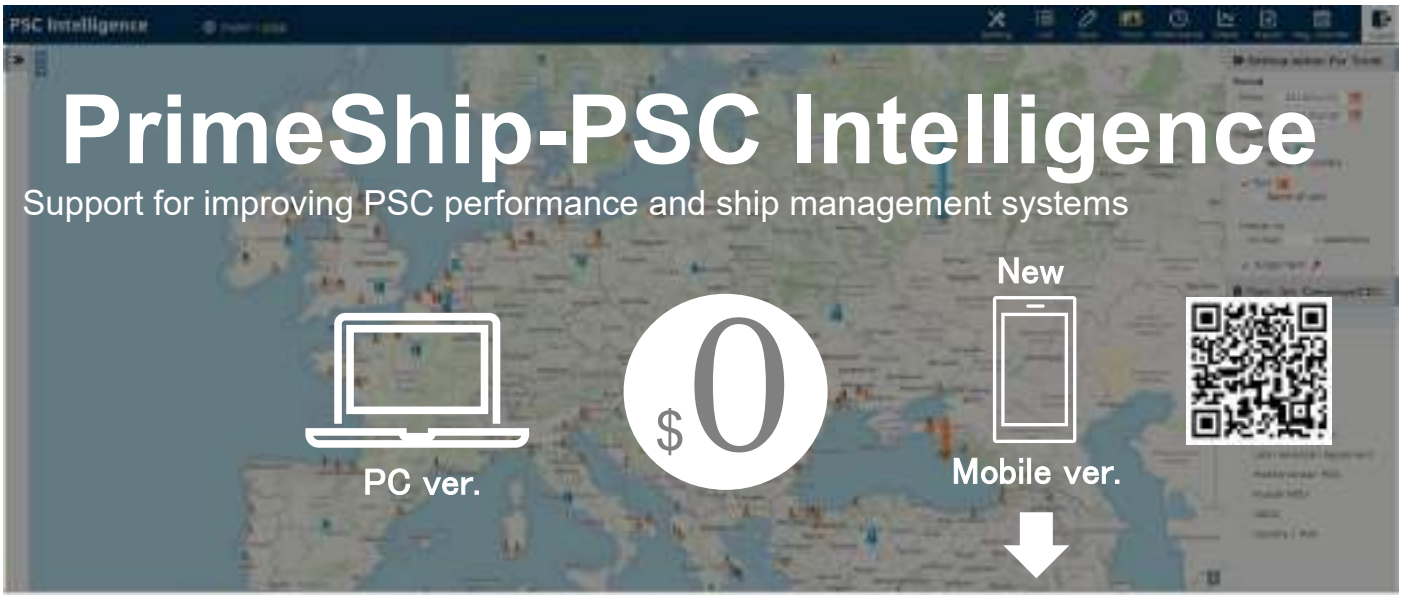
June 2023

ClassNK

Port State Control Annual Report

[English]

−− Introduction of ClassNK software for PSC measures −−



In addition to the PC version of PSC Intelligence developed for ship management companies, a mobile version of PrimeShip-PSC Intelligence developed for seafarers is now available*. The mobile version offers the five following features.

*) Also available to management companies.

PSC Reports

Minimize input effort

Allows you to digitize PSC reports including handwritten reports utilizing AI-OCR technology. After inputting the data, it will be sent to the management company's staff in chat format and the PSC report data will be transferred to the PC version.

Reporting

Easily report and reliably manage tasks

After digitizing the PSC report and completing the checklist on the app, it will be reported to the management company by tapping the send button. In addition, it is possible to easily report a device malfunction through a message using the camera. Additionally, the task management function allows seafarers to communicate closely with the management company's staff in chat format to ensure the defects are rectified.

Checklist

Available even offline

This feature allows users to call up and implement pinpoint PSC checklists based on the actual deficiencies recorded by the PSC in each country and port. Also, arbitrary checklists and reports created by the user on the PC version can be accessed even in an offline environment.

Monthly information

Top 10 AI-based ranking

This feature shows the top 10 typical deficiencies along with their trend chart and actual findings and photos of the deficiencies for the past month in each country or port set by the user.

NK Picks

Timely PSC-related information

This feature provides timely PSC-related information, including IMO international conventions and local regulations etc., communicated through our technical information that users should be aware of.

Contact address: NIPPON KAIJI KYOKAI, Information Technology Department
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Photographs of Deficiencies

Fire Safety

Dismantled fire detector

Hold-back wire attached to a fire door

A fire door prevented from closing by cabinets

Fire Safety

Leakage from fire line

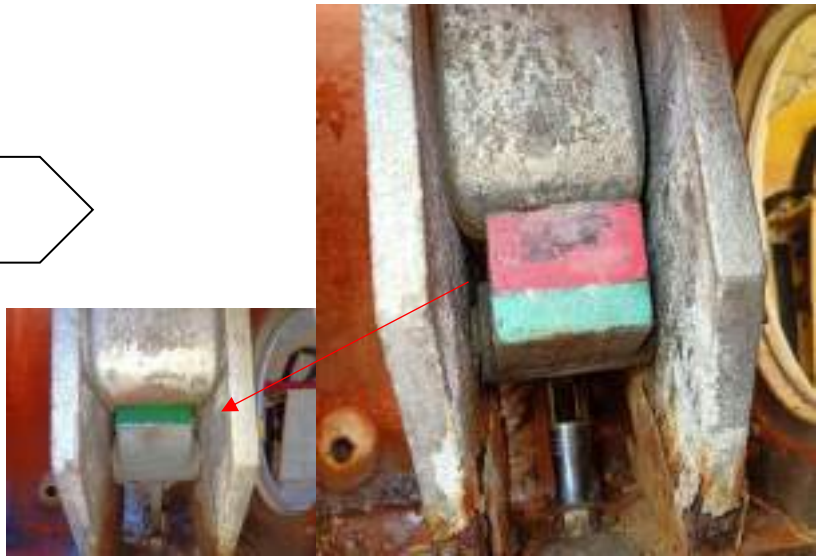
Broken hydrant handle

Corroded/holed fire damper for E/R

Life Saving Appliances

Peeling paint on lifebuoy

Improper reset of lifeboat release mechanism



Damaged hydrostatic release unit

Load Line

Broken float/worn out rubber packing of the air pipe head

Missing sounding cap

Damaged guard rail

Load Line / Safety Construction

Corrosion/crack on hatch coaming stay

Unacceptable gaps in hatch covers

Damaged cleat for hatch cover

Engine Room (Fire safety)

Dirty condition due to oil leakage and accumulation

Dirty condition due to oil leakage and accumulation

Deterioration/peeling of insulation on exhaust pipe of M/E

Engine Room / MARPOL

Defective pressure gauge of FO pump

Leaking from pipeline of sewage treatment plant

Inappropriate management/storage of garbage

Others

Corroded/holed platform of accommodation ladder

Unreported temporary repair with cement box to RO

Oil leakage from hydraulic piston for hatch cover

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 of the present state of PSC and thereby improving future onboard maintenance and inspections as well as Safety Management Systems.
The report consists of the following chapters.

Chapter 1: Measures adopted by ClassNK
Chapter 2: Statistical Analysis of Detained Ships Registered with 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)

Port State Control has been recognized as a very direct and effective means to reduce the number of substandard ships as well as to improve the 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 among 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 it is still expanding as more new concepts of regulations are introduced.

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 vessels.

June 2023

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Chapter 1

Measures Adopted by ClassNK

1.1 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 cooperates 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.

1.2 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 the experienced staff to identify the causes of the deficiencies. In principle, this examination is carried out for all ships for which such reports are received, and the results are circulated to all sections concerned, as necessary. The results are also reflected in 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.

