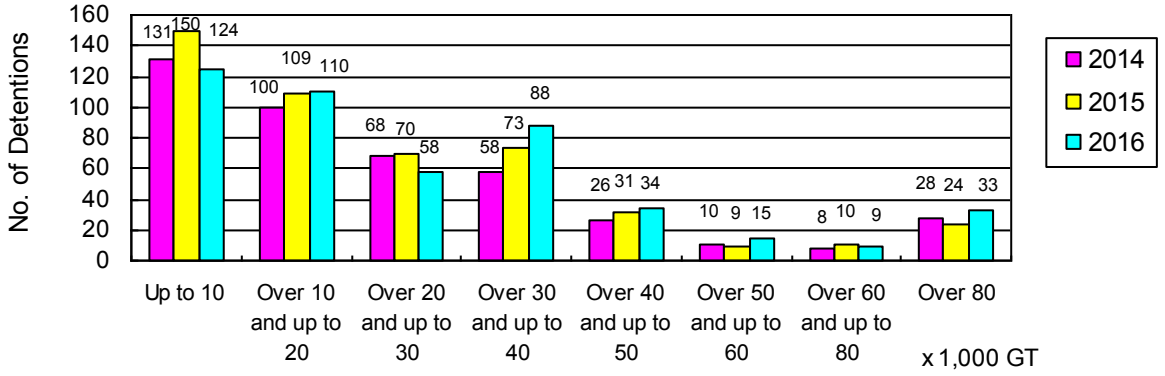

Fig.2.2.4-1 No. of Detentions per Ship Size (Gross Tonnage)

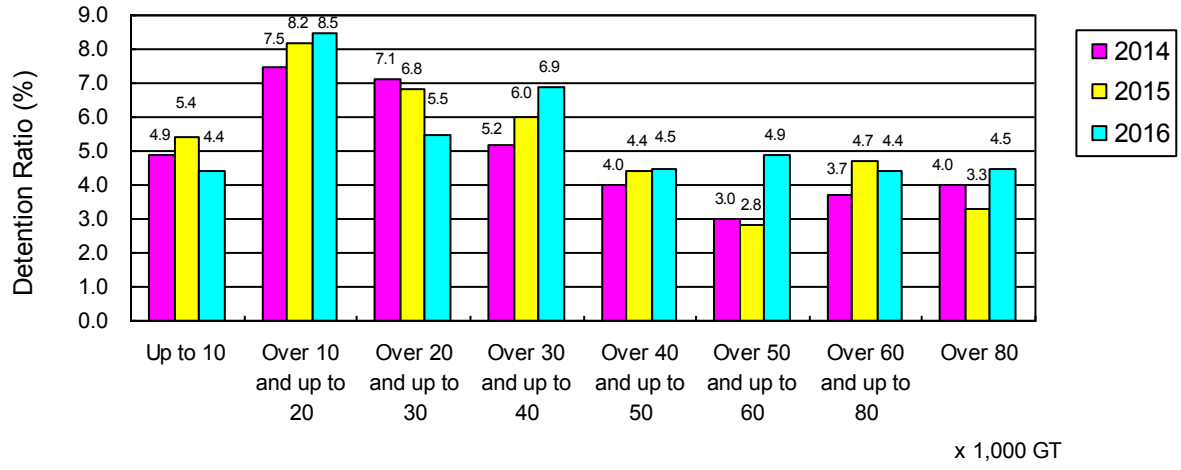

Fig. 2.2.4-2 Detention Ratio per Ship Size (Gross Tonnage) (%)

2.2.5 Detentions per PSC Country

Table 2.2.5
No. of Detentions per PSC Country

Country	2014	2015	2016
Australia	82	86	104
China	95	105	103
Russia	17	18	39
Japan	22	18	24
U.S.A.(*1)	32	46	23
Indonesia	8	14	14
Spain	8	6	13
United Kingdom	15	8	11
Romania	0	6	11
Italy	15	11	10
Iran	5	7	10
Germany	10	11	9
Turkey	10	12	8
Republic Korea	10	11	8
Greece	7	8	8
India	21	17	6
France	4	6	6
Taiwan	3	8	5
Viet Nam	2	2	5
Israel	1	0	5
Hong Kong, China	7	13	4
Canada	7	8	4
Netherlands	4	4	4
Others	44	51	37
Total	443	429	476

(*1) Including Puerto Rico and Pago Pago

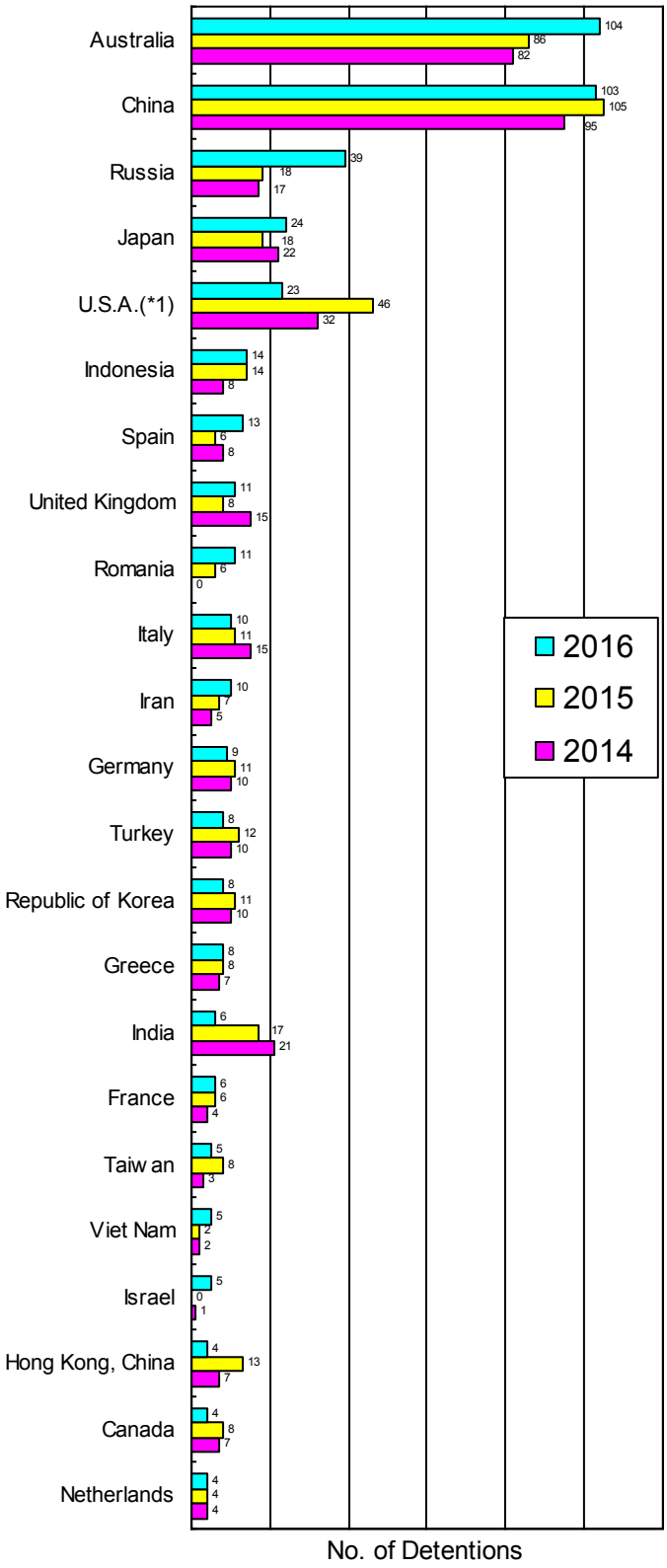

Fig. 2.2.5 No. of Detentions per PSC Country

Number of ships detained by Australia and Russia in 2016 increased compared with that of 2015.

2.2.6 Detentions per MOUs and USCG

Table 2.2.6 No. of Detentions per MOUs and USCG

Region	2014	2015	2016
Tokyo MOU	243	268	274
Paris MoU	87	83	97
USCG	32	46	23
Others	67	79	77
Total	429	476	471

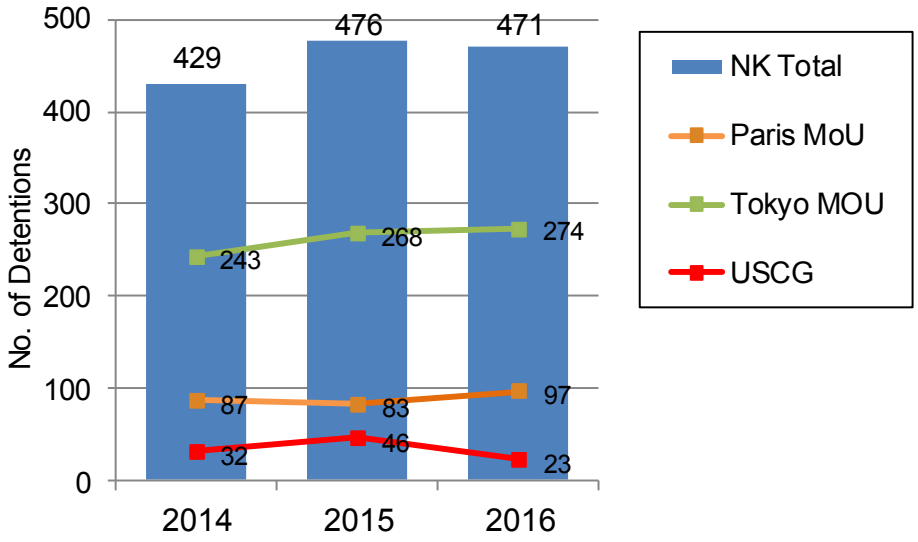

Fig. 2.2.6 No. of Detentions per MOUs and USCG

Compared with number of 2015, number of detention at USCG decrease 50%, otherwise number of detention at Tokyo MoU and Paris MoU increase in 2016.