Chapter 2

Statistical Analysis of Detained Ships Registered with 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.1155(32) "Procedures for Port State Control" and
(2) Publications related to detained ships issued by the Tokyo MOU, the Paris MoU, and the USCG.

In 2022, 313 PSC detentions were reported for 303 ships classed by NK. This included cases of detention for reasons not related to class or to NK itself.

2.2 Data on Detentions

2.2.1 Detentions per Ship Type

Table 2.2.1 Detentions per Ship Type

Ship Type	Number of Registered Ships (500GT or over)			Number of Detentions			Detention Ratio (%)		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
Bulk Carrier	3,946	3,982	3,998	170	162	209	4.3	4.1	5.2
General Cargo	661	654	693	40	36	39	6.1	5.5	5.6
Container Carrier	607	643	674	9	12	14	1.5	1.9	2.1
Chip Carrier	117	124	132	4	2	4	3.4	1.6	3.0
Cement Carrier	123	124	128	1	0	0	0.8	0.0	0.0
Ro-Ro Ship	101	100	99	0	0	1	0.0	0.0	1.0
Vehicles Carrier	316	105	108	7	5	6	2.2	1.6	5.6
Reefer Carrier	108	308	309	0	5	2	0.0	4.8	0.6
Oil/Chemical Tanker	1,479	1,446	1,404	14	15	35	0.9	1.0	2.5
Gas Carrier	405	400	404	3	1	1	0.7	0.3	0.2
Others	683	659	661	2	3	2	0.3	0.5	0.3
Total	8,546	8,545	8,610	250	241	313			

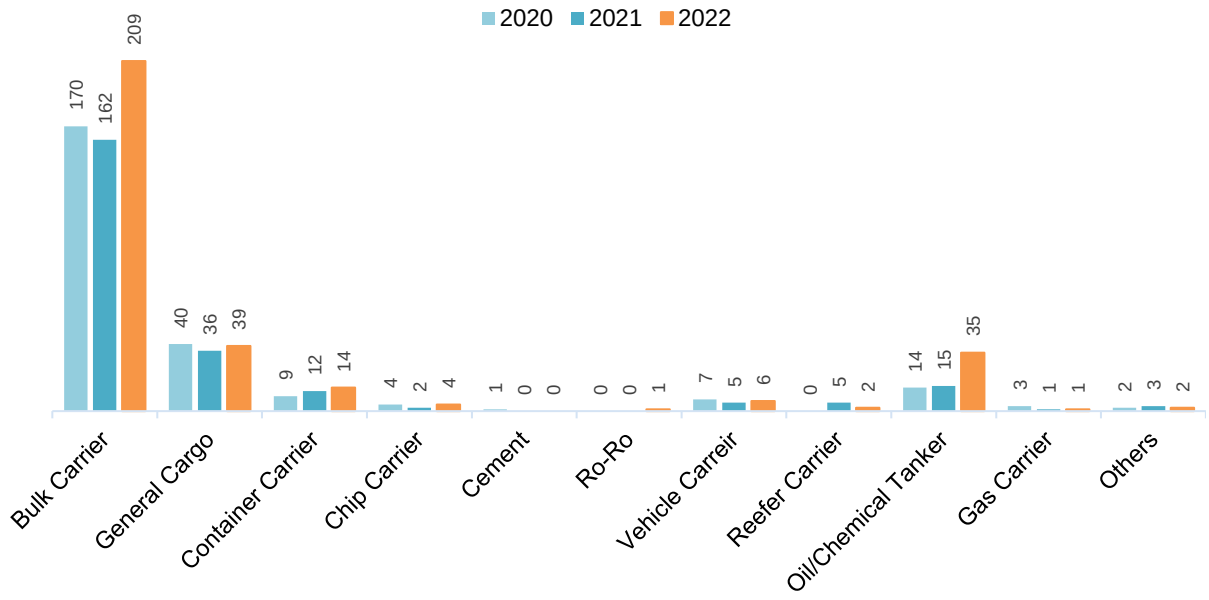

Fig. 2.2.2-1 No. of Detentions per Ship Type

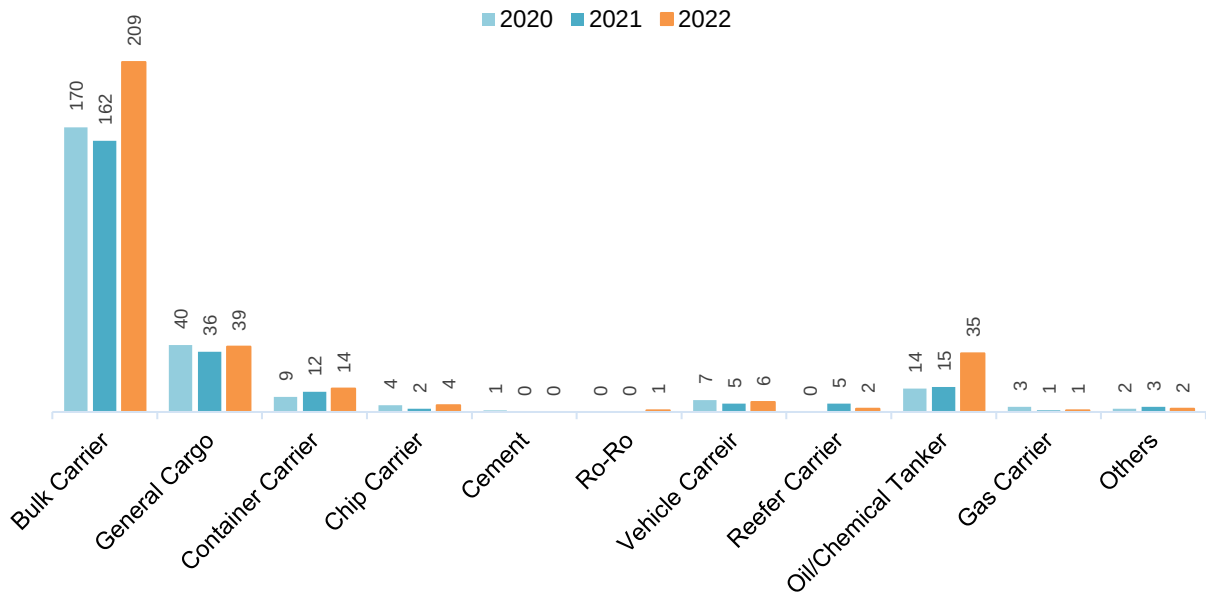

Fig. 2.2.2-2 Detention Ratio per Ship Type (%)

2.2.2 Detentions per Ship Age

Table 2.2.2 Detentions per Ship Age

Ship Age	Number of Registered Ships (500GT or over)			Number of Detentions			Detention Ratio (%)		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
Up to 5 years old	2,157	2,034	1,984	18	10	17	0.8	0.5	0.9
Over 5 and up to 10	2,476	2,367	2,218	65	51	42	2.6	2.2	1.9
Over 10 and up to 15	2,004	2,127	2,241	79	76	116	3.9	3.6	5.2
Over 15 and up to 20	877	1,009	1,095	42	42	63	4.8	4.2	5.8
Over 20 and up to 25	693	653	642	33	36	44	4.8	5.5	6.9
Over 25	339	355	430	13	26	31	3.8	7.3	7.2
Total	8,546	8,545	8,610	250	242	313			