2.3 Analysis of Detainable Deficiencies

2.3.1 Detainable Deficiencies per Category

In 2016 a total of 1,310 detainable deficiencies were reported relating to 471 detentions, i.e., deficiencies which were serious enough to jeopardise the ship's seaworthiness, safety of the crew onboard, or to present a threat of harm to the environment and therefore warranted the detention of the ship. The deficiencies are categorized as shown in Figure 2.3.1 and categories in this figure are based on those of the Tokyo MOU. Deficiencies related to fire safety and life-saving appliances combined accounted for about one-third of the total in 2016.

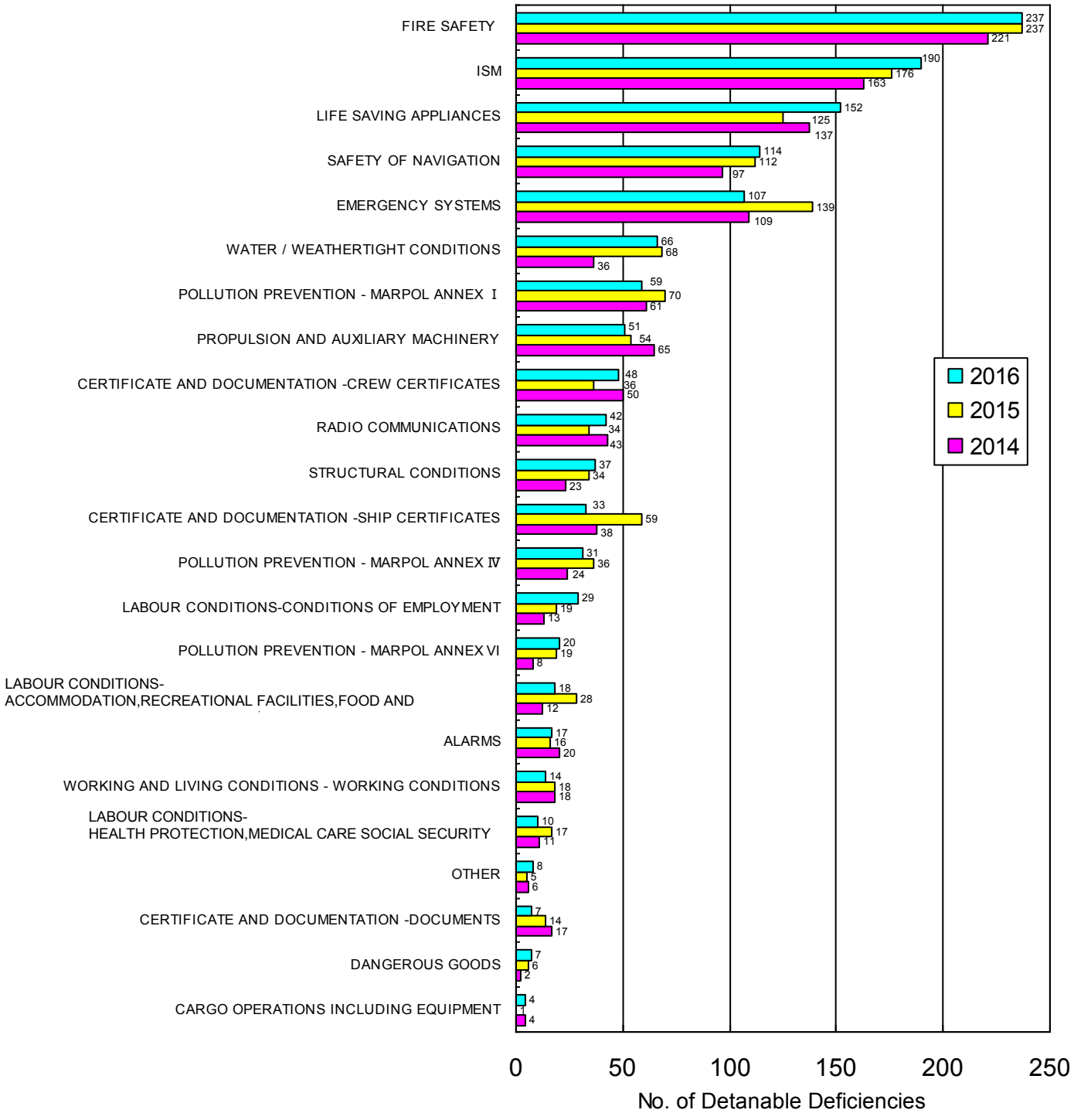

Fig. 2.3.1 No. of Detainable Deficiencies per Category

2.3.2 Frequently Reported Deficiencies

Figure 2.3.2 shows those items of detainable deficiencies that were reported frequently, in conjunction with the actual detention of ships in the NK fleet. ISM is most frequent detainable deficiencies item continuously from 2014. Lifeboats and emergency fire pumps continue to be the major items where most detainable deficiencies were found. The items reported from 2014 to 2016 are explained in detail in paragraphs (1) to (15) below. (Regarding details of deficiencies related to ISM and MLC, refer to Chapter 3 and Chapter 4.)

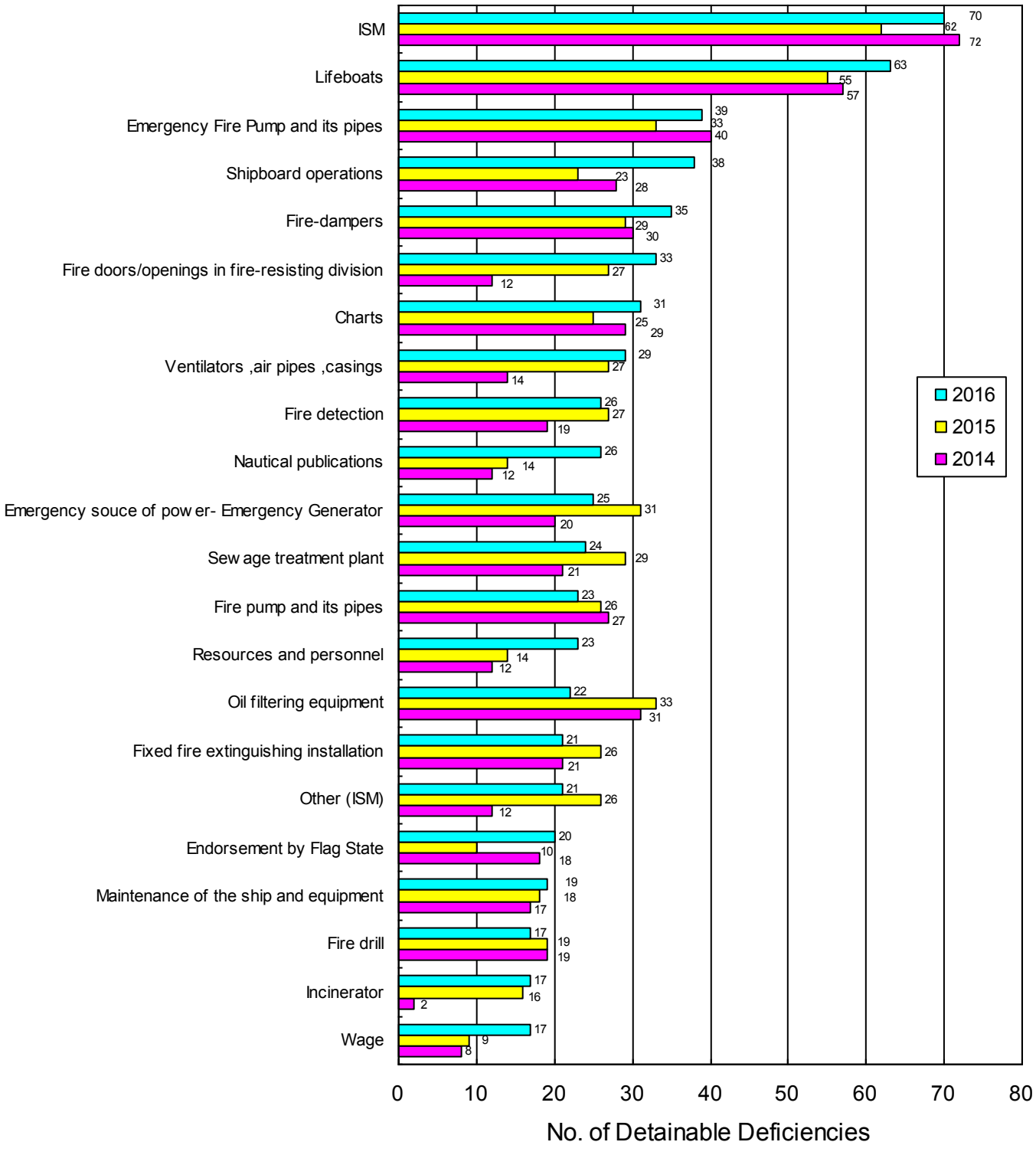

Fig. 2.3.2 Detainable Deficiencies Frequently Reported

(1) Fire Safety

Major types and details of deficiencies noted under the category of "Fire Safety" are shown in Table 2.3.2-(1) below.