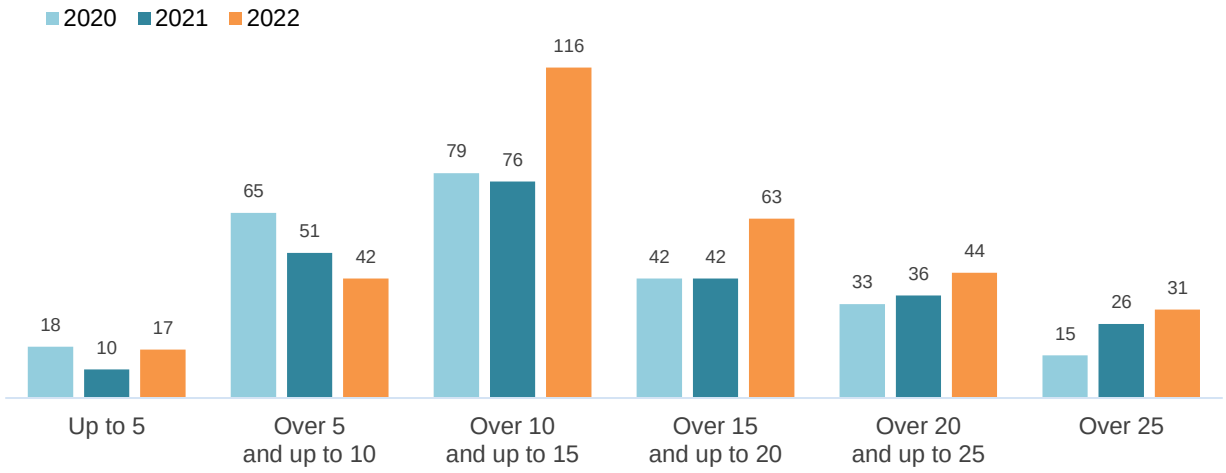

Fig. 2.2.2-1 No. of Detentions per Ship Age

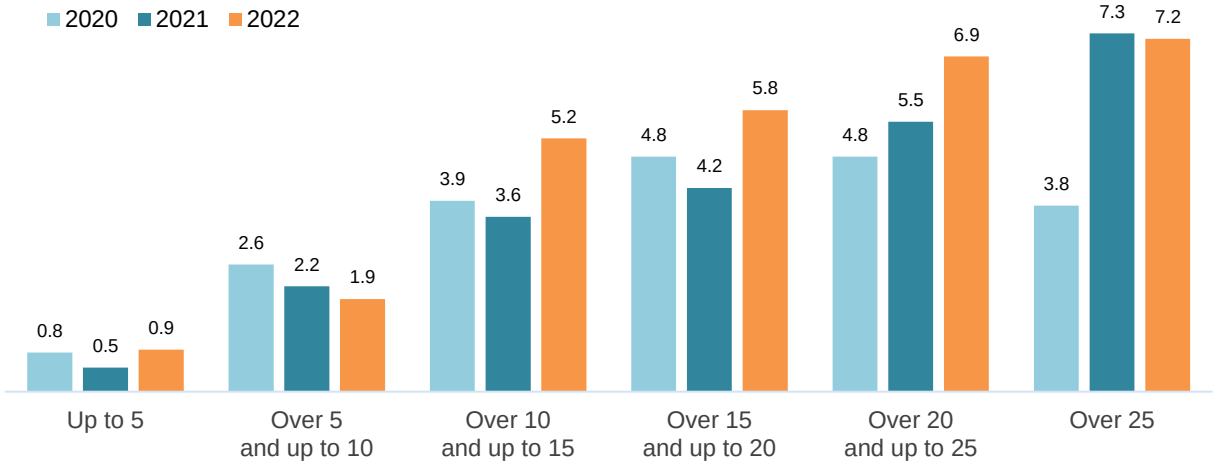

Fig. 2.2.2-2 Detention Ratio per Ship Age (%)

2.2.3 Detentions per PSC Authority

Table 2.2.3 No. of Detentions per PSC Authority

Country	2020	2021	2022
AUSTRALIA	66	44	54
CHINA	9	18	41
RUSSIA	35	33	32
INDONESIA	17	22	22
ITALY	3	12	18
BELGIUM	11	9	13
CANADA	10	8	12
TURKIYE	4	5	8
UNITED STATES (*)	9	8	8
GERMANY	6	7	7
SPAIN	0	3	7
UNITED KINGDOM	1	7	7
JAPAN	10	6	6
KOREA	11	6	6
NETHERLANDS	0	0	6
POLAND	0	4	6
Others	58	49	60
Total	250	241	313

(*) Including Guam, Puerto Rico, and Pago Pago

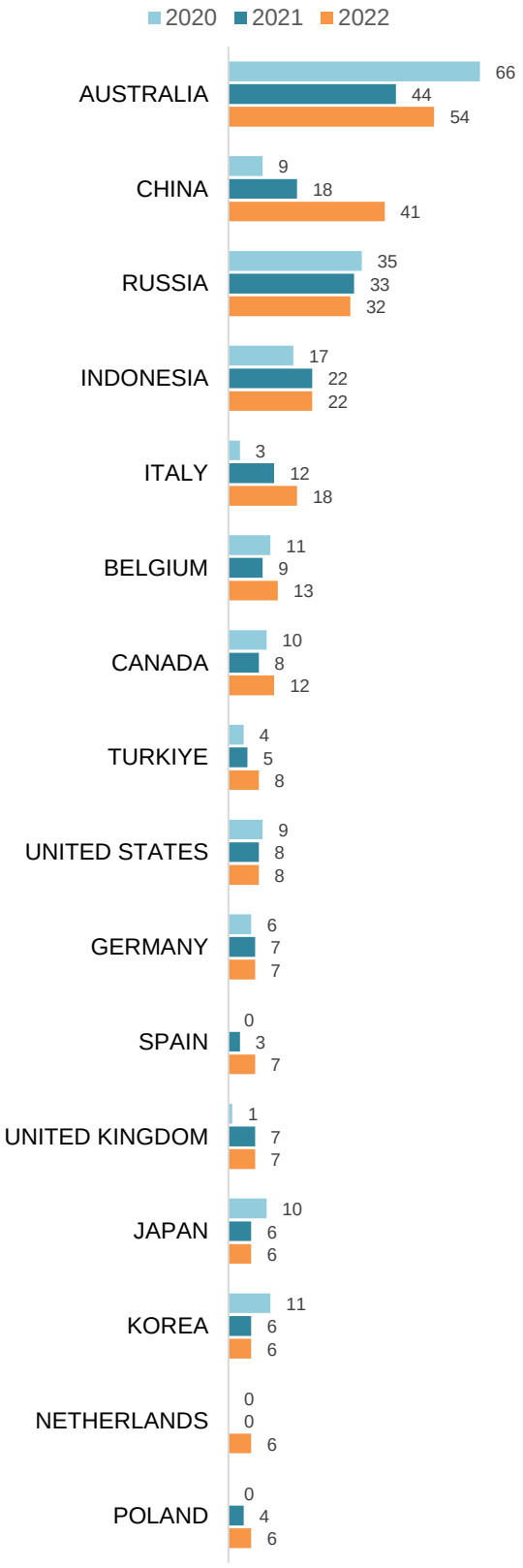

Fig. 2.2.3 No. of Detentions per PSC Authority

2.2.4 Detentions per Tokyo, Paris MOUs and USCG

Table 2.2.6 No. of Detentions per Tokyo, Paris MOUs and USCG

Region	No. of Inspections			No. of Detentions			Detentions Percentage		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
Tokyo MOU (*)	6,489	6,943	7,453	142	111	164	2.19	1.60	2.20
Paris MoU (*)	1,709	2,114	2,375	45	67	98	2.63	3.17	4.13
USCG	1,875	2,660	2,286	10	7	8	0.53	0.26	0.35
Total (*)	10,073	11,717	12,114	197	185	270	1.96	1.58	2.23

(*) : There are overlapping detention cases between Tokyo MOU and Paris MOU (east coast of Canada).

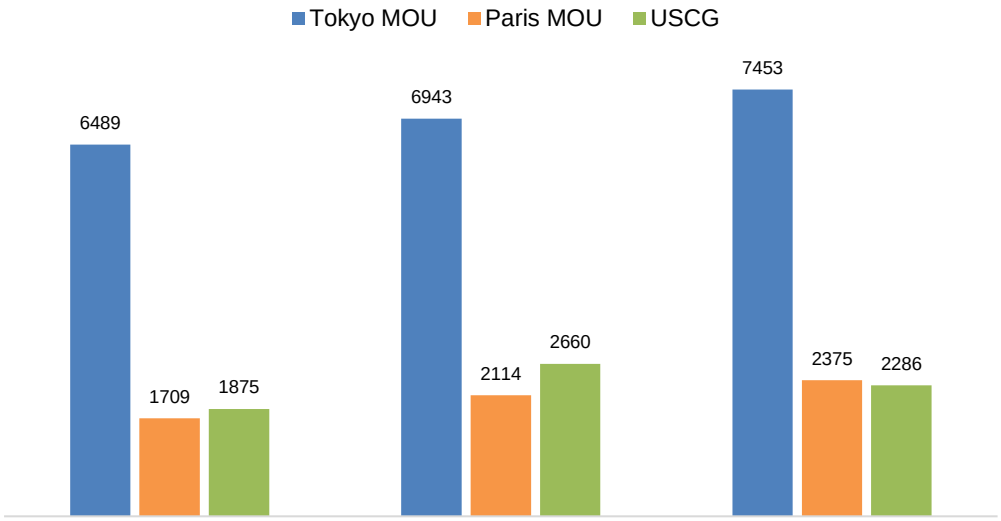

Fig. 2.2.4-1 No. of Inspections per Tokyo, Paris MOUs and USCG

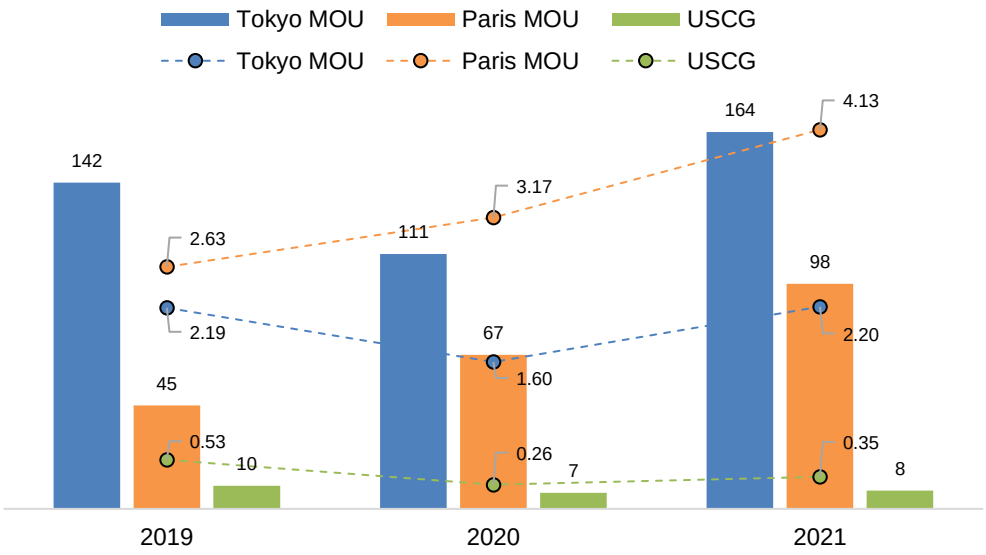

Fig. 2.2.4-2 No. of Detentions and Detention ratio per Tokyo, Paris MOUs and USCG

2.3 Analysis of Detainable Deficiencies

2.3.1 Number of Detainable Deficiencies per Category

In 2022, a total of 1,214 detainable deficiencies were reported in conjunction with 313 detentions. The deficiencies are categorized as shown in Figure 2.3.1 and categories in this figure are based on those of the Tokyo MOU.

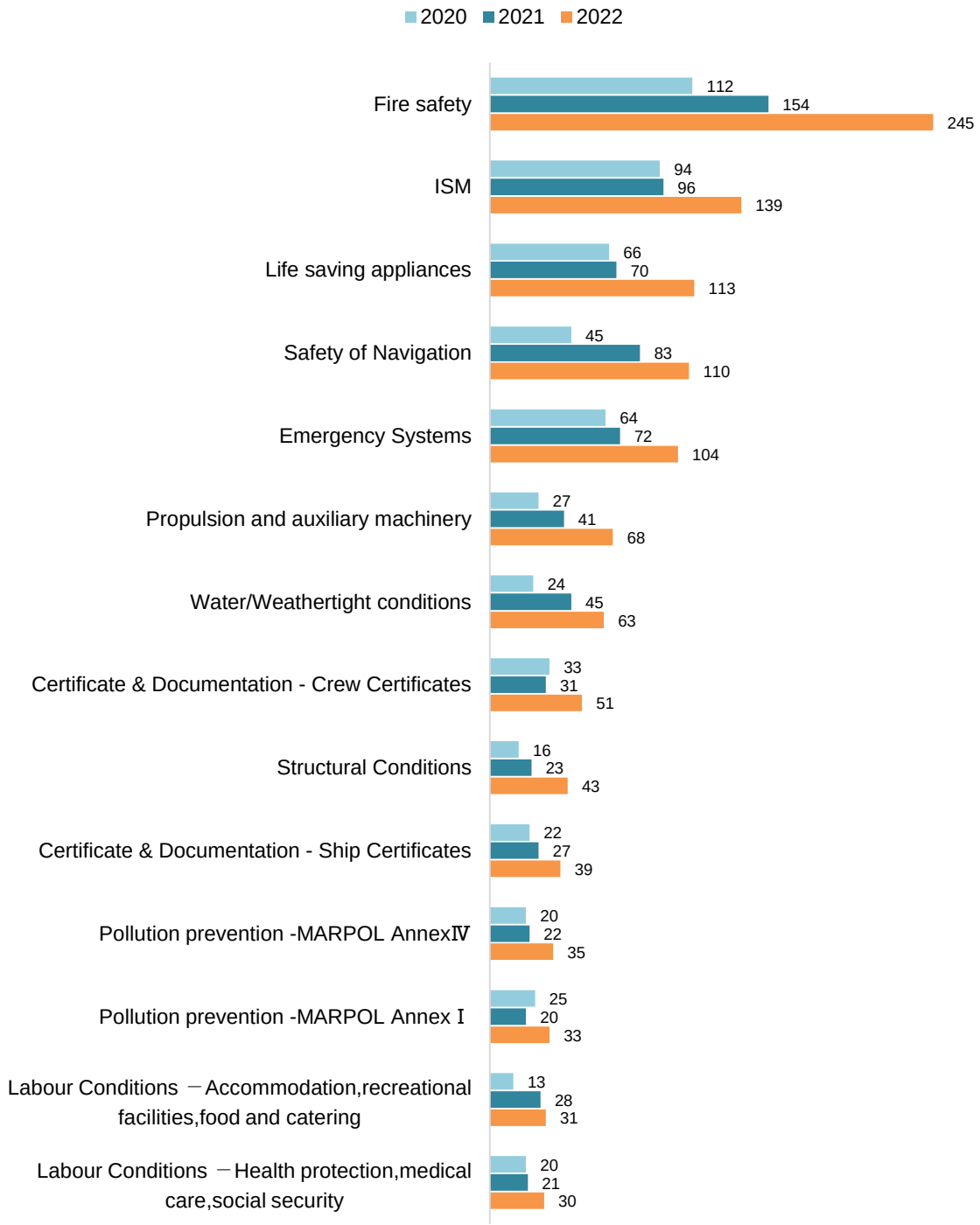

Fig. 2.3.1 No. of Detainable Deficiencies per Category

2.3.2 Number of Detainable Deficiencies per Defective items

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.