Table 2.3.2-(1) Fire Safety

Item	2014	2015	2016	Noted Deficiencies
Fire-dampers	30	29	35	Wasted and holed fire-dampers Defective operation of fire-dampers
Doors within main vertical zone	12	27	33	Malfunction of self-closing devices Poor closing condition of fire door
Fire detection	19	27	26	Inoperable fire detection units
Fire pumps and its pipes	27	26	23	Malfunction of fire pump(incl. for emergency) Wasted and holed fire main line
Fixed fire extinguishing system	21	26	21	Corroded and holed CO2 lines Defective operation of fire extinguishing systems
Other (fire safety)	8	10	15	Fire hazard due to oil leakage from equipment in Engine Room
Ventilation	12	7	11	Corroded and holed ventilator casings Malfunction of mechanical ventilators
Fire prevention	12	16	10	Deteriorated non-combustible materials for cable penetrations in A-class divisions
Readily availability of fire fighting equipment	6	10	10	Improper maintenance/control of fire fighting equipment
Quick closing valves, Remote control devices	18	7	10	Inoperable quick closing valves

(2) ISM Related Deficiencies

Deficiencies noted under the category of "ISM Related Deficiencies" have been increasing year by year. For details of deficiencies, refer to Chapter 3.

(3) Life Saving Appliances

Major types and details of deficiencies noted under the category of "Life Saving Appliances" are shown in Table 2.3.2-(3) below.

Table 2.3.2-(3) Life Saving Appliances

Item	2014	2015	2016	Noted Deficiencies
Lifeboats	57	55	63	Lifeboat engine not started Poor maintenance of rechargeable batteries Inadequate resetting of on-load release gears
Launching arrangements for survival craft	14	4	14	Inoperative davit (Components seized, etc.)
Launching arrangements for rescue boats	5	5	13	Inoperative davit (Components seized, etc.)
Rescue boats	11	17	9	Rescue boat engine not started Poor maintenance of rechargeable batteries

(4) Safety of Navigation

Major types and details of deficiencies noted under the category of "Safety of Navigation" are shown in Table 2.3.2-(4) below.

Table 2.3.2-(4) Safety of Navigation

Item	2014	2015	2016	Noted Deficiencies
Charts	29	25	31	Navigation charts not updated Navigation charts for intended voyage not available
Nautical publications	12	14	26	Nautical publications (tide table, list of lights, list of radio signals, etc.) not updated
Voyage date recorder(VDR)	9	12	13	Defective VDR/S-VDR Alarm panel showing "system error"
Lights, shapes, sound -signals	13	16	9	Inoperable navigation lights

(5) Emergency Systems

Major types and details of deficiencies noted under the category of "Emergency Systems" are shown in Table 2.3.2-(5) below.

Table 2.3.2-(5) Emergency Systems

Item	2014	2015	2016	Noted Deficiencies
Emergency Fire Pump and its pipes	40	33	39	Inoperable and unable to pressure the fire main
Emergency source of power-Emergency Generator	20	31	25	Emergency generator unable to start automatically or manually
Fire drills	19	19	17	Fire drill failed
Emergency lighting, batteries and switches	13	10	10	Deficient batteries/emergency generator Inoperable emergency lighting
Abandon ship drills	10	3	7	Abandon ship drill failed Drill not conducted

(6) Water/ Weathertight conditions

Major types and details of deficiencies noted under the category of "Water/ Weathertight conditions" are shown in Table 2.3.2-(6) below.

Table 2.3.2-(6) Water/ Weathertight conditions

Item	2014	2015	2016	Noted Deficiencies
Ventilators, air pipes, casings	14	27	29	Waster/Holed ventilators and pipes Damaged float of air pipe heads Damaged closing devices
Hatch Covers	6	12	13	Wasted/Holed hatch covers Wasted hatch cover cleats and its spacers Deteriorated rubber packing
Cargo and other hatchways	1	3	7	Wasted hatch covers and coamings Packing missing and damaged

(7) MARPOL Annex I

Major types and details of deficiencies noted under the category of "MARPOL Annex I" are shown in Table 2.3.2-(7) below.

Table 2.3.2-(7) MARPOL Annex I

Item	2014	2015	2016	Noted Deficiencies
Oil filtering equipment (Oily-Water Separating Equipment)	31	33	22	Inoperable oily water separator Inoperable bilge pump Oily water inside overboard discharging line Ship's crew not familiar with operation of oil filtering equipment
Oil and oily mixtures from machinery spaces	2	2	13	Oil spot beneath M/E and A/E
15PPM alarm arrangements	11	13	8	Failure of 15PPM alarm

(8) Propulsion and auxiliary machinery

Major types and details of deficiencies noted under the category of "Propulsion and auxiliary machinery" are shown in the Table 2.3.2-(8) below.

Table 2.3.2-(8) Propulsion and auxiliary machinery

Item	2014	2015	2016	Noted Deficiencies
Propulsion main engine	16	18	15	Defective oil mist detectors Uncleanness due to leakage of oil and cooling water
Auxiliary engine	19	11	11	Inoperable Auxiliary engines Uncleanness due to leakage of oil
Other (machinery)	22	9	11	Excessive oil and bilge in engine room Malfunction of air compressors

(9) Crew Certificate

Major types and details of deficiencies noted under the category of "Crew Certificate" are shown in Table 2.3.2-(9) below.

Table 2.3.2-(9) Crew Certificate

Item	2014	2015	2016	Noted Deficiencies
Endorsement by flag State	18	10	20	Expired, missing
Seafarers' employment agreement (SEA)	3	10	12	Expired, missing
Certificates for master and officers	7	3	9	Missing of endorsement on STCW certificates by flag state Valid certificates expired

(10) Radio Communications

Major types and details of deficiencies noted under the category of "Radio Communications"are shown in Table 2.3.2-(10) below.

Table 2.3.2-(10) Radio Communications

Item	2014	2015	2016	Noted Deficiencies
Reserve source of energy	9	9	12	GMDSS reserve source of energy failed
MF/HF radio installation	13	11	9	Malfunction of radio devices
Operation of GMDSS equipment	3	1	5	Ship's crew not familiar with operation of GMDSS equipment

(11) Structural Conditions

Major types and details of deficiencies noted under the category of "Structural Conditions" are shown in Table 2.3.2-(11) below.

Table 2.3.2-(11) Structural Conditions

Item	2014	2015	2016	Noted Deficiencies
Bulk carriers add. Safety measures	1	1	6	Failure of water ingress alarm devices Malfunction of dewatering systems
Decks-corrosion	1	4	5	Corrosion/Cracks of deck

(12) Ship Certificates

Major types and details of deficiencies noted under the category of "Ship Certificates" are shown in the Table 2.3.2-(12) below.

Table 2.3.2-(12) Ship Certificates

Item	2014	2015	2016	Noted Deficiencies
Cargo Ship Safety Equipment Certificate (including Exemption)	1	5	9	Original certificate missing, or expired
Safety Management Certificate (SMC/ISM Code)	7	5	6	Original certificate missing, or expired

(13) MARPOL Annex IV

Major types and details of deficiencies noted under the category of "MARPOL Annex IV" are shown in Table 2.3.2-(13) below.

Table 2.3.2-(13) MARPOL Annex IV

Item	2014	2015	2016	Noted Deficiencies
Sewage treatment plant	21	29	24	Not operative
Other (MARPOL Annex IV)	0	6	6	Sewage is pumped directly to sea as sewage treatment plant defective

(14) Labour Conditions-Condition of employment

Major types and details of deficiencies noted under the category of "Labour Conditions-Condition of employment" are shown in Table 2.3.2-(14) below.

Table 2.3.2-(14) Labour Conditions-Condition of employment

Item	2014	2015	2016	Noted Deficiencies
Wages	8	9	17	Wages not paid
Calculation and payment	4	5	7	Overtime and compensation arrangements not provided

(15) MARPOL Annex VI

Major types and details of deficiencies noted under the category of "MARPOL Annex VI" are shown in Table 2.3.2-(15) below.

Table 2.3.2-(15) MARPOL Annex VI

Item	2014	2015	2016	Noted Deficiencies
Incinerator	2	16	17	Malfunction of equipment

2.4 Analysis of Detainable Deficiencies per PSC Country

Most frequent detainable deficiencies per PSC country are shown in Tables 2.4.1 to 2.4.12 according to number of detentions reported from 2014 to 2016. (Regarding details of deficiencies related to ISM and MLC, refer to Chapter 3 and Chapter 4.)

2.4.1 Australia

Table 2.4.1 Australia

Category of Detainable Deficiency	2014	2015	2016
ISM	37	42	46
Lifesaving Appliances	21	12	21
Emergency Systems	12	14	16
Fire Safety	7	12	14
Water/Weathertight conditions	5	7	7
MARPOL Annex IV	4	7	6
Radio Communications	6	4	6
Labour Conditions-Conditions of employment	2	4	5
Safety of Navigation	2	2	4
MARPOL Annex I	3	4	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Shipboard operations	16	13	26
Other (ISM)	8	24	16
Emergency source of power-Emergency Generator	5	6	11
Lifeboats	10	5	9
Fire-dampers	5	5	6
Sewage treatment plant	4	7	5
Emergency Fire Pump and its pipes	6	5	5
Reserve source of energy	3	2	4
Fixed fire extinguishing system	2	2	4
Rescue boats	0	1	4
Launching arrangements for rescue boats	2	0	4
Ventilators, air pipes, casings	2	6	3
Operational readiness of lifesaving appliances	8	3	3
Wages	2	3	3
Charts	1	1	3

A total of 134 detainable deficiencies relating to 104 detentions were noted in 2016. (1.3 detainable deficiencies/detention)

2.4.2 China

Table 2.4.2 China

Category of Detainable Deficiency	2014	2015	2016
Fire safety	69	62	68
ISM	17	25	39
Lifesaving Appliances	40	31	31
Emergency Systems	16	27	23
Water/Weathertight conditions	4	26	22
Safety of Navigation	8	17	16
MARPOL Annex I	19	13	15
Alarms	12	5	12
Propulsion and auxiliary machinery	7	7	8
Radio Communications	12	12	7
MARPOL Annex VI	2	10	7
MARPOL Annex IV	12	14	6
Structural Conditions	0	3	5
Dangerous Goods	1	1	5
Ship Certificates & Documents	5	3	4
Crew Certificates & Documents	10	4	3
Cargo operations including equipment	2	0	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Lifeboats	19	14	16
Ventilators, air pipes, casings	0	11	14
Emergency Fire Pump and its pipes	9	6	12
Resources and personnel	5	5	10
Shipboard operations	5	7	9
Oil filtering equipment	11	6	9
Fire-dampers	7	6	9
Doors within main vertical zone	1	8	8
Fixed fire extinguishing system	6	5	8
Maintenance of the ship and equipment	2	5	8
Incinerator	0	9	7
Fire detection	4	5	7
Fire prevention	12	11	6
Ventilation	6	2	6
Steering gear alarm	3	2	6
Sewage treatment plant	10	11	5
Emergency source of power-Emergency Generator	3	11	5