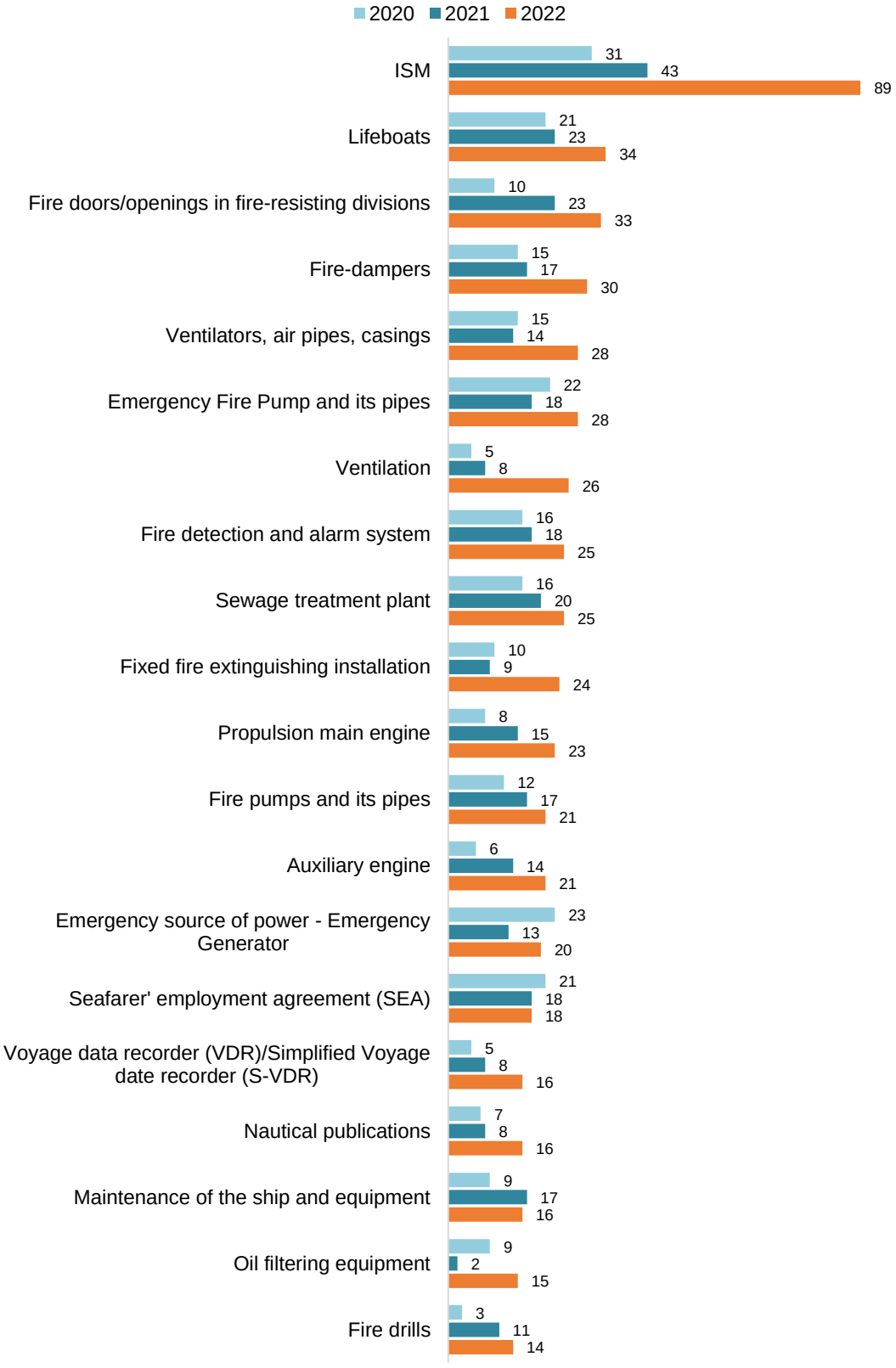

Fig. 2.3.2 No. of Detainable Deficiencies per detective item

2.3.3 Frequently Reported Deficiencies per Category

The deficiencies per category reported from 2020 to 2022 are explained in detail in (1) to (10). (For details of deficiencies related to ISM and MLC, refer to Chapter 3 and Chapter 4.)

(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	2020	2021	2022	Noted Deficiencies
Fire doors/openings in fire-resisting divisions	10	23	33	Unable to close properly (by self-closing device), fitting of hold-back system, unable to lock with latch
Fire-dampers	15	17	30	Worn, unable to close properly
Ventilation	5	8	26	Unable to close properly/stuck
Fire detection and alarm system	16	18	25	Malfunction of fire detector, control panel displaying abnormal reading
Fixed fire extinguishing Installation	10	9	21	Worn/corroded/holed piping line, malfunction
Fire pumps and its pipes	12	17	21	Malfunction of fire pump (incl. for emergency), insufficient pressure, worn/holed/leaking fire main line, malfunction of isolation valves

(2) ISM related deficiencies

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	2020	2021	2022	Noted Deficiencies
Lifeboats	21	23	34	Unable to start engine Poor maintenance of rechargeable batteries Inoperable on-load release gears
Rescue boats	10	9	14	Unable to start engine Poor maintenance of rechargeable batteries
Launching arrangements for rescue boats	4	6	11	Inoperable, Poor maintenance, Inadequate pressure of hydraulic accumulator
Launching arrangements for survival craft	6	1	10	Inoperable, Corrosion/damages, Installation of obstructions, Defective wires for remote control means
Embarkation arrangement survival craft	1	4	8	Poor condition of embarkation ladder, embarkation lights broken/burned out, Installation of obstructions
Operational readiness of lifesaving appliances	7	5	8	Defective engine/instruments of life boat /rescue boat, Defective release systems, Unfamiliarity with tasks

(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 2.3.3-(4) Safety of Navigation

Item	2020	2021	2022	Noted Deficiencies
Voyage data recorder (VDR / S-VDR)	5	8	16	Malfunction
Nautical publications	7	8	16	Not updated, Unavailable
Electronic charts (ECDIS)	5	16	12	Malfunction, ENC not updated
Lights, shapes, sound-signals	5	11	10	Navigation lights damaged (glass cracked, cover worn, etc.)
Charts	8	6	8	Not updated Navigation charts for engaged/intended voyage unavailable
Pilot ladders and hoist/pilot transfer arrangements	0	1	7	Damaged/Worn

(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 2.3.3-(5) Emergency Systems

Item	2020	2021	2022	Noted Deficiencies
Emergency fire pump and its pipes	22	18	28	Inoperable Insufficient discharge pressure
Emergency source of power - emergency generator	23	13	28	Unable to start (including secondary means of starting), Unable to automatically connect to emergency switchboard
Fire drills	13	11	14	Unfamiliarity with operation/procedure/assigned duty
Emergency lighting, batteries and switches	7	9	12	Weak/abnormal batteries, Inoperative/worn/damaged emergency lights
Water level indicator	1	6	11	System malfunction
Abandon ship drills	7	7	8	Unfamiliarity with tasks, operation/procedure/assigned duty

(6) Propulsion and auxiliary machinery

Major types and details of deficiencies noted under the category of "Propulsion and auxiliary machinery" are shown in Table 2.3.3-(6) below.

Table 2.3.3-(6) Propulsion and auxiliary machinery

Item	2020	2021	2022	Noted Deficiencies
Propulsion main engine	8	15	23	Oil/cooling water leakage, Defective instruments
Auxiliary engine	14	6	21	Inoperable auxiliary engines, oil leakage
Bilge pumping arrangements	3	4	9	Inoperable, Suction valve seized/secured

(7) Water/Weathertight conditions

Major types and details of deficiencies noted under the category of "Water/Weathertight conditions" are shown in Table 2.3.3-(7) below.

Table 2.3.3-(7) Water/Weathertight conditions

Item	2020	2021	2022	Noted Deficiencies
Ventilators, air pipes, casings	6	15	28	Corroded/seized flaps/covers of ventilators and float of air pipe heads
Hatch covers Cargo and other hatchways	8	14	17	Worn/corroded/holed, Worn/missing cleats, Oil leakage from hydraulic oil system, Worn/missing rubber packing
Doors	2	9	7	Corroded/worn, Not properly closed, Worn/missing rubber packing

(8) Crew Certificate

Major types and details of deficiencies noted under the category of "Crew Certificate" are shown in Table 2.3.3-(8) below.

Table 2.3.3-(8) Crew Certificates

Item	2020	2021	2022	Noted Deficiencies
Seafarers' employment agreement (SEA)	21	18	18	Contract expired, unsuitable contract, continuously employed on board for long period, Inappropriate/unpaid wages
Endorsement from flag state	1	2	10	(Original) certificate not available onboard, Expired
Certificates for master and officers	1	1	6	Not available onboard Unsuitable certificate
Medical certificate	1	2	5	Expired Not available onboard

(9) Structural Conditions

Major types and details of deficiencies noted under the category of "Structural Conditions" are shown in Table 2.3.3-(9) below.

Table 2.3.2-(9) Structural Conditions

Item	2020	2021	2022	Noted Deficiencies
Ballast, fuel and other tanks	4	3	10	Insufficient condition of piping/valves, Leakage, Improper operation
Enhanced survey program	0	0	7	ESP Fil/Survey Record not available on board.
Decks – corrosion	0	1	4	Corrosion of pipes/supports/bolts
Bulk carriers add. Safety measures	1	1	4	Malfunction of remote-controlled valves for water ingress system

(10) MARPOL (All)

Major types and details of deficiencies noted under the category of "MARPOL" are shown in the Table 2.3.3-(10) below.

Table 2.3.3-(10) MARPOL (All)

Item	2020	2021	2022	Noted Deficiencies
Sewage treatment plant (Annex IV)	16	20	25	Malfunction, defective instruments
Oil filtering equipment (Annex I)	9	2	15	Unfamiliarity with operation, malfunction
15ppm alarm arrangement (Annex I)	2	6	7	3-way valves/alarm malfunction, Unfamiliarity with operation
Garbage (Annex V)	2	1	4	Inappropriate management/storage

2.4 Analysis of Detainable Deficiencies per PSC Authority

Most frequent detainable deficiencies per PSC Authority are shown in Tables 2.4.1 to 2.4.8 according to the number of detentions reported from 2020 to 2022. (For 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	2020	2021	2022
ISM	24	16	21
Fire safety	11	6	12
Pollution prevention -MARPOL Annex I	1	2	8
Life saving appliances	20	13	7
Water/weathertight conditions	9	4	5
Pollution prevention -MARPOL Annex IV	3	2	5
Emergency systems	13	6	4

Defective Items	2020	2021	2022
Fire-dampers	4	3	10
ISM & Other (ISM)	14	6	8
Sewage treatment plant	3	2	5
Maintenance of the ship and equipment	5	4	5
Emergency source of power - emergency generator	8	2	4
Oil filtering equipment	0	1	4
Shipboard operations	3	4	4
Operational readiness of lifesaving appliances	5	4	3
15ppm Alarm arrangements	0	1	3
Other (SOLAS operational)	2	1	3

A total of 77 detainable deficiencies relating to 54 detentions were noted in 2022. (1.4 detainable deficiencies/detentions)

2.4.2 China

Table 2.4.2 China

Category of Detainable Deficiency	2020	2021	2022
Fire Safety	3	2	23
Life saving appliances	1	2	14
Emergency Systems	2	2	10
Radio Communications	0	1	10
Water/Weathertight conditions	0	2	9
Propulsion and auxiliary machinery	0	4	9
Safety of Navigation	2	8	8

Defective Items	2020	2021	2022
Fire pumps and its pipes	1	0	7
Propulsion main engine	0	4	7
Emergency fire pump and its pipes	0	1	6
Lifeboats	0	0	6
MF /HF radio installation	0	0	5
Fixed fire extinguishing installation	1	0	5
Fire detection and alarm system	0	2	4

A total of 117 detainable deficiencies relating to 41 detentions were noted in 2022. (2.9 detainable deficiencies/detentions)

2.4.3 Indonesia

Table 2.4.3 Indonesia

Category of Detainable Deficiency	2020	2021	2022
Pollution prevention - MARPOL Annex IV	8	9	16
Fire safety	7	11	12
Life saving appliances	5	2	8
Emergency systems	7	2	6
ISM	8	5	6

Defective Items	2020	2021	2022
Sewage treatment plant	6	9	11
Ventilation	0	1	9
Lifeboats	2	1	4
Other (MARPOL Annex IV)	1	0	4
Emergency source of power - Emergency Generator	4	1	3

A total of 61 detainable deficiencies relating to 22 detentions were noted in 2022. (2.8 detainable deficiencies/detentions)

2.4.4 Italy

Table 2.4.4 Italy

Category of Detainable Deficiency	2020	2021	2022
Fire safety	4	20	38
Life saving appliances	1	6	18
ISM	3	8	17
Emergency Systems	5	5	16
Labour Conditions – Accommodation, recreational facilities, food and catering	1	4	11

Defective Items	2020	2021	2022
ISM	3	8	17
Fire doors / openings in fire-resisting divisions	2	2	9
Fire fighting equipment and appliances	0	3	8
Fire drills	1	2	6
Fixed fire extinguishing installation	1	0	4
Remote Means of control (opening, pumps, ventilation, etc.) Machinery spaces	0	1	4
Fire-dampers	1	0	4

A total of 147 detainable deficiencies relating to 18 detentions were noted in 2022.
(8.2 detainable deficiencies/detentions)

2.4.5 Belgium

Table 2.4.5 Belgium

Category of Detainable Deficiency	2020	2021	2022
Certificate & documentation – Ship certificates	1	0	21
Structural Condition	4	1	16
Fire safety	14	10	16
Water/Weathertight conditions	1	2	13
Life saving appliances	2	3	13
ISM	8	8	13
Certificate & documentation - crew certificates	10	6	11
Safety of navigation	7	6	10
Emergency systems	2	4	8

Defective Items	2020	2021	2022
ISM	8	8	13
Seafarer employment agreement (SEA)	9	6	9
Ventilators, air pipes, casings	0	0	7
Cargo Ship Safety Construction (including Exemption)	1	0	5
Ballast, fuel and other tanks	1	0	4
Enhanced survey program (ESP)	0	0	4
Emergency Fire Pump and its pipes	1	0	4
Fixed fire extinguishing installation	0	0	4

A total of 142 detainable deficiencies relating to 13 detentions were noted in 2022.
(10.9 detainable deficiencies/detentions)