A total of 277 detainable deficiencies relating to 103 detentions were noted in 2016. (2.7 detainable deficiencies/detention)

2.4.3 Russia

Table 2.4.3 Russia

Category of Detainable Deficiency	2014	2015	2016
Lifesaving Appliances	8	8	19
Emergency Systems	5	2	15
Safety of Navigation	12	10	12
Fire safety	5	1	9
Propulsion and auxiliary machinery	1	0	5
MARPOL Annex I	2	0	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Lifeboats	5	6	11
Emergency Fire Pump and its pipes	3	1	8
Emergency lighting, batteries and switches	2	0	4
Charts	5	1	3
Fire pumps and its pipes	0	1	3
Fire detection	2	0	3
Lifebuoys incl. provision and disposition	0	0	3

A total of 71 detainable deficiencies relating to 39 detentions were noted in 2016.
(1.8 detainable deficiencies/detention)

2.4.4 Japan

Table 2.4.4 Japan

Category of Detainable Deficiency	2014	2015	2016
ISM	9	4	12
Emergency Systems	10	2	9
Crew Certificates and Documents	4	0	6
Other	2	1	4
Fire Safety	7	1	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Resources and personnel	6	3	10
Fire drills	7	2	6
Endorsement by Flag State	3	0	5
Other (SOLAS operational)	2	1	4
Fire-dampers	4	0	2

A total of 41 detainable deficiencies relating to 24 detentions were noted in 2016.
(1.7 detainable deficiencies/detention)

2.4.5 U.S.A.

Table 2.4.5 U.S.A.

Category of Detainable Deficiency	2014	2015	2016
Fire Safety	14	20	12
Lifesaving appliances	9	12	12
ISM	14	17	9
MARPOL Annex I	6	10	4
Propulsion and auxiliary machinery	4	3	4

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Other (Fire Safety)	0	0	5
Maintenance of the ship and equipment	4	6	4
Lifeboats	2	4	3
Fire prevention	0	2	3
Launching arrangements for survival craft	1	0	3
ISM	0	0	3

A total of 48 detainable deficiencies relating to 23 detentions were noted in 2016.
(2.1 detainable deficiencies/detention)

2.4.6 Indonesia

Table 2.4.6 Indonesia

Category of Detainable Deficiency	2014	2015	2016
Fire Safety	2	8	17
MARPOL Annex IV	1	3	11
ISM	1	4	8
Lifesaving appliances	0	1	8
MARPOL Annex VI	0	4	6
MARPOL Annex I	1	3	6
Water/Weathertight conditions	2	1	5

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Doors within main vertical zone	0	3	8
Sewage treatment plant	1	1	8
Incinerator	0	4	6
Lifeboats	0	0	6
Fire-dampers	1	3	4
Oil filtering equipment	0	2	3
Other (MARPOL Annex IV)	0	2	3
Safety and environmental policy	0	2	3

A total of 67 detainable deficiencies relating to 14 detentions were noted in 2016.
(4.8 detainable deficiencies/detention)

2.4.7 Spain

Table 2.4.7 Spain

Category of Detainable Deficiency	2014	2015	2016
Fire Safety	3	8	8
ISM	6	5	7
Safety of Navigation	3	0	7
Propulsion and auxiliary machinery	2	4	4
Radio Communications	1	1	4
Lifesaving appliances	3	3	3
Labour Conditions - Accommodation, recreational facilities, food and catering	1	3	3
MARPOL Annex I	3	2	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
ISM	6	5	7
Doors within main vertical zone	0	2	2
Launching arrangements for rescue boats	0	1	2
Fire-dampers	0	0	2
Voyage date recorder(VDR)	0	0	2
Nautical publications	0	0	2

A total of 49 detainable deficiencies relating to 13 detentions were noted in 2016.
(3.8 detainable deficiencies/detention)

2.4.8 United Kingdom

Table 2.4.8 United Kingdom

Category of Detainable Deficiency	2014	2015	2016
Lifesaving appliances	5	3	9
ISM	11	6	7
Safety of Navigation	4	2	4
Ship Certificates and Documents	1	1	4
Fire Safety	10	3	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
ISM	11	6	7
Launching arrangements for rescue boats	0	0	3
Wages	1	2	2
Launching arrangements for survival craft	1	0	2
Lifeboats	1	0	2

A total of 38 detainable deficiencies relating to 11 detentions were noted in 2016.
(3.5 detainable deficiencies/detention)

2.4.9 Romania

Table 2.4.9 Romania

Category of Detainable Deficiency	2014	2015	2016
Safety of Navigation	0	6	13
Fire Safety	0	6	9
Emergency Systems	0	10	8
ISM	0	5	8

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
ISM	0	5	8
Fire drills	0	2	6
Nautical publications	0	1	6
Doors within main vertical zone	0	4	5
Charts	0	3	3

A total of 51 detainable deficiencies relating to 11 detentions were noted in 2016. (4.6 detainable deficiencies/detention)

2.4.10 Italy

Table 2.4.10 Italy

Category of Detainable Deficiency	2014	2015	2016
ISM	13	9	9
Fire Safety	24	6	8
Emergency Systems	8	11	4
Safety of Navigation	8	5	4
Propulsion and auxiliary machinery	3	3	4
Ship Certificates and Documents	1	2	4
Labour Conditions - Accommodation, recreational facilities, food and catering	0	2	4

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
ISM	13	9	9
Enclosed space entry and rescue drills	0	6	2
Fixed fire extinguishing system	3	2	2
Fire pumps and its pipes	1	1	2
Nautical publications	0	1	2
Seafarers' employment agreement (SEA)	0	0	2
Other (Conditions of employment)	0	0	2
Cold room ,cold room cleanliness, cold room temperature	0	0	2
Personal equipment	0	0	2

A total of 61 detainable deficiencies relating to 10 detentions were noted in 2016. (6.1 detainable deficiencies/detention)

2.4.11 Iran

Table 2.4.11 Iran

Category of Detainable Deficiency	2014	2015	2016
Crew Certificates and Documents	2	5	5
Fire Safety	3	4	5
Safety of Navigation	5	3	4
Lifesaving appliances	0	1	3
Radio Communications	0	1	3
Labour Conditions – Conditions of employment	0	0	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
Endorsement by Flag State	1	1	2
Lifeboats	0	1	2
Voyage date recorder (VDR)	0	0	2
Wages	0	0	2

A total of 27 detainable deficiencies relating to 10 detentions were noted in 2016.
(2.7 detainable deficiencies/detention)

2.4.12 Germany

Table 2.4.12 Germany

Category of Detainable Deficiency	2014	2015	2016
Fire safety	10	27	19
ISM	10	10	9
Safety of Navigation	14	25	8
Water/Weathertight conditions	3	10	6
Emergency System	4	4	4
Lifesaving appliances	3	2	4
Crew Certificates and Documents	2	4	3
MARPOL Annex IV	0	4	3

Type of Detainable Deficiency Frequently Reported	2014	2015	2016
ISM	10	10	9
Other (fire safety)	2	5	4
Doors within main vertical zone	1	4	4
Fire-dampers	1	3	4
Charts	5	7	3
Sewage treatment plant	0	4	3
Seafarers' employment agreement (SEA)	2	3	3
Doors	0	3	3

A total of 68 detainable deficiencies relating to 9 detentions were noted in 2016.
(7.6 detainable deficiencies/detention)

Chapter 3

Statistical Analysis of NK SMC Ships Detained by PSC (ISM Code)

3.1 General

This chapter presents statistical analysis from the viewpoints of ISM Code, on the ships holding Safety Management Certificate (hereafter, "SMC") issued by the Society (hereafter, "NK SMC ships") based on PSC Inspection Reports having been obtained.

Table 3.1 shows the registered number of the NK SMC ships. About 90% of the NK SMC ships are classed with this Society.

Table 3.1 Number of NK SMC Ships (per Class)

Classification	2014		2015		2016	
NK class	4,599	89.2%	4,789	89.3%	4,867	89.7%
Other class	558	10.8%	574	10.7%	560	10.3%
Total	5,157		5,363		5,427	

3.2 Statistics of Detentions of NK SMC Ships

In 2016, the total number of the detentions of NK SMC ships was 334, which was 6.2% of the all NK SMC ships, 5,427. This ratio (hereafter, "Detention Ratio") has been almost flat in recent years.
Tables 3.2.1 and Table 3.2.2 shows the number of detentions and the Detention Ratio per flag and ship type, respectively.