2.4.6 Canada

Table 2.4.6 Canada

Category of Detainable Deficiency	2020	2021	2022
Fire safety	1	3	11
Emergency Systems	2	1	7
ISM	3	3	6
Life saving appliances	3	1	4
Pollution prevent – MARPOL Annex I	1	0	3
Labour Conditions - Health protection, medical care, social security	0	1	3

Defective Items	2020	2021	2022
ISM (All)	2	3	6
Fire fighting equipment and appliances	0	1	3
Seafarer employment agreement (SEA)	2	5	2

A total of 44 detainable deficiencies relating to 12 detentions were noted in 2022.
(3.7 detainable deficiencies/detentions)

2.4.7 United States

Table 2.4.7 United States(*)

Category of Detainable Deficiency	2020	2021	2022
ISM	7	7	7
Fire safety	17	11	4
Life Saving Appliance	0	2	2
Pollution prevention -MARPOL Annex Ⅰ	1	0	2

Defective Items	2020	2021	2022
Maintenance of the ship and equipment	2	7	3
Oil accumulation in engine room	11	2	2
Control of discharge	0	0	2
Fixed fire extinguishing installation	3	1	1

(*): Including Guam, Puerto Rico

A total of 21 detainable deficiencies relating to 8 detentions were noted in 2022.
(2.6 detainable deficiencies/detentions)

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 a Safety Management Certificate (hereafter, "SMC") issued by the Society (hereafter, "NK SMC ships") based on PSC Inspection Reports NK has obtained.

Table 3.1 shows the registered number of NK SMC ships. The NK class ships account for 91.5% of the NK SMC ships.

Table 3.1 Number of NK SMC Ships (per Class)

Classification	2020		2021		2022	
NK class	5,220	90.4%	5,188	91.0%	5,130	91.5%
Other class	554	9.6%	511	9.0%	475	8.5%
Total	5,774		5,699		5,605	

Note: Figures are of ships engaged in international voyages, including those under 500 GT

3.2 Statistics of Detained NK SMC Ships

In 2022, the total number of detained NK SMC ships was 220, which was 3.9% of all NK SMC ships, or 5,605 (hereafter, "Detention Ratio").

Table 3.2.1 shows the number of detentions and the detention ratio per ship type.

Table 3.2.1 Number of Detentions and Detention Ratio of NK SMC Ships per Ship Type (SOLAS IX)

Type of Ship	2020			2021			2022		
	(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Bulk Carrier	128	2,551	5.0%	116	2,253	5.1%	151	2,217	6.8%
Other Cargo Ship	42	1,995	2.1%	45	1,805	2.5%	41	1,806	2.3%
*Chemical Tanker	5	573	0.9%	8	573	1.4%	19	548	3.5%
Oil Tanker	3	372	0.8%	5	801	0.6%	8	791	1.0%
Gas Carrier	3	282	1.1%	1	266	0.4%	1	242	0.4%
MODU	0	1	0.0%	0	1	0.0%	0	1	0.0%
Passenger Ship	0	0	0.0%	0	0	0.0%	0	0	0.0%
High Speed Craft	0	0	0.0%	0	0	0.0%	0	0	0.0%
Total	181	5,774	3.1%	175	5,699	3.1%	220	5,605	3.9%

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

Table 3.2.2 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 authority is shown.

Table 3.2.2 Number of Detentions and Detention Ratio of ISM Detention Cases per PSC Authority

Country		2020			2021			2022		
		(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
Australia		25	62	40.3%	16	40	40.0%	19	51	37.3%
China		3	5	60.0%	3	12	25.0%	5	27	18.5%
Indonesia		6	12	50.0%	4	18	22.2%	5	16	31.3%
Russia		7	21	33.3%	5	24	20.8%	8	20	40.0%
USA		5	7	71.4%	6	7	85.7%	8	8	100%
EU	Belgium	7	8	87.5%	7	8	87.5%	8	9	88.9%
	Italy	2	2	100%	3	6	50.0%	7	8	87.5%
	UK	1	1	100%	3	3	100%	4	7	57.1%
	Other Members	10	14	71.4%	11	21	52.4%	11	19	57.9%
Other Countries		14	49	28.6%	10	36	27.8%	17	55	30.9%
Total		80	181	44.2%	68	175	38.9%	92	220	41.8%

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

3.3 Study of ISM Detainable Deficiencies

This section introduces studies of ISM detainable deficiencies recorded in Australia, Belgium, and USA which were the top three (3) countries with the highest number of ISM detention cases in 2022, and some of the objective evidence of the ISM detention by each country.

Deficiency Codes of ISM deficiencies specified by Tokyo MOU, which Australia participates in, and USCG, which USA organizes, are as follows in Table 3.3. Also, the deficiency code of ISM deficiencies specified by Paris MOU, which Belgium participates in, is “15150 - ISM” only.

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

Def. Code	ISM Code Element	Defective Item
15101	2	Safety and Environmental Policy
15102	3	Company Responsibility and Authority
15103	4	Designated Person(s)
15104	5	Masters Responsibility and Authority
15105	6	Resources and Personnel
15106	7	Shipboard Operations
15107	8	Emergency Preparedness
15108	9	Reports of Non-conf., accidents & hazardous occur.
15109	10	Maintenance of the ship and equipment
15110	11	Documentation- ISM
15111	12	Company Verification, Review and Evaluation
15112	13	Certification, Verification and Control
15113	-	Other (ISM)　(for USCG)
15199	-	Other (ISM)　(for TOKYO MOU)

Deficiency Code per ISM Code Element (Paris MOU)

Def. Code	Defective Item
15150	ISM

3.3.1 Australia

Table 3.3.1(a) shows the number of ISM detainable deficiencies per Deficiency Code. Table 3.3.1(b) shows the number of deficiencies regarded as the evidence of ISM detainable deficiencies per Deficiency Code. In Australia, “15199 - Other (ISM)” was most frequently recorded as an ISM detainable deficiency. For cases where plural ISM code elements corresponding to the objective evidence of ISM detention were found, “15199-Other (ISM)” was recorded. Typical objective evidence of the ISM detainable deficiencies are mainly as follows.

- Damage and/or wear of securing devices (cleats) or cleat crutches of cargo hatch covers
- Emergency generator defective
- Malfunction of fire damper’s operations
- Rescue/lifeboat defective
- Sewage treatment plant defective
- Oil filtering equipment automatic stopping device defective
- Two-way VHF radiotelephone defective

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

Code	Item	2020	2021	2022
15105	Resources and personnel	1	0	2
15106	Shipboard operations	3	4	4
15107	Emergency preparedness	1	2	1
15109	Maintenance of the ship and equipment	5	4	6
15199	Other (ISM)	17	6	7
TOTAL		27	16	20

Table 3.3.1(b) Number of deficiencies regarded as objective evidence of ISM Detainable Deficiencies per Deficiency Code

Code	Item	No.
03108	Ventilators, air pipes, casings	2
03112	Scuppers, inlets, and discharges	2
04114	Emergency source of power - Emergency Generator	4
07115	Fire-dampers	9
11101	Lifeboats	2
11129	Operational readiness of lifesaving appliances	3
14104	Oil filtering equipment	2
14108	15 PPM Alarm arrangements	3
14402	Sewage treatment plant	4
Others		82

3.3.2 Belgium

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 objective evidence of ISM detainable deficiencies per Deficiency Code. Typical objective evidence of the ISM detainable deficiencies are mainly as follows.