Table 3.2.1 Number of Detentions and Detention Ratio of NK SMC Ships per Flag

Country	2014			2015			2016		
	(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Panama	183	2,635	6.9%	193	2,655	7.3%	195	2,665	7.3%
Singapore	10	599	1.7%	8	609	1.3%	12	594	2.0%
Marshall Islands	18	297	6.1%	6	321	1.9%	27	360	7.5%
Hong Kong	8	314	2.5%	12	337	3.6%	17	351	4.8%
Liberia	34	285	11.9%	29	307	9.4%	21	327	6.4%
Japan	2	232	0.9%	3	250	1.2%	3	268	1.1%
Malta	12	159	7.5%	21	185	11.4%	11	178	6.2%
Bahamas	5	116	4.3%	9	116	7.8%	5	114	4.4%
Turkey	4	66	6.1%	8	81	9.9%	8	90	8.9%
Thailand	4	71	5.6%	5	77	6.5%	7	75	9.3%
Cyprus	3	69	4.3%	6	69	8.7%	6	70	8.6%
Malaysia	0	62	0.0%	4	71	5.6%	3	68	4.4%
Other Flag	19	252	7.5%	35	285	12.3%	19	267	7.1%
Total	302	5,157	5.9%	339	5,363	6.3%	334	5,427	6.2%

Note: (I): No. of Detentions, (II): No. of NK SMC Ships, (III): Detention Ratio = (I) / (II) %

Table 3.2.2 Number of Detentions and Detention Ratio of NK SMC Ships per Ship Type (SOLAS IX)

Type of Ship	2014			2015			2016		
	(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Bulk Carrier	180	2,263	8.0%	183	2,340	7.8%	172	2,390	7.2%
Other Cargo Ship	101	1,852	5.5%	132	1,916	6.9%	146	1,946	7.5%
Chemical Tanker*	8	347	2.3%	10	377	2.7%	5	425	1.2%
Oil Tanker	6	448	1.3%	9	465	1.9%	7	414	1.7%
Gas Carrier	7	242	2.9%	4	257	1.6%	4	248	1.6%
MODU	0	2	0.0%	0	4	0.0%	0	2	0.0%
Passenger Ship	0	2	0.0%	1	3	33.3%	0	1	0.0%
High Speed Craft	0	1	0.0%	0	1	0.0%	0	1	0.0%
Total	302	5,157	5.9%	339	5,363	6.3%	334	5,427	6.2%

Note: 1. (I): No. of Detentions, (II): No. of NK SMC Ships, (III): Detention Ratio = (I) / (II) %
2. * "Chemical Tanker" includes Oil/ Chemical Tanker.

Table 3.2.3 shows "the number of detentions" and "the number of ISM detention cases" where ships were detained due to detainable deficiencies related to ISM Code (hereafter "ISM detainable deficiency"). Also, "the ISM detainable deficiencies ratio per PSC country" is shown.
In EU member countries, the ISM detainable deficiencies ratios were significantly higher than the other countries. The ISM detainable deficiencies ratio of Germany and Italy was 100% in 2016. Also, in China, the numbers of the ISM detention cases have been increasing year by year.

Table 3.2.3 Number of Detentions and Detention Ratio of ISM Detention Cases per PSC Country

Country		2014			2015			2016		
		(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Australia		40	75	53.3%	39	74	52.7%	42	92	45.7%
China		14	64	21.9%	20	78	25.6%	23	67	34.3%
Japan		6	19	31.6%	4	16	25.0%	10	19	52.6%
Korea		2	8	25.0%	5	8	62.5%	2	4	50.0%
EU	Germany	8	8	100.0%	7	8	87.5%	8	8	100.0%
	UK	11	13	84.6%	3	4	75.0%	7	10	70.0%
	Italy	11	12	91.7%	8	9	88.9%	7	7	100.0%
	Other EU Member Countries	13	17	76.5%	13	24	54.2%	24	32	75.0%
USA		11	24	45.8%	16	38	42.1%	5	17	29.4%
Other Countries		22	62	35.5%	14	80	17.5%	11	78	14.1%
Total		138	302	45.7%	129	339	38.1%	139	334	41.6%

Note: (I): No. of the ISM detention case
(II): No. of detentions of NK SMC ships. (Notwithstanding the reason of detention)
(III): ISM detainable deficiencies ratio = (I) / (II) %

3.3 Analysis of ISM Detainable Deficiencies

This clause introduces a study of ISM detainable deficiencies recorded in Australia, China, Japan and EU member countries, where ISM detainable deficiencies were frequently recorded as shown in Table 3.2.3.

Deficiency Codes of ISM deficiencies specified by MOUs are as follows:

- Paris MOU: “15150 - ISM” only
- Tokyo MOU, USCG: Deficiency Codes corresponding to Elements of ISM Code. (Table3.3)

Table 3.3 Deficiency Code per ISM Code Element (Tokyo MOU, USCG)

Deficiency Code		(ISM Code Element)	Defective Item
Tokyo MOU	USCG		
15101	2510	2	Safety and Environmental Policy
15102	2515	3	Company Responsibility and Authority
15103	2520	4	Designated Person(s)
15104	2525	5	Masters Responsibility and Authority
15105	2530	6	Resources and Personnel
15106	2535	7	Shipboard Operations
15107	2540	8	Emergency Preparedness
15108	2545	9	Reports of Non-conf., accidents & hazardous occur.
15109	2550	10	Maintenance of the ship and equipment
15110	2555	11	Documentation- ISM
15111	2560	12	Company Verification, Review and Evaluation
15112	2565	13	Certification, Verification and Control
15199	-	-	Other (ISM)

3.3.1 Australia

Table 3.3.1(a) shows the number of the ISM detainable deficiencies per Deficiency Code. Table 3.3.1(b) shows the number of deficiencies regarded as the evidences of ISM detainable deficiencies per Deficiency Code.

As seen from the Table 3.3.1(a), ISM detainable deficiencies categorized into “15106 - Shipboard operations” and “15199 - Other (ISM)” were frequently recorded. Typical evidences of each ISM detainable deficiency are as follows.

[15106 - Shipboard operations]

- Charts not correspond to the planned route
- Nautical Publications and Charts not update
- Un-familiar with the operation of ECDIS
- Not use sewage treatment plant as required by maker instructions

[15199 - Others]

- Recorded working hours not corresponded to actual working hours
- No records of life boat drill
- Fire safety matters

As the characteristics of the evidences of ISM detainable deficiencies related to “Fire Safety”, deficiencies on installation in galleys were frequently recorded, such as excessive oil inside exhaust trunks and defective of fire dampers and fire detections.

Table 3.3.1(a) Number of ISM Detainable Deficiencies per Deficiency Code

Code	Item	2014	2015	2016
15105	Resources and personnel	-	1	1
15106	Shipboard operations	17	14	25
15107	Emergency preparedness	3	3	1
15108	Reports and analysis of NCs, accidents and hazardous occur.	-	1	-
15109	Maintenance of the ship and equipment	4	1	2
15199	Other (ISM)	10	19	13
Total		34	39	42

Table 3.3.1(b) Number of Deficiencies Regarded as The Evidences of ISM Detainable Deficiencies per Deficiency Code

Code	Item	No.	Remark
01308	Records of rest	5	-
02108	Electric equipment in general	3	Low Insulation
03105	Covers (hatchway-, portable-, tarpaulins, etc.)	6	Cleats defective
04110	Abandon ship drills	5	No evidence
04114	Emergency source of power - Emergency Generator	5	Not start automatically
07109	Fixed fire extinguishing installation	7	CO2 system defective
07115	Fire-dampers	5	-
07199	Other (fire safety)	6	Galley exhaust trunk inside oily
10111	Charts	22	-
10127	Voyage or passage plan	21	-
10135	Monitoring of voyage or passage plan	8	-
11101	Lifeboats	11	-
11104	Rescue boats	4	-
11131	On board training and instructions	5	SOLAS Training Manual not ship specific
14402	Sewage treatment plant	5	Not operated in accordance with maker's instruction
Others		131	-

3.3.2 China

Table 3.3.2(a) shows the number of ISM detainable deficiencies per Deficiency Code. Table 3.3.2(b) shows the number of deficiencies regarded as the evidences of ISM detainable deficiencies per Deficiency Code. As seen from the Table 3.3.2(a), the numbers of ISM detainable deficiencies were increasing year by year. In 2016, ISM detainable deficiencies, "15106 - Shipboard operations" and "15109 - Maintenance of the ship and equipment" were frequently recorded. Evidences most frequently recorded with ISM detainable deficiencies are as follows.

[15106 - Shipboard operations]
- Garbage management not as required
- No records for training of enclosed spaces
- Charts not correspond to the planned route

[15109 - Maintenance of the ship and equipment]
- Deformation of guard rails
- Corrosion of air pipe head
- An engine of life boat or rescue boat not start

As the characteristics in China, when more than 10 deficiencies on the maintenance were recorded, the ships were detained due to an ISM detainable deficiency of "15109-Maintenance of the ship and equipment".

Table 3.3.2(a) Number of ISM Detainable Deficiencies per Deficiency Code

Code	Item	2014	2015	2016
15101	Safety and environmental policy	-	-	1
15102	Company responsibility and authority	-	-	-
15104	Masters responsibility and authority	-	-	-
15105	Resources and personnel	7	3	4
15106	Shipboard operations	5	8	8
15107	Emergency preparedness	1	3	1
15108	Reports and analysis of NCs, accidents and hazardous occur.	-	-	1
15109	Maintenance of the ship and equipment	1	3	6
15111	Company verification, review and evaluation	1	-	-
15112	Certification, verification and control	-	1	2
15199	Other (ISM)	1	2	2
Total		16	20	25

Table 3.3.2(b) Number of Deficiencies Regarded as The Evidences of ISM Detainable Deficiencies per Deficiency Code

Code	Item	No.	Remarks
03103	Railing, gangway, walkway and means for safe passage	3	-
03108	Ventilators, air pipes, casings	2	-
04103	Emergency lighting, batteries and switches	2	-
04118	Enclosed space entry and rescue drills	2	Entry to enclose space drill not conducted
06107	Cargo operation	2	Cargo discharge plan not signed by terminal
07110	Fire fighting equipment and appliances	2	-
10109	Lights, shapes, sound-signals	2	Navigation lights out of work
10111	Charts	2	-
11101	Lifeboats	4	Engine not start
11104	Rescue boats	2	Engine not start
11108	Inflatable liferafts	3	Not ready to use
11117	Lifebuoys incl. provision and disposition	4	-
14104	Oil filtering equipment	2	Poor Condition
14501	Garbage	2	Food waste discharge not complied with MARPOL V
Others		35	-

3.3.3 Japan

Table 3.3.3(a) shows the number of ISM detainable deficiencies per Deficiency Code. Table 3.3.3(b) shows the number of deficiencies regarded as the evidences of ISM detainable deficiencies per Deficiency Code. As seen from the Table 3.3.3(a), the numbers of ISM detainable deficiencies have been also increasing in Japan. The most frequent ISM detainable deficiency was “15105 - Resources and personnel”. The evidence of the ISM detainable deficiency was that crews were un-familiar with fire drill, light and shape signals.