- Invalid statutory certificate
- Invalid seafarers' employment agreement
- Vent heads for ballast tank damaged
- Emergency fire pump inoperative
- Fixed firefighting system inoperative
- Priming unit installed on the pump inoperative

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

Code	Item	2020	2021	2022
15150	ISM	11	10	9

Table 3.3.2(b) Number of Deficiencies Regarded as the Evidence of ISM Detainable Deficiencies per Deficiency Code

Code	Item	No.
01101	Cargo Ship Safety Equipment (including Exemption)	7
01108	Cargo Ship Radio (including Exemption)	2
01117	International Oil Pollution Prevention (IOPP)	3
01136	Ballast Water Management Certificate	3
01220	Seafarers' employment agreement (SEA)	5
03108	Ventilators, air pipes, casings	3
04102	Emergency Fire Pump and its pipes	3
07109	Fixed fire extinguishing installation	4
13104	Bilge pumping arrangements	2
Others		83

3.3.3 USA

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 evidence of ISM detainable deficiencies per Deficiency Code. In the USA, “15109 - Maintenance of the ship and equipment” was most frequently recorded as ISM detainable deficiencies. Typical objective evidence of the ISM detainable deficiencies are mainly as follows.

- Fire detector inoperative
- Fuel oil leaks from the main/auxiliary engine
- Rescue/lifeboat davit inoperable
- Fails to execute the maintenance requirements of SMS on board

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

Code	Item	2020	2021	2022
15101	Safety and environmental policy	1	0	0
15102	Company responsibility and authority	0	0	1
15106	Shipboard operations	2	1	0
15108	Reports of NCs, accidents and hazardous occur	1	0	1
15109	Maintenance of the ship and equipment	3	7	5
15110	Documentation - ISM	1	0	0
TOTAL		8	8	7

Table 3.3.3(b) Number of Deficiencies Regarded as the Evidence of ISM Detainable Deficiency per Deficiency Code

Code	Item	No.
07106	Fire detection and alarm system	3
07126	Oil accumulation in engine room	2
09110	Electrical devices	2
11117	Lifebuoys incl. provision and disposition	2
11135	Maintenance of Life Saving Appliances	2
13108	Operation of machinery	2
Others		19

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 a 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. 91.2% of the NK MLC ships are classed with the Society.

Table 4.1 Number of NK MLC Ships (per Class)

Classification	2020		2021		2022	
NK class	4,957	89.3%	4,897	90.4%	4,939	91.2%
Other class	596	10.7%	522	9.6%	477	8.8%
Total	5,470		5,419		5,416	

4.2 Statistics of Detained NK MLC Ships

As of the end of April 2023, 102 countries have ratified MLC, 2006 and many countries have been carrying out PSC inspections based on the convention. For detailed information on enforcement by country, 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

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.

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

Country		2020	2021	2022
Australia		6	2	3
Canada		3	5	1
Japan		3	1	1
Russia		3	3	1
EU	Belgium	7	5	3
	Germany	4	5	4
	Italy	0	3	3
	Other EU Members	4	8	2
Other Countries		2	3	5
Total		32	35	23

4.3 Study of MLC Detainable Deficiencies

This section introduces the studies of detainable deficiencies related to MLC, 2006 (hereafter, "MLC detainable deficiencies") and MLC deficiencies recorded as objective evidence of ISM detainable deficiencies for NK MLC ships in 2022. 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 major MLC deficiencies regarded as objective evidence of ISM detainable deficiencies are shown in Table 4.3.3. As for the MLC detainable deficiencies, "01220 - Seafarers' employment agreement (SEA)" was most frequently recorded on NK MLC ships in 2022.

On the other hand, the top 3 deficiencies recorded as objective evidence of ISM detainable deficiencies in MLC deficiencies are as follows.

- Top.1: "01220 - Seafarers' employment agreement (SEA)" (11)
  (Typical Deficiency: SEA expired)
- Top.2: "18204 – Calculation and payment of wages" (4)
  (Typical Deficiency: Salary not paid to seafarers)
- Top.3: "01218 – Medical Certificate" (3)
  (Typical Deficiency: Medical Certificate expired)
- Top.3: "18302 – Sanitary facilities" (3)
  (Typical Deficiency: Sanitary facilities in unhygienic and damaged condition)
- Top.3: "18312 – Galley, handling room (maintenance)" (3)
  (Typical Deficiency: Galley in dirty and unhygienic condition)
- Top.3: "18424 – Steam pipes, pressure pipes, wires (insulation)" (3)
  (Typical Deficiency: Leakage from pipes)

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 Seafarers' Daily Hours of Work or Rest (Records of Rest)
	01330	Procedure for Complaint under MLC, 2006
	01331	Collective Bargaining Agreement
	01336	Certificate or documentary evidence of financial security for repatriation
	01337	Certificate or documentary evidence of financial security relating to shipowners liability
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*
01xxx	**Certificates & Documentation**		
01218	Medical certificate	3	CHN, GBR
01220	Seafarers' employment agreement (SEA)	11	ARG, BEL, CAN, CHN, GBR, NLD
01221	Record of employment	1	BEL
18xxx	**Labour Conditions (MLC, 2006)**		
18203	Wages	2	AUS, DEU
18204	Calculation and payment of wages	4	AUS, BEL, DEU, GBR
18299	Other (Conditions of employment)	2	CAN, JPN
18302	Sanitary facilities	3	DEU, GBR
18306	Sleeping room, additional spaces	2	DEU
18311	Mess room and recreational facilities	2	IND, DEU
18312	Galley, handling room (maintenance)	3	ITA, DEU
18313	Cleanliness	2	GBR, DEU
18316	Water, pipes, tanks	2	AUS, ITA
18321	Heating, air conditioning and ventilation	1	GHA
18324	Cold room, cold room cleanliness, cold room temperature	2	DEU, GBR
18407	Lighting (Working spaces)	1	DEU
18408	Electrical	1	IDN
18409	Dangerous areas	1	BEL
18418	Winches and capstans	2	BEL, RUS
18419	Adequate lighting- mooring arrangements	1	BEL
18420	Cleanliness of engine room	2	BEL, NLD
18424	Steam pipes, pressure pipes, wires (insulation)	3	DEU, ITA, NLD
18427	Ship's occupational safety and health policies and programs	1	CAN
18428	On board program for the prevention of occupational injuries and diseases	1	CAN
18431	Investigation after accident	1	CAN
Total		54	-

***Country Code**

Code	Country	Code	Country	Code	Country
AUS	Australia	ARG	Argentina	BEL	Belgium
CAN	Canada	CHN	China	DEU	Germany
GBR	UK	GHA	Ghana	IDN	Indonesia
IND	India	ITA	Italy	JPN	Japan
NLD	Netherlands	RUS	Russia	--	--

Table 4.3.3 Major MLC Deficiencies Regarded as the Evidence of ISM Detainable Deficiencies

Code	Item	No.
01xxx	**Certificates & Documentation**	
01220	Seafarers' employment agreement (SEA)	8
01308	Records of rest	3
18xxx	**Labour Conditions (MLC, 2006)**	
18203	Wages	6
18302	Sanitary facilities	7
18312	Galley, handling room (maintenance)	8
18313	Cleanliness	7
18324	Cold room, cold room cleanliness, cold room temperature	4
18407	Lighting (Working spaces)	3
18408	Electric	6
18420	Cleanliness of engine room	5
18424	Steam pipes, pressure pipes, wires (insulation)	9
-	Other Deficiencies with 18xxx	27
Total		93

(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 the deficiency code 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 2022.

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

Code	Item	No.
091xx	**Living Conditions**	
09127	Cleanliness	2
092xx	**Working Conditions**	
09232	Cleanliness of engine room	2
09211	Steam pipes and pressure pipes	1
Total		5

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