Table 3.3.3(a) Number of ISM Detainable Deficiencies per Deficiency Code

Code	Item	2014	2015	2016
15105	Resources and personnel	5	3	9
15109	Maintenance of the ship and equipment	-	1	1
Total		5	4	10

Table 3.3.3(b) Number of Deficiency Regarded as The Evidences of ISM Detainable Deficiency per Deficiency Code

Code	Item	No.	Remark
04109	Fire drills	5	Not familiar with fire drill
10133	Bridge operation	3	Not familiar with light & shape signals
11131	On board training and instructions	3	-
Others		11	-

3.3.4 EU Member Countries

Table 3.3.4(a) shows the number of the ISM detention cases. The number of ISM detention cases in Germany (17%), U.K. (15%) and Italy (15%) accounts for 48% of total numbers of ISM detention cases in whole EU member countries. (See Table 3.2.3)
Table 3.3.4(b) shows the number of deficiencies per category, regarded as the evidences of ISM detainable deficiencies in these three countries and whole EU member countries.

As for Germany, UK and Italy, the respective features of the evidences of ISM detainable deficiencies are introduced as follows;

[Germany]
The deficiencies categorized into “Crew Certificate”, inter alia Seafarers’ Employment Agreement (SEA), were frequently recorded as evidences of ISM detainable deficiencies and the number of deficiencies accounts for 37% of them recorded in whole EU member countries.
Also, the number of the deficiencies categorized into “MARPOL” recorded in Germany accounts for 49% of them recorded in whole EU member countries. Especially, the deficiencies categorized into “MARPOL Annex V (Garbage)” and “Annex VI (Air Pollution)” were frequently recorded as evidences of ISM detainable deficiencies.

[UK]
In the most cases, ISM detainable deficiencies were due to lack of maintenance of fire safety and life saving appliances. Also, deficiencies of MF/HF radio installation were frequently recorded as evidences of ISM detainable deficiencies. The number of deficiencies of MF/HF radio installation accounts for 73% of them recorded in whole EU member countries.

[Italy]
The number of evidences of ISM detainable deficiencies is less than the ones in Germany and UK.
In the most cases, the evidences of ISM detainable deficiencies were related to MLC matters, i.e. “cold room temperature is high”, “not wearing safety helmets and shoes when crews worked in E/R” etc. For the other evidences of ISM detainable deficiencies related to MLC matters, please refer to 4.3 of Chapter 4.

Table 3.3.4(a) Number of ISM Detention Cases

Code	Item	2014	2015	2016
15150	ISM	43	31	46

Table 3.3.4(b) Number of Deficiency Regarded as The Evidences of ISM Detainable Deficiencies per category (2016)

Code	Category			Germany	UK	Italy	EU
1	Certificate & Documentation	11	Ship Certificates	1	6	0	14
		12	Crew Certificates	11	2	0	30
		13	Documents	3	6	1	19
			Sub-total	15	14	1	63
2	Structural Conditions			4	5	1	29
3	Water/Weathertight conditions			8	8	1	34
4	Emergency Systems			2	7	3	31
5	Radio Communications			0	8	0	11
6	Cargo operations including equipment			1	0	1	6
7	Fire safety			23	19	7	92
8	Alarms			0	0	0	3
9	Working and Living Conditions	91	Living Conditions	0	0	0	2
		92	Working Conditions	0	0	1	6
10	Safety of Navigation			9	11	0	55
11	Life saving appliances			6	17	2	53
12	Dangerous goods			0	1	1	3
13	Propulsion and auxiliary machinery			6	3	2	32
14	Pollution prevention	141	MARPOL Annex I	3	0	0	7
		144	MARPOL Annex IV	3	0	0	4
		145	MARPOL Annex V	5	0	1	12
		146	MARPOL Annex VI	6	0	0	11
		148	BWM Convention	0	0	0	1
			Sub-total	17	0	1	35
16	ISPS			0	2	0	2
18	Labour Conditions	181	Minimum requirements for seafarers	0	0	0	1
		182	Conditions of employment	6	0	0	17
		183	Accommodation, recreational facilities, food and catering	7	7	3	39
		184	Health protection, medical care, social security	8	4	4	45
			Sub-Total	21	11	7	102
99	Other			0	1	0	4
Total				112	107	28	563

Chapter 4

Statistical Analysis of NK MLC Ships Detained by PSC (MLC, 2006)

4.1 General

This chapter presents statistical analysis from the viewpoints of MLC, 2006 on the ships holding Maritime Labour Certificate issued by the Society (hereafter, "NK MLC ships") based on the PSC Inspection Reports having been obtained. Table 4.1 shows the registered number of the NK MLC ships. About 88% of the NK MLC ships are classed with this Society.

Table 4.1 Number of NK MLC Ships (per Class)

Classification	2014		2015		2016	
NK class	4,127	86.8%	4,288	86.5%	4,517	87.9%
Other class	627	13.2%	672	13.5%	618	12.1%
Total	4,754		4,960		5,135	

4.2 Statistics of Detentions of NK MLC Ships

As of the end of April 2017, 82 countries have ratified MLC, 2006 and many countries have been carrying out PSC inspections based on the convention. For detailed situations of the enforcement by the countries, please refer to the following website of ILO.

http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11300:0::NO:11300:P11300_INSTRUMENT_ID:312331:NO

The table 4.2 shows the number of detention cases due to deficiencies related to MLC, 2006 (hereafter, "MLC deficiencies") for NK MLC ships in the last 3 years. The number of detention was 33 in 2016, almost the same number as 2015. The 97% of detentions due to MLC deficiencies occurred in EU member countries, Australia and Canada.

Table 4.2 Number of Detention Cases due to MLC Deficiencies (per PSC country)

Country		2014	2015	2016
Australia		1	6	4
Canada		2	2	2
EU	Germany	3	6	3
	Italy	0	1	5
	United Kingdom	2	0	3
	Other EU Member Countries	4	8	15
Russia		1	3	0
Other Countries		3	5	1
Total		16	31	33

4.3 Analysis of MLC Detainable Deficiencies

This clause introduces the analysis of detainable deficiencies related to MLC, 2006 (hereafter, "MLC detainable deficiencies") and MLC deficiencies recorded as evidences of ISM detainable deficiencies for NK MLC ships.
In this Chapter, the deficiencies with Codes listed in Table 4.3.1 are defined as MLC deficiencies.

The number of MLC detainable deficiencies per the deficiency code is shown in Table 4.3.2. Also, top 15 MLC deficiencies regarded as evidences of ISM detainable deficiencies are shown in Table 4.3.3. As for the number of MLC detainable deficiencies, more than 10 detainable deficiencies categorized into "01220 - Seafarers' employment agreement (SEA)" and "18203 - Wages" were respectively recorded. On the other hand, the following deficiencies were recorded more than 30 as evidences of ISM detainable deficiencies.

- "01220 - Seafarers' employment agreement (SEA)"
- "01308 - Records of rest"
- "18407 - Lighting (Working spaces)"
- "18408 - Electrical"
- "18416 - Ropes and wires"
- "18425 - Access/ structural features (ship)"

Table 4.3.1 Deficiency Codes of MLC Deficiencies - Paris MOU and Tokyo MOU

Deficiency Code		Category / Item (Description in the List of Tokyo MOU Def. Codes)
01xxx		**Certificates & Documentation**
012	--	Crew Certificate
	01218	Medical Certificate
	01219	Training and Qualification MLC- Personal Safety Training
	01220	Seafarers` Employment Agreement (SEA)
	01221	Record of Employment
013	--	Document
	01307	Max. Hours of Work or Min, Hours of Rest (Table of Working Hours)
	01308	Records of Seafarer's Daily Hours of Work or Rest (Records of Rest)
	01330	Procedure for Complaint under MLC, 2006
	01331	Collective Bargaining Agreement
18xxx		**MLC, 2006 (Labour Conditions)**
181	01-04 & 99	Minimum Requirements to Work on a Ship (Minimum Requirements for Seafarers)
182	01-05 & 99	Conditions of Employment
183	01-28 & 99	Accommodation, Recreational Facilities, Food and Catering
184	01-32 & 99	Health Protection, Medical Care, Social Security

Table 4.3.2 Number of MLC Detainable Deficiencies per Deficiency Code

Code	Item	No.	Country (*ISO description)
01xxx	**Certificates & Documentation**		
219	Training and qualification MLC-Personnel safety training	1	BGR
220	Seafarers' employment agreement	12	CAN, BEL, DEU, GBR, GRC, ITA NLD
308	Records of rest	1	AUS
330	Procedure for complaint under MLC	3	GRC, ITA, LTU
18xxx	**Labour Conditions (MLC, 2006)**		
103	Medical fitness	1	AUS
203	Wages	10	AUS, CYP, DEU, FRA, GRC,ITA NLD
204	Calculation and payment	5	BEL, DEU, ESP, GRC, LTU
205	Measures to ensure transmission to seafarer's family	1	GRC
299	Other (Conditions of employment)	3	ITA, GBR
302	Sanitary facilities	3	DEU, NLD
305	Hospital accommodation (Sickbay)	2	ESP, ITA
311	Mess room and recreational facilities	1	DEU
312	Galley, handling room (maintenance)	1	DEU
314	Provisions quantity	3	BEL, CYP, DEU
316	Water, pipes, tanks	1	CAN
321	Heating, air conditioning	2	CYP, GBR
324	Cold room cleanliness, temperature	2	CAN, ITA
325	Training and qualification of ship's cook	1	ITA
412	Personal equipment	1	ITA
416	Ropes and wires	1	AUS
417	Anchoring devices	1	DZA
420	Cleanliness of engine room	2	GBR, MLT
424	Steam pipes, pressure pipes, wires	1	CYP
Total		59	-

***ISO description of the country**

ISO des.	Country	ISO des.	Country	ISO des.	Country
AUS	Australia	DEU	Germany	ITA	Italy
CAN	Canada	ESP	Spain	LTU	Lithuania
GRC	Greece	FRA	France	NLD	Netherlands
BEL	Belgium	GBR	United Kingdom	CYP	Cyprus
DZA	Algeria	BGR	Bulgaria	MLT	Malta

Table 4.3.3 Top 15 MLC Deficiencies Regarded as The Evidences of ISM Detainable Deficiencies

Code	Item	No.
01xxx	**Certificates & Documentation**	
220	Seafarers' employment agreement (SEA)	33
308	Records of rest	34
330	Procedure for complaint under MLC, 2006	11
-	(Other Deficiencies with 01xxx)	13
18xxx	**Labour Conditions (MLC, 2006)**	
203	Wages	15
302	Sanitary facilities	19
312	Galley, handling room (maintenance)	13
314	Provisions quantity	17
321	Heating, air conditioning and ventilation	12
401	Medical Equipment, medical chest, medical guide	13
407	Lighting (Working spaces)	30
408	Electrical	31
416	Ropes and wires	30
417	Anchoring devices	12
418	Winches and capstans	20
425	Access/ structural features (ship)	47
-	(Other Deficiencies with 18xxx)	201
Total		551

(Reference) PSC Inspections on Working and Living Conditions in Countries not ratifying MLC, 2006

Regarding the matters of ILO, Tokyo MOU, Paris MOU and other MOUs had been carrying out PSC inspections using deficiency codes 09000 series “Working and Living Conditions” since the time before implementation of MLC, 2006. These codes are still used by the countries in which MLC, 2006 has not yet come into force. Table 4.3.4 shows the number of detainable deficiencies with the Code pointed out in 2016.

Table 4.3.4 Number of ILO Detainable Deficiencies (per Deficiency Code)

Code	Item	No.
091xx	**Living Conditions**	
03	Ventilation (Accommodation)	1
06	Sanitary facilities	1
092xx	**Working Conditions**	
11	Steam pipes and pressure pipes	3
19	Pipes, wires (insulation)	1
26	Holds and tanks safety	1
29	Winches and capstans	1
32	Cleanliness of engine room	3
99	Other (mooring)	1
Total		12

Chapter 5

Statistical Data from Tokyo MOU, Paris MoU and USCG

Several regional MOUs and Port States publicly announce their PSC data on their websites and publish Annual Reports every year. Based on these public data available, this Chapter introduces abstracts of the recent results of detentions by the Tokyo MOU, the Paris MoU and the USCG in 2016.

The full text of each respective Annual Report can be obtained from the following websites.

Tokyo MOU	http://www.tokyo-mou.org
Paris MoU	http://www.parismou.org
USCG	http://www.uscg.mil/

5.1 Tokyo MOU

In 2016, 31,678 inspections were carried out in the Tokyo MOU region, and 1,090 ships were detained due to serious deficiencies found onboard.

5.1.1 Port State Inspections carried out by Authorities

Table 5.1.1 shows the numbers of Port State inspections carried out by each Port State from 2014 through 2016.

Table 5.1.1 Port State Inspections carried out by Port Authorities (Tokyo MOU)

Country	No. of Inspection			No. of Detentions			Detention ratio (%)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Australia	3,742	4,050	3,675	269	242	245	7.19	5.98	6.67
Canada [1)]	389	476	510	5	9	2	1.29	1.89	0.39
Chile	901	923	869	26	15	11	2.89	1.63	1.27
China	7,361	8,126	7,736	476	443	422	6.47	5.45	5.46
Fiji	2	4	10	0	0	0	0.00	0.00	0.00
Hong Kong, China	736	697	630	47	49	24	6.39	7.03	3.81
Indonesia	2,605	2,045	2,143	24	29	33	0.92	1.42	1.54
Japan	5,337	5,400	5,438	208	178	181	3.90	3.30	3.33
Republic of Korea	1,928	1,807	1,988	73	85	72	3.79	4.70	3.62
Malaysia	918	1,057	1,193	9	30	18	0.98	2.84	1.51
Marshall Islands	21	18	19	1	0	2	4.76	0.00	10.53
New Zealand	239	168	184	9	9	3	3.77	5.36	1.63
Papua New Guinea	124	128	129	4	3	4	3.23	2.34	3.10
Peru [2)]		35	484		0	3		0.00	0.62
Philippines	2,016	2,367	2,420	2	3	1	0.10	0.13	0.04
Russia [1)]	996	1,021	1,049	13	12	22	1.31	1.18	2.10
Singapore	1,127	1,004	1,035	28	35	29	2.48	3.49	2.80
Thailand	566	637	634	0	3	0	0.00	0.47	0.00
Vanuatu	0	0	0	0	0	0	0.00	0.00	0.00
Vietnam	1,397	1,444	1,532	9	8	18	0.64	0.55	1.17
Total	30,405	31,407	31,678	1,203	1,153	1,090	3.96%	3.67%	3.44%

1) Data is only for the Pacific ports.

2) Data for the Peru in 2015 is only for November and December.

5.1.2 Black List of Flag States

Table 5.1.2 shows the Black List of Flag State announced in the Tokyo MOU Annual Report.

Table 5.1.2 Black List of Flag States (Tokyo MOU)

Flag State	No. of Inspections 2014-2016	No. of Detentions 2014-2016	Grey to White limit	Black to Grey limit
Mongolia	383	64		36
Sierra Leone	815	128		70
Cambodia	3,086	417		240
Tanzania	137	24		15
Indonesia	583	85		51
Togo	393	54		36
Niue	129	20		14
Korea, Democratic People's Republic	724	88		62
Micronesia	302	37		29
Palau	76	11		9

5.1.3 Recognized Organization Performance

Table 5.1.3 shows the detention data of IACS affiliated Recognized Organization in the Tokyo MOU Annual Report.

Table 5.1.3 Inspections and Detentions per Recognized Organization (Tokyo MOU) (*)

Recognized Organization	No. of Inspections 2014-2016	No. of Detentions 2014-2016	No. of RO responsible detentions	Detention ratio (%)	RO responsible detention ratio (%)
ABS	10,396	229	10	2.20	0.10
BV	10,544	348	21	3.30	0.20
CCS	7,880	71	1	0.90	0.01
CRS	105	4	1	3.81	0.95
DNV GL AS	26,399	739	19	2.80	0.07
IRS	277	15	0	5.42	0.00
KR	9,333	150	3	1.61	0.03
LR	13,605	319	7	2.34	0.05
NK	31,230	883	39	2.83	0.12
PRS	79	9	1	11.39	1.27
RINA	2,671	92	0	3.44	0.00
RS	1,266	63	2	4.98	0.16

(*) According to the Tokyo MOU annual report, in cases where a ship's certificates were issued by more than one recognized organization (RO), the number of inspections would be counted towards both of organizations, while the number of detentions would be counted only towards the RO that issued the certificate relating to the detainable deficiency or deficiencies.

5.1.4 Deficiencies per Category

Figure 5.1.4 shows the number of deficiencies by category for the three years from 2014 through 2016.

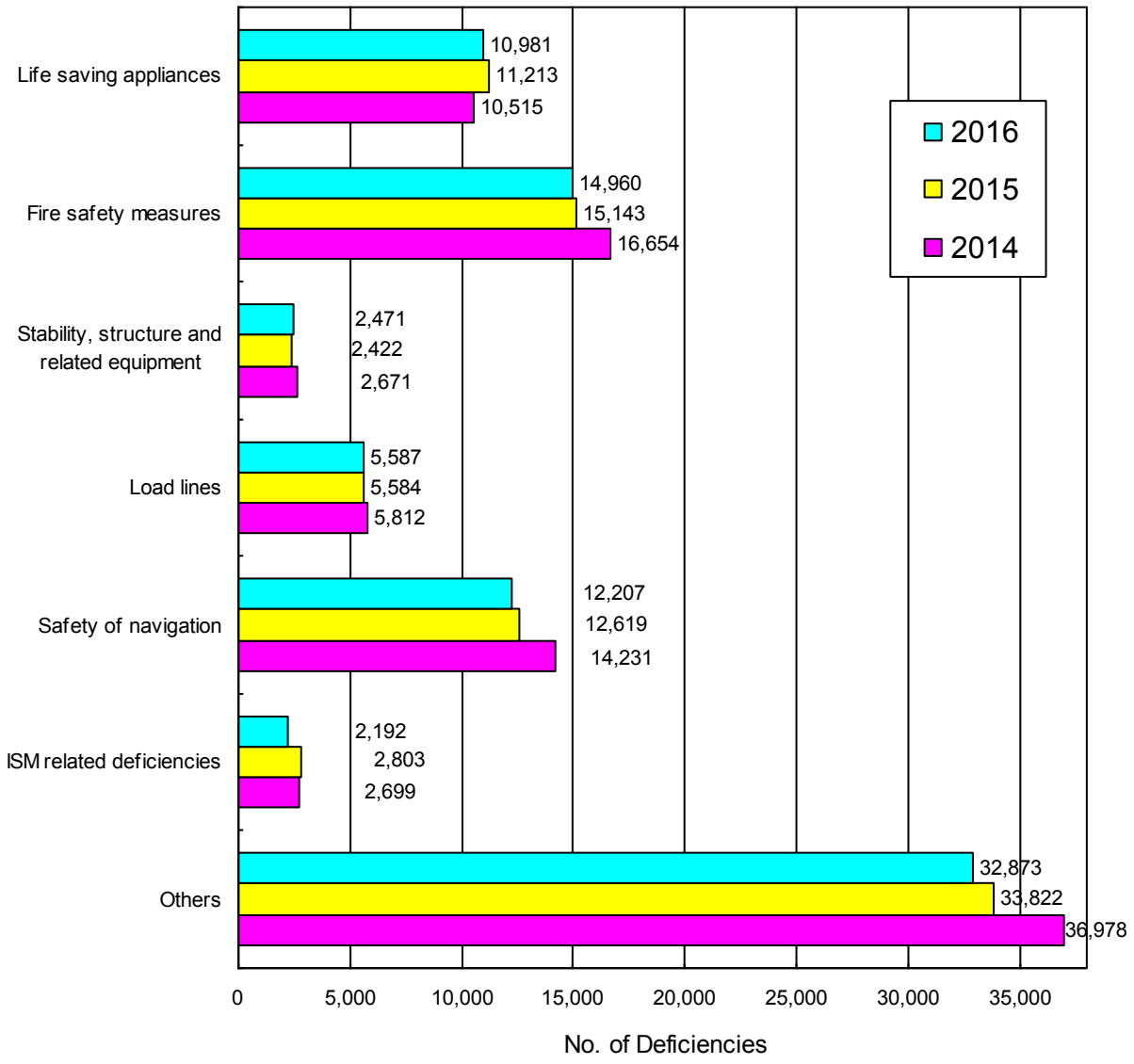

Fig. 5.1.4 Deficiencies per Category (Tokyo MOU)

5.2 Paris MoU

In 2016, 17,845 inspections were carried out in the Paris MoU region, and 683 ships were detained due to serious deficiencies found onboard.

5.2.1 Port State Inspections carried out by Authorities

Table 5.2.1 shows the numbers of Port State Inspections carried out by each respective Port State from 2014 through 2016.

Table 5.2.1 Port State Inspections carried out by Authorities (Paris MoU)

Country	No. of Inspections			No. of Detentions			Detention ratio (%)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Belgium	1,028	969	942	14	18	23	1.36	1.86	2.44
Bulgaria	491	366	351	14	8	14	2.85	2.19	3.99
Canada	981	1,063	1,061	22	32	16	2.24	3.01	1.51
Croatia	256	284	315	10	5	4	3.91	1.76	1.27
Cyprus	126	137	147	18	13	13	14.29	9.49	8.84
Denmark	439	445	452	6	0	2	1.37	0.00	0.44
Estonia	191	188	199	0	0	2	0.00	0.00	1.01
Finland	285	292	274	2	0	1	0.70	0.00	0.36
France	1,321	1,255	1,134	36	27	24	2.73	2.15	2.12
Germany	1,318	1,234	1,149	44	39	51	3.34	3.16	4.44
Greece	1,079	1,154	1,016	68	84	63	6.30	7.28	6.20
Iceland	71	63	65	6	3	0	8.45	4.76	0.00
Ireland	275	276	300	14	15	7	5.09	5.43	2.33
Italy	1,326	1,387	1,431	88	92	65	6.64	6.63	4.54
Latvia	308	282	326	0	0	2	0.00	0.00	0.61
Lithuania	184	220	226	0	1	2	0.00	0.45	0.88
Malta	199	184	232	11	7	5	5.53	3.80	2.16
Netherlands	1,334	1,315	1,263	27	21	34	2.02	1.60	2.69
Norway	585	570	560	1	8	7	0.17	1.40	1.25
Poland	450	524	501	24	32	21	5.33	6.11	4.19
Portugal	429	492	499	8	8	13	1.86	1.63	2.61
Romania	775	590	502	24	43	59	3.10	7.29	11.75
Russia [1)]	984	1,008	1,186	35	38	128	3.56	3.77	10.79
Slovenia	196	155	131	4	5	1	2.04	3.23	0.76
Spain	1,813	1,716	1,673	69	52	68	3.81	3.03	4.06
Sweden	530	566	556	4	3	8	0.75	0.53	1.44
United Kingdom	1,456	1,123	1,354	63	41	50	4.33	3.65	3.69
Total	18,430	17,858	17,845	612	595	683	3.32%	3.33%	3.83%

1) Only movements to the Russian ports in the Baltic Azov, Caspian and Barents Sea are included.

5.2.2 Black List of Flag States

Table 5.2.2 shows the Black List of Flag States announced by the Paris MoU.

Table 5.2.2 Black List of Flag States (Paris MoU)

Flag State	Inspections 2014-2016	Detentions 2014-2016	Grey to White Limit	Black to Grey Limit
Congo, Republic of the	86	24	**Very High Risk**	10
Tanzania United Rep.	211	40	**High Risk**	21
Togo	399	70		37
Moldova, Republic of	515	85		46
Comoros	228	40		23
Palau	123	23		14
Sierra Leone	260	39	**Medium to High Risk**	25
Cambodia	293	36	**Medium Risk**	28
Saint Kitts and Nevis	299	34		29
Vanuatu	277	31		27
Cook Islands	404	40		37
Belize	488	47		44

5.2.3 Recognized Organization Performance

Table 5.2.3 shows the PSC performance of IACS affiliated Recognized Organizations among those announced by the Paris MoU for the three years from 2014 through 2016.

Table 5.2.3 Recognized Organization Performance Table (Paris MoU)

Recognized Organization	Inspections 2014-2016	Detentions 2014-2016	Medium / High limit	Performance Level
ABS	5,703	1	96.17	**High**
LR	12,500	4	223.75	
DNVGL	11,600	10	206.70	
BV	11,453	23	203.91	
KRS	1,091	1	13.71	
RINA	3,743	9	60.27	
CCS	818	1	9.27	
NK	7,965	28	138.25	
RS	3,368	24	53.49	
PRS	454	4	3.67	**Medium**
CRS	147	0	0.00	
IRS	79	0	0.00	

5.3 USCG

In 2016, a total of 9,859 individual vessels visited U.S. ports, and a total of 9,390 SOLAS based safety examinations were conducted by the USCG during the year.

5.3.1 USCG Statistics

Table 5.3.1 shows the number of safety related detentions for the three years from 2014 through 2016. The three-year average detention ratio decreased from 1.67% to 1.63% during this time.

Table 5.3.1 Detentions by Year (Safety)

Year	Distinct Vessel Arrivals*	SOLAS Safety		
		Detentions	Annual Detention Ratio	3 Year Average Detention Ratio
2014	9,227	143	1.55%	1.31%
2015	8,925	202	2.18%	1.67%
2016	9,859	103	1.09%	1.63%

* Distinct Vessel Arrivals: Number of ships greater than or equal to 500 GT, calling upon at least one U.S. port.

5.3.2 Targeted Flag States (Safety)

The USCG publicly announced targeted flag states. The following flag states having a detention ratio higher than the overall average were listed as targeted flag states.

Table 5.3.2 USCG Targeted Flag States (Safety)

Flag State	2014-2016 Detention Ratio	Points of Targeting Matrix
Barbados (*)	4.26%	7 points
Belize	18.18%	
Bolivia	24.53%	
India (*)	4.35%	
Saint Vincent and the Grenadines	6.97%	
Samoa	9.90%	
Taiwan	24.00%	
Tanzania	10.14%	
Thailand	4.08%	
Vanuatu	4.19%	
Antigua and Barbuda	2.74%	2 points
Cyprus	2.82%	
Greece	2.19%	
Panama	2.31%	
Turkey	3.16%	

* Administration not targeted last year.

5.3.3 Recognized Organization Performance (Safety)

The table 5.3.3 shows the PSC performance of IACS affiliated Recognized Organizations among those announced by the USCG.

Table 5.3.3 Recognized Organization Performance Table (USCG)

Class	Vessel Examinations				Class-Related Detentions				Detention Ratio	Targeted Points
	2014	2015	2016	Total	2014	2015	2016	Total		
ABS	1,603	1,677	1,836	5,116	-	-	-	0	0.00%	0 points
BV	1,310	1,038	1,113	3,461	1	2	-	3	0.08%	0 points
CCS	280	234	231	745	-	-	-	0	0.00%	0 points
CRS	37	17	17	71	-	-	-	0	0.00%	0 points
DNV GL	3,622	2,687	2,122	8,431	2	1	-	3	0.04%	0 points
IRS	12	13	13	38	-	-	-	0	0.00%	0 points
KR	293	287	242	822	-	-	-	0	0.00%	0 points
LR	2,310	2,143	2,403	6,856	-	-	-	0	0.00%	0 points
NK	2,590	2,203	2,296	7,089	-	-	-	0	0.00%	0 points
PRS	14	22	17	53	-	-	-	0	0.00%	0 points
RINA	387	355	284	1,026	1	-	-	1	0.10%	0 points
RS	47	43	34	124	-	-	-	0	0.00%	0 points

In accordance with the Boarding Priority Matrix, Recognized Organizations are evaluated on their PSC performance over the previous three years. The evaluation for 2016 was based on the records for 2014, 2015, and 2016.

The level of performance required to be in the 0 point category is a three year average class-related detention ratio less than 0.5%. A classification society that has a class-related detention ratio between 0.5% and 1.0% will be assigned 3 points; those societies with a detention ration of between 1.0% and 2.0% will be assigned 5 points and class-related detention ratios above 2.0% will be assigned a Priority I status.

ClassNK

Port State Control Annual Report
[English]

